FINAL
2018 SHELTER ISLAND YACHT BASIN DISSOLVED COPPER TOTAL MAXIMUM DAILY LOAD MONITORING AND PROGRESS REPORT

Submitted to:
California Regional Water Quality Control Board
San Diego Region

Prepared by:

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Prepared for:

Port of San Diego

March 2019

Wood Project No. 1715100617

PORT of SAN DIEGO
Waterfront of Opportunity

March 28, 2019

California Regional Water Quality Control Board
San Diego Region
Mr. Wayne Chiu
2375 Northside Drive, Suite 100
San Diego, CA 92108-2700

Subject: Submittal of the 2018 Shelter Island Yacht Basin Total Maximum Daily Load Monitoring and Progress Report

Dear Mr. Chiu,

Please find enclosed a hard copy and CD of the 2018 Shelter Island Yacht Basin Total Maximum Daily Load Monitoring and Progress Report.

Following submission of this report, the Port and the Shelter Island Master Leaseholders Group would like to meet with you and go over the report, address any of your questions, and discuss direction regarding the final compliance phase of the TMDL.

I will be following up shortly to schedule a meeting at your convenience.

Please feel free to contact me at (619) 686-6372 if you have any questions on the information provided above.

Respectfully,

Kelly Tait

Kelly Tait, Senior Environmental Specialist
Environmental Protection
San Diego Unified Port District

KT/ab
Attachments: 2018 Shelter Island Yacht Basin Total Maximum Daily Load Monitoring and Progress Report & CD
cc: Jason H. Giffen, John Carter
D2#: 1570935

March 2019

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Karen Holman
Director
Environmental Protection
San Diego Unified Port District

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ACRONYMS AND ABBREVIATIONS

303(d) list	Clean Water Act Section 303(d) list of water quality impaired segments
AAPA	American Association of Port Authorities
AB	Assembly Bill
AFP	antifoulant paint
Basin Plan	Water Quality Control Plan for the San Diego Basin – Region 9
BMP	best management practice
CA	California
CCC	criterion continuous concentration
CCR	California Code of Regulations
CMANC	California Marine Affairs and Navigation Conference
CMC	criterion maximum concentration
COC	chain-of-custody
CTD	conductivity, temperature, and depth
CTR	California Toxics Rule
Cu	copper
CWA	Clean Water Act
DO	dissolved oxygen
DOC	dissolved organic carbon
DPR	Department of Pesticide Regulation
DPR Rule	Section 6190 of Title 3, California Code of Regulations
EC_{50}	median effective concentration
ELAP	California Environmental Laboratory Accreditation Program
FAQ	frequently asked question
H_2SO_4	sulfuric acid
HPB	Harbor Police Dock
ID	identification
Investigative Order	Investigative Order No. R9-2011-0036
ISO	International Organization for Standardization
LC_{50}	median lethal concentration
LID	low impact development
LOEC	lowest observed effect concentration
MAR	marine habitat
MIACC	Marina Inter-Agency Coordinating Committee
Monitoring Plan	SIYB Dissolved Copper TMDL Monitoring Plan
MS4	Municipal Separate Storm Sewer System
N/A	not applicable
Nautilus	Nautilus Environmental
NOEC	no observed effect concentration
OAL	Office of Administrative Law
OSHA	Occupational Safety and Health Administration
PDF	Portable Data Format
PMSD	percent minimum significant difference
Port	San Diego Unified Port District
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
Regional Board	San Diego Regional Water Quality Control Board
Ref	reference
RFP	request for proposal
RHMP	Regional Harbor Monitoring Program
SBE	Sea-Bird Electronics
SCCWRP	Southern California Coastal Water Research Project
SIML	Shelter Island Master Leaseholders

ACRONYMS AND ABBREVIATIONS (continued)

SIYB	Shelter Island Yacht Basin
SM	Standard Method
SoCal SETAC	Southern California Society of Environmental Chemistry and Toxicology
SOP	standard operating procedure
SUSMP	Standard Urban Stormwater Mitigation Plan
SWAMP	Surface Water Ambient Monitoring Program
SWQMP	Stormwater Quality Management Plan
SWRCB	State Water Resources Control Board
Time Series Study	24-Hour Time Series Analysis of Dissolved Copper in SIYB
TMDL	Total Maximum Daily Load
TOC	total organic carbon
TSS	total suspended solids
TST	test of significant toxicity
USEPA	United States Environmental Protection Agency
Weck	Weck Laboratories, Inc.
Weston	Weston Solutions, Inc.
WILD	wildlife habitat
Wood	Wood Environment & Infrastructure Solutions, Inc.
WQO	water quality objective
YSI	YSI Incorporated

UNITS OF MEASURE

%	percent
±	plus or minus
°C	degree(s) Celsius
~	approximately
<	less than
>	greater than
≤	less than or equal to
≥	greater than or equal to
µ	micron(s)
µg	microgram(s)
µg/cm^2/day	micrograms per square centimeter per day
µg/L	microgram(s) per liter
µm	micrometer(s)
cm^2	square centimeter(s)
ft	feet or foot
kg	kilogram(s)
kg/yr	kilograms per year
kg/yr/vessel	kilograms per year per vessel
L	liter(s)
m	meter(s)
m^2	square meter(s)
mg	milligram(s)
mg/L	milligram(s) per liter
mL	milliliter(s)
pH	hydrogen ion concentration
ppt	part(s) per thousand
yr	year(s)

EXECUTIVE SUMMARY

This report is the annual Shelter Island Yacht Basin (SIYB) Dissolved Copper Total Maximum Daily Load (TMDL) Monitoring and Progress Report for 2018, which has been prepared in compliance with Investigative Order No. R9-2011-0036 (Investigative Order), issued by the San Diego Regional Water Quality Control Board (Regional Board) to the San Diego Unified Port District (Port) on March 11, 2011. The Investigative Order states that TMDL implementation progress is to be determined by (1) tracking data on the number of vessels that have converted from using copper-based hull antifoulant paints (AFPs) to using alternative AFPs (low- and non-copper based), and (2) monitoring dissolved copper concentrations and toxicity in the water column. Passive leaching of copper from vessel hull paints has been identified as the major source of dissolved copper in SIYB; it composes 93 percent of the total load, according to the TMDL. The dissolved copper load attributed to in-water hull cleaning (5 percent) was identified as the second highest source in SIYB.

The 2018 monitoring period is the first year of the final phase of the TMDL compliance period. Per the TMDL implementation, the continuation of a 40 percent load reduction is required. Looking ahead, a 76 percent load reduction is required to meet TMDL compliance by the end of 2022. Per the requirements of the Investigative Order, the SIYB TMDL Monitoring Plan (Wood Environment & Infrastructure Solutions, Inc. [Wood], 2018a) describes the monitoring program that is used to track the progress of implementing the SIYB Dissolved Copper TMDL and achieving the required dissolved copper load reductions.

This 2018 Monitoring and Progress Report follows the approach described in the most recent Monitoring Plan. It presents best management practice (BMP) implementation in SIYB and San Diego Bay, vessel conversions to low-copper paints and non-copper alternatives, and water quality monitoring results, as required by the Investigative Order.

Best Management Practice Implementation

A variety of BMPs intended to reduce dissolved copper loading and improve water quality have been identified; the Port and SIYB marinas and yacht clubs have implemented several of these BMPs. During 2018, a number of BMPs continued or were newly implemented, including:

- Ongoing education and outreach efforts, such as regular meetings with stakeholders and up-to-date web content, workshops, and presentations at conferences;
- Improving the accuracy of vessel tracking efforts through one-on-one consulting with groups responsible for vessel tracking;
- Continuing efforts to encourage the use of low-leach copper paints (i.e., Department of Pesticide Regulation [DPR] Category I paints [i.e., paints with leach rates ≤9.5 micrograms per square centimeter per day (µg/cm^2/day)]) and non-copper alternatives;
- Co-hosting a workshop with the DPR to educate boatyard personnel and paint manufacturer representatives regarding implementation of the DPR Rule. This rule mandates that for recreational vessels, only copper AFPs with a leach rate of ≤9.5 µg/cm^2/day (i.e., DPR Category I paints) can be purchased in the state of California;
    - Note: The United States Environmental Protection Agency (USEPA) federally adopted the DPR Rule to establish a maximum leach rate of ≤9.5 µg/cm^2/day in copper antifoulant paints in December 2018.

- Pursuing alternative methods for copper reduction and removal in marine waters through the Port's Blue Economy Incubator, which supports research and development of pilot projects aimed at solving environmental issues; and
- Presenting updates on the Port's Copper Reduction Program and activities at various conferences, including the California Marine Affairs and Navigation Conference in January 2018, and the Marinas and Recreational Boating Interagency Coordinating Committee October 2018 meeting.

Vessel Conversions and Reduction of Dissolved Copper

Based on the vessel tracking assumptions discussed in Section 2.3.4 of this report, the transition of a vessel from a high-copper to non-copper hull paint was assumed to reduce annual loading by 0.9 kilogram per year (kg/yr) and the transition to DPR Category I or low-copper hull paints was assumed to reduce loading by 50 percent (i.e., 0.45 kg/yr). Vessel tracking indicates that, in 2018, there has been a reduction of 45.2 percent (approximately 948 kg/yr) in annual dissolved copper loading to SIYB from vessels when compared with the SIYB TMDL-assumed baseline load of 2,100 kg/yr[1].

The 2018 load reduction of 45.2 percent indicates the continued achievement of the required 40 percent load reduction. Several notable points from the 2018 vessel tracking data are as follows:

- A 90 percent response rate was accomplished for the 2018 vessel tracking dataset. This response rate may be attributed to continual improvements by marina and yacht club representatives in vessel tracking efforts from year to year. As a result, the vessel tracking dataset may be considered more reliable in reflecting actual basin conditions.
- A reduction in vacant slips was observed in 2018; 36 slips that were considered vacant in previous monitoring years are now occupied by vessels.
- The vessel tracking data indicates continued transitions to DPR Category I paints (an increase of 4 percent from the 2017 monitoring year).
- The vessel tracking data indicates a decrease of 9 percent in the reporting of non-copper alternatives (as compared with the 2017 monitoring year). This data represents the use of non-copper paints, slip liners, HydroHoists®, and vessels with no hull paint.

Water Quality Monitoring

Monitoring of water column dissolved copper and toxicity is required to track progress toward water quality objectives. In August 2018, water quality was sampled at six stations in SIYB and at one reference station (located adjacent to SIYB near the main San Diego Bay navigation channel) to determine dissolved copper concentrations in the basin, test for acute and chronic toxicity, and assess water quality trends.

Results from the August 2018 monitoring event showed that the basin-wide average dissolved copper level was 6.7 micrograms per liter (µg/L), which was approximately 20 percent lower than

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[1] The total dissolved copper load per the SIYB TMDL equals 2,100 kilograms per year (kg/yr) from vessel paints (the total includes contributions from passive leaching and in-water hull cleaning). The estimated load contributions from background sources, urban runoff, and atmospheric deposition are not included in this total.

the 2005–2008 baseline average (8.3 µg/L), and was similar to basin-wide averages observed during the previous four monitoring events (2017 [7.9 µg/L], 2016 [7.1 µg/L], 2015 [6.9 µg/L], and 2014 [7.0 µg/L]). Consistent with results from previous years, dissolved copper concentrations at five of the six SIYB sampling stations exceeded the California Toxics Rule (CTR) criterion continuous concentration (CCC) water quality objective (WQO) of 3.1 µg/L. The 2018 monitoring event also showed that dissolved copper concentrations at the same five of the six stations had exceeded the CTR acute criterion maximum concentration (CMC) WQO (4.8 µg/L).

The results from the 2018 monitoring program indicated that one station (SIYB-1, the station farthest inside the basin) had statistically significant effects on developing mussel larvae. This finding is consistent with results of previous studies. Acute toxicity was observed in the topsmelt survival test in one station, located mid-basin (SIYB-4). While this is the first time that acute toxicity has been observed since implementation of the TMDL program, the result is not likely to be related to dissolved copper concentrations (further discussed in Section 5.2.2).

Summary

The 2018 SIYB TMDL monitoring program results indicate maintained compliance with the 2017 interim compliance requirement of a 40 percent load reduction. Since initiation of the vessel tracking program in 2008, a load reduction of nearly 948 kilograms (kg) has been achieved (compared with the TMDL load assumption of 2,100 kg). These efforts demonstrate the continued and ongoing commitment from all stakeholders to improve vessel tracking, implement BMPs, promote the use of low copper and non-copper alternatives, and reduce copper loads.

Substantial reduction of dissolved copper inputs to SIYB waters should occur upon the full realization of the DPR Rule. Compliance with the DPR Rule and resulting anticipated copper load reduction are anticipated to complement the ongoing reduction efforts, such as the continual transitions to non-copper alternatives and implementation of BMPs by all stakeholders.

Meeting the final TMDL compliance point is likely to require additional direct load reductions coupled with the loading reduction expected to result from the DPR Rule. The Port will continue to conduct outreach and engage with individual marinas and yacht clubs to better understand the direct load reduction commitments that all TMDL parties will be initiating to achieve 2022 TMDL compliance.

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1.0 INTRODUCTION

This report is the annual Shelter Island Yacht Basin (SIYB) Dissolved Copper Total Maximum Daily Load (TMDL) Monitoring and Progress Report for 2018, which has been prepared in compliance with Investigative Order No. R9-2011-0036 (Investigative Order), issued by the San Diego Regional Water Quality Control Board (Regional Board) to the San Diego Unified Port District (Port) on March 11, 2011 (Regional Board, 2011). The Investigative Order, issued under Section 13325 of the Porter-Cologne Water Quality Control Act, requires that the Port provide technical reports on the progress of the SIYB TMDL. The SIYB TMDL implementation progress is to be determined by tracking data on the number of vessel hulls converted from using copper-based antifoulant paints (AFPs) to using non-copper or low-copper alternatives and by monitoring dissolved copper concentrations and toxicity in the water column. These measures are used to assess copper load reductions and to evaluate progress toward attaining water quality objectives (WQOs) and protecting beneficial uses.

1.1 Background

Shelter Island Yacht Basin is a recreational yacht basin near the mouth of San Diego Bay, California, and is composed of marinas and yacht clubs, an anchorage, a fuel dock, and other facilities that support recreational boating (Figure 1-1).

Copper is commonly used as a biocide in vessel AFPs because of its effectiveness in reducing fouling of vessel hulls. In the State of California, the Department of Pesticide Regulation (DPR) regulates the use of copper in vessel paints; it is currently legal to use copper-based paints. However, these paints leach copper into the water column. Copper is toxic not only to the targeted fouling organisms on vessel hulls, but possibly also to other non-targeted organisms that inhabit the basin.

SIYB waters contain dissolved copper concentrations that have exceeded the dissolved copper numeric WQO as well as the toxicity and pesticides narrative WQOs and may threaten and impair the wildlife habitat and marine habitat beneficial uses in the basin. Because of this exceedance, SIYB was placed on the list of impaired water bodies compiled pursuant to federal Clean Water Act (CWA) Section 303(d) (the 303(d) list). The SIYB TMDL was developed to address and resolve this impairment by reducing the loading of dissolved copper into SIYB waters.

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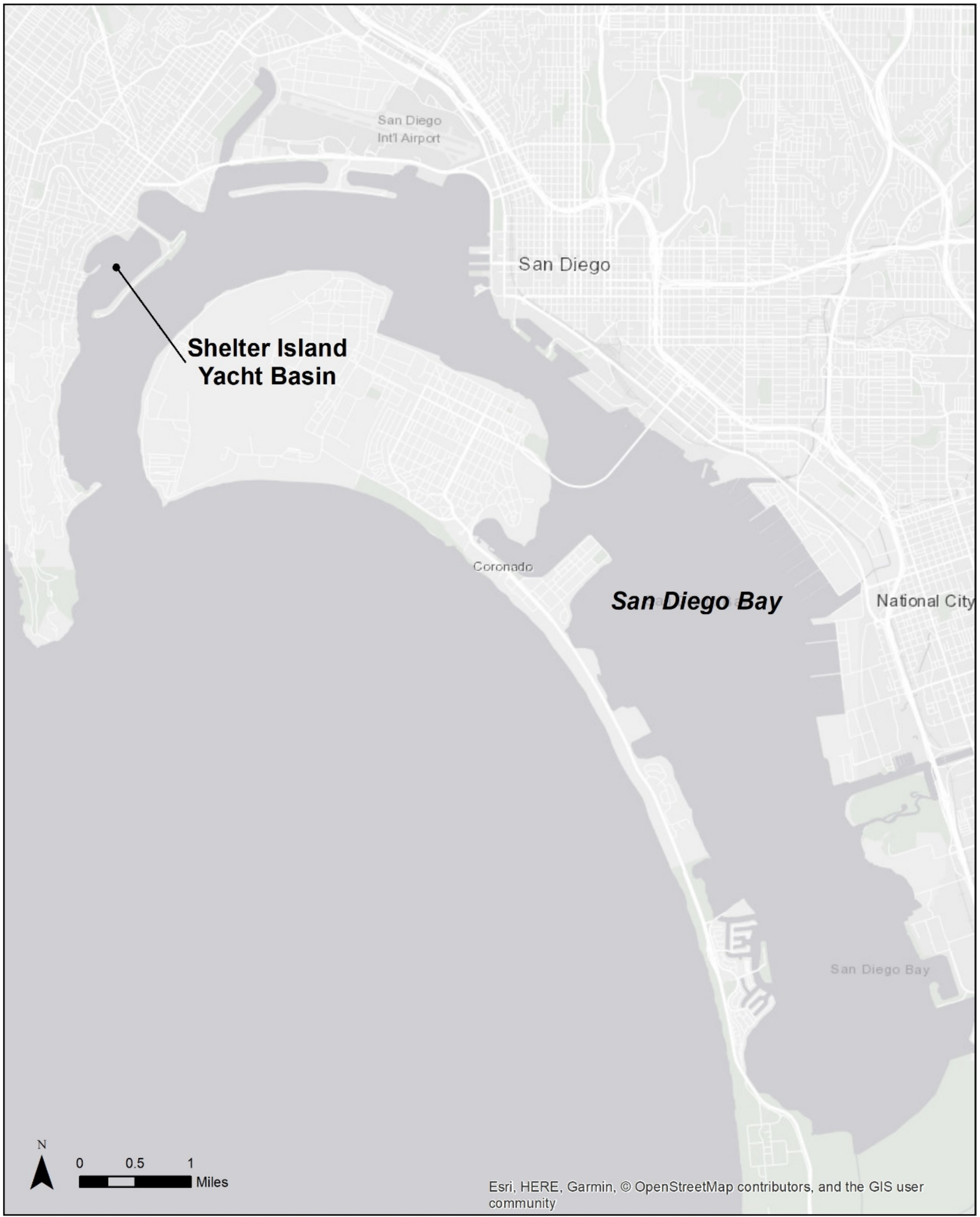

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wood.

Shelter Island Yacht Basin
San Diego Bay, CA

Figure 1-1. Location of Shelter Island Yacht Basin Within San Diego Bay

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1.2 SIYB TMDL Compliance Schedule

Under Resolution R9-2005-0019, the SIYB TMDL requires that loading of dissolved copper into the water column be reduced by 76 percent, from 2,163 kilograms per year (kg/yr) to 567 kg/yr over a 17-year period (Regional Board, 2005). This period extends to 2022, based on the official SIYB TMDL approval date[2] of February 9, 2005. No reductions in dissolved copper loading were required during the initial two-year orientation period (2005–2007). The subsequent 15-year period requires incremental reductions of dissolved copper loading by 10 percent within 7 years (2012); by 40 percent within 12 years (2017); and by 76 percent within 17 years (2022) (Table 1-1).

Table 1-1.
Loading Targets for SIYB TMDL Attainment

Stage	Time Period	Percent Reduction from SIYB TMDL Estimated Loading	Reduction to be Attained by End of Year	Estimated Target Loading (kg/yr of Dissolved Copper)
1	2005–2007	0	N/A	N/A
2	2008–2012	10[a]	2012 (7 years)	1,900
3	2013–2017	40[b]	2017 (12 years)	1,300
4	2018–2022	76	2022 (17 years)	567

Notes:
a. Loading calculations presented in the 2012 SIYB TMDL Monitoring and Progress Report showed that a 17 percent load reduction had been achieved. Compliance with the 2012 load reduction goal of 10 percent or greater was confirmed by the Regional Board in a letter to the Port dated July 26, 2013.
b. Loading calculations presented in the 2017 SIYB TMDL Monitoring and Progress Report showed that a 40 percent load reduction had been achieved. Compliance with the 2017 load reduction goal of 40 percent or greater was confirmed by the Regional Board's October 10, 2018 Executive Officer's Report as part of the monthly Board meeting.
kg/yr = kilogram(s) per year; N/A = not applicable; SIYB = Shelter Island Yacht Basin; TMDL = Total Maximum Daily Load

For the first SIYB TMDL compliance year (2012), loading calculation estimates presented in the 2012 Monitoring Report indicated a 17 percent reduction in dissolved copper loading to SIYB, thus exceeding the 10 percent requirement. In a letter dated July 26, 2013, the Regional Board stated, "*Based on the data submitted and information provided in the Report [2012 SIYB TMDL Monitoring and Progress Report], the 10 percent reduction in dissolved copper loading required to demonstrate compliance with the SIYB TMDL by the December 1, 2012, compliance date was achieved"* (Regional Board, 2013). This letter is provided in Appendix E.

Similarly, loading calculation estimates presented in the 2017 Monitoring Report indicated a 45 percent reduction in dissolved copper loading to SIYB, exceeding the 40 percent compliance requirement for the third stage of the SIYB TMDL (2017). In a letter to the Port dated September 11, 2018, the Regional Board stated, *"the Port District's 2017 Report marks the end of Stage 3 of the interim loading targets and suggests that the overall Yacht Basin is meeting the 40 percent reduction target as a result of improved used of best management practices and vessel conversions to less toxic hull coatings"* (Regional Board, 2018). At the October 10, 2018, Regional Board Monthly Meeting, the Executive Officer's Report confirmed and memorialized that the SIYB TMDL efforts had successfully achieved the 2017 compliance requirement. The letter from the Regional Board and the October 2018 Executive Officer's Report are included in Appendix E.

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[2] For a TMDL to be incorporated into the Water Quality Control Plan for the San Diego Basin – Region 9 (Basin Plan; 1994), it must be approved by the Regional Board, State Water Resources Control Board (SWRCB), Office of Administrative Law (OAL), and United States Environmental Protection Agency (USEPA) Region 9. The official TMDL approval date is the OAL approval date.

The 2018 monitoring period is the start of the fourth and final stage of the SIYB TMDL. The TMDL requires a 76 percent reduction in the loading of dissolved copper into SIYB by the end of 2022.

1.3 Sources of Dissolved Copper

Based on the Regional Board's source analysis, the total mass load of dissolved copper to SIYB was estimated to be 2,163 kg/yr, of which 98 percent of inputs were attributable to passive leaching of copper from copper-based hull paints on vessels and to hull-cleaning activities (Table 1-2). The total copper load from the SIYB TMDL equals 2,100 kg/yr from vessel paints. The estimated load reduction resulting from background, urban runoff, and atmospheric deposition (which equates to approximately 63 kg/yr) is not included in this total. This report evaluates the dissolved copper loading based on the vessel-related contribution, totaling 2,100 kg/yr.

Table 1-2.
Sources of Dissolved Copper per the SIYB TMDL

Source	Estimated Mass Load to SIYB (kg/yr)	Contribution to SIYB (Percent Dissolved Copper)
Passive Leaching	2,000	93
Hull Cleaning	100	5
Urban Runoff	30	1
Background	30	1
Direct Atmospheric Deposition	3	<1
Sediment	0	0
Total	2,163	100

Notes:
kg/yr = kilogram(s) per year; SIYB = Shelter Island Yacht Basin

1.4 Water Quality Objective Criteria

The WQO for dissolved copper in SIYB is equal to the National Recommended Water Quality for Aquatic Life of the United States Environmental Protection Agency (USEPA) and the California Toxics Rule (CTR) water quality values for dissolved copper in marine environments (USEPA, 2000). Continuous or chronic exposures may not exceed 3.1 micrograms per liter (µg/L) over a 4-day average; acute exposures may not exceed 4.8 µg/L over a 1-hour average. In addition, numeric WQOs must not be exceeded more than once every three years.

In addition to numeric WQOs, the *Water Quality Control Plan for the San Diego Basin – Region 9* (Basin Plan) established narrative WQOs for toxicity and pesticides (Regional Board, 1994) as follows:

Toxicity Objective – *All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms; analyses of species diversity, population density, and growth anomalies; and bioassays of appropriate duration; or other appropriate methods as specified by the Regional Board.*

Pesticide Objective – *No individual pesticide or combination of pesticides shall be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses. Pesticides shall not be present at levels that will bioaccummulate in aquatic organisms to levels that are harmful to human health, wildlife, or aquatic organisms.*

Two beneficial uses within SIYB are threatened by elevated dissolved copper concentrations: marine habitat (MAR) and wildlife habitat (WILD). The Regional Board indicated that if numeric WQOs are met for dissolved copper, then narrative WQOs will also be considered to be met. However, because current numeric WQOs are not site-specific, direct assessments of toxicity, as well as SIYB biota, also directly indicate basin-wide attainment of beneficial uses and narrative WQOs.

1.5 Monitoring Purpose

The Investigative Order requires the annual evaluation, interpretation, and tabulation of vessel information, best management practices (BMPs), and water quality sampling. Because of the proportional contribution of copper loading to SIYB from copper-based hull paints, tracking of vessel conversions from copper to non-copper or lower copper hull paints is the primary method used to assess compliance with SIYB TMDL load reduction targets. Water quality monitoring is required because it assesses long-term trends in the basin and provides comparisons with the numeric and narrative WQOs, as measured by surface water dissolved copper concentrations and toxicity. Monitoring is a necessary component to evaluate whether the trajectory of water quality values will meet water quality objectives. By conducting both vessel tracking and water quality monitoring on an annual basis, the program may eventually be able to evaluate the relationship between load reductions and water quality. Additionally, this approach will provide the data needed to assess the overall effectiveness of the SIYB TMDL implementation in attaining both loading reductions and numeric WQOs to protect the basin's MAR and WILD beneficial uses.

1.6 Revision of Monitoring Plan

The Monitoring Plan (Revision 4) was updated for the 2018 monitoring year to include updated language regarding the compliance schedule, because the second compliance period concluded in 2017. These modifications were informational; no modifications were made to the field procedures for the 2018 monitoring event.

1.7 Implementation of Best Management Practices

The Port has incorporated a copper reduction program and BMPs to reduce copper loads in SIYB and throughout San Diego Bay. The five elements of this program are:

- Testing and research
- Transition to non-copper hull paints and DPR Category I paints (i.e., paints with leach rates ≤9.5 micrograms per centimeter per day [$\mu g/cm^2/day$])
- Policy development and legislation
- Education and outreach to boaters
- Monitoring and data assessment

The Shelter Island Master Leaseholders (SIML) TMDL Group represents several of the marinas and yacht clubs in SIYB. The group's purpose is to compile vessel information of boat owners collected by participating marinas and yacht clubs. In addition, the SIML TMDL Group has developed a BMP program available to all marinas and yacht clubs in SIYB.

Over the course of the SIYB TMDL program, multiple quality control measures have been integrated to build on previous knowledge and to help effectively implement the SIYB TMDL program.

Additional measures include:

- Meetings between the Port and other stakeholders in SIYB about the SIYB TMDL
- Increased scrutiny of water quality data and analytical methods
- Reassessment of field sampling techniques, including additional oversight of field procedures
- Review of methods used to track the type of hull paints used on vessels in SIYB

These measures were implemented to collect relevant useful data and to enhance communication among all involved parties. The intent of this iterative and collaborative process is to provide transparency to the process and to provide a known and scientifically defensible dataset to support the SIYB TMDL compliance requirements.

1.8 Recent AFP and Copper Initiatives

In addition to the BMP implementation, vessel tracking, and water quality monitoring, this monitoring report also identifies other policy- or legislative-related activities that occurred during the reporting period and discusses, where applicable, how these actions factor into this report. These items are summarized below and are discussed further in Section 4.

Department of Pesticide Regulation Actions

The DPR is the agency responsible for regulating pesticides, including antifouling paints, throughout the state of California. Over the course of the SIYB TMDL, the DPR has undertaken several actions related to copper AFPs. During this reporting period, the DPR's adopted Section 6190 of Title 3, California Code of Regulations (DPR Rule) went into effect on July 1, 2018. This action established a maximum allowable copper leach rate for copper-based AFP products registered in California for use on recreational vessels.

USEPA Actions

The USEPA is responsible for establishing federal water quality standards. During this reporting period, the USEPA announced the Interim Registration Review Decisions for Copper Compounds, Case Numbers 0636, 0649, 4025, and 4026 (EPA-HQ-QPP-2010-0212). The review process allows for transparency as the USEPA considers the latest science when determining whether current regulations for copper require additional changes from the current legislation. During this period, the USEPA addressed the comments or information received during the 60-day comment period for the proposed interim decisions (USEPA, 2018).

1.9 Content of Report

This TMDL Monitoring and Progress Report for SIYB presents the monitoring results for 2018 and includes:

- Methods to assess, estimate, and reduce copper loads
- TMDL implementation, including BMPs implemented by the Port in SIYB and throughout San Diego Bay
- TMDL implementation, including BMPs and guidance documents prepared and implemented by the SIML TMDL Group, marinas, and yacht clubs
- Evaluation, interpretation, and tabulation of data collected by the Port, SIML TMDL Group, yacht clubs, and marinas on vessel tracking and hull paint conversions
- Water quality monitoring data, including chemical and toxicological evaluations of surface water samples collected in August 2018
- Information regarding ongoing copper initiatives germane to the SIYB TMDL
- Discussion of the 2018 TMDL monitoring program findings, including other copper-related issues and studies considered germane to the SIYB TMDL
- A summary of the SIYB TMDL monitoring program recommendations

The report also includes several appendices with additional supporting data. Appendix A is the 2018 SIYB TMDL Monitoring Plan. Appendix B contains BMP plans for the Port, SIML TMDL Group, and marinas and yacht clubs. Appendix C is the vessel tracking data spreadsheet (including information for each available slip) for the entire SIYB. Appendix D contains the water quality monitoring results for the August 2018 sampling event, including field-collected data, the analytical chemistry report, and the toxicity testing report. Appendix E includes 2018 SIYB-related correspondence between the Port and other agencies and other pertinent information.

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2.0 METHODS

This section describes in detail the BMP plans in place to reduce copper loads, methods used to estimate load reductions (e.g., vessel hull paint tracking), field program methods to assess dissolved copper levels in SIYB, and project-specific quality assurance (QA) and quality control (QC) procedures used during water quality monitoring and data analysis.

2.1 SIYB Implementation of Best Management Practices

The Port has developed a comprehensive copper reduction program and maintains a cumulative list of copper reduction BMPs implemented in support of the TMDL since 2007 (Appendix B). In addition, the marinas and yacht clubs created specific BMP plans that, if used, may contribute to dissolved copper load reductions in SIYB. Selection, implementation, and effectiveness assessments of BMPs were at the discretion of each party. In compliance with Investigative Order reporting requirements, information is submitted annually to the Port that details the BMPs and actions that marinas and yacht clubs have implemented throughout the year to reduce dissolved copper loads to SIYB. The BMP plans are provided in Appendix B.

2.2 San Diego Bay-Wide Implementation of BMPs

The report in Appendix B also describes BMPs or other actions implemented by the Port to reduce dissolved copper discharges from vessel hulls into harbors or marinas within San Diego Bay. The Port reported the actions that were taken to reduce dissolved copper discharges to marinas beyond San Diego Bay, including actions with statewide or national applicability.

2.3 Dissolved Copper Load Analysis

This section describes the methods and procedures used to estimate dissolved copper loading into SIYB during 2018, including vessel tracking methodologies and estimates of the contribution of dissolved copper into SIYB attributable to in-water hull cleaning. This section also addresses how these two factors were combined to estimate the annual dissolved copper load to SIYB in 2018.

2.3.1 SIYB Hull Paint Guidance List

The comprehensive SIYB Hull Paint Guidance List (Port, 2017) was used to assist with vessel tracking efforts. This guidance list groups individual AFPs by DPR leach rate categories and contains relevant product information such as paint name, product number, copper content, and DPR registration number. The list is based on the DPR Paint List and includes new products available since 2012 as well as other non-copper biocide AFPs (i.e., zinc, Irgarol, etc.) and non-biocide (i.e., foul-release) coatings and products.

This guidance tool was developed to help marina and yacht club operators compile more accurate annual vessel census data. It is also intended to help demonstrate transparency in reporting the updated vessel tracking, enhance vessel tracking and reporting efforts, and reduce variability in vessel data.

2.3.2 Vessel Tracking

Annual reduction of copper loading was assessed by tracking conversions of hull paints from copper to non-copper or lower copper products (i.e., either by leach rate or copper content) for vessels moored in SIYB.

Yacht club and marina operators collect vessel data by surveying their boaters for vessel-related information. A standard survey form has been made available to all marinas and yacht clubs in SIYB. An example of this survey form is in Appendix C.

If no response was initially received or if pertinent information was missing on the form, yacht clubs and marina operators made follow-up efforts to obtain missing or incomplete records. Vessel information was then submitted to the Port in mid-January 2019. Prior to submittal of the survey data to the Port, the SIML TMDL Group conducted a QC check of the survey results for 8 of the 11 yacht clubs and marinas. The remaining three facilities submitted their vessel data directly to the Port who completed a QC check on those datasets.

In December 2018, the Port sent correspondence requiring marinas and yacht clubs to provide a self-certification statement to the Port along with their 2018 vessel tracking data submittal. For each facility, the signed self-certification statement confirms that the data were prepared under the signatories' knowledge and direction and that the data represented truthful and accurate information. Self-certification letters for each marina and yacht club are provided in Appendix E.

Once the survey results were received by the Port, annual hull survey data from marinas and yacht clubs were crossed-checked first against the USEPA registration number (when applied) and then by the product number and product name in the SIYB Hull Paint Guidance List. If the information conformed to the SIYB Hull Paint Guidance List, the vessel's paint was tracked as identified in the aforementioned categories. The vessel tracking information that is collected by the yacht clubs and marinas during the hull survey is listed in Table 2-1. Vessel tracking data are provided in Appendix C.

Table 2-1.
Vessel Survey Data Collected in 2018

Vessel Tracking Data Fields	
1.	Name of Marina or Yacht Club
2.	Slip/Mooring Reference Number
3.	Percentage of Time Occupied
4.	Vessel Type (power or sail)
5.	Vessel Length
6.	Vessel Beam Width
7.	Paint Type (Copper, DPR Category I, Low-copper, or Non-copper)
8.	Paint Product Name
9.	Paint Product Number
10.	Boatyard Name or Purchase Date
11.	Painting Date (month)
12.	Painting Date (year)[a]
13.	Percent Copper
14.	USEPA Registration Number (when applicable)

Notes:
[a] Aged-copper paints are determined by the painting date. To be considered an aged paint for the 2018 survey, the vessel would have had to be painted on or prior to December 31, 2015.
DPR = Department of Pesticide Regulation

Vessel tracking data from SIYB included the percentage of time that slips were unoccupied or were occupied by vessels with copper, lower copper (DPR Category I and low-copper paints), aged-copper paints, non-copper, or unknown hull paints, as required by the Investigative Order (Table 2-2). The occupancy rate at most yacht clubs and marinas in SIYB was calculated using a nightly count of empty slips. The annual percentage of time that the slip was occupied was determined by dividing the total number of days occupied by 365 days.

Table 2-2.
Vessel Tracking Data Collected for 2018

Vessel Tracking Data Fields	
1.	Total number of slips or buoys in facility available to be occupied by vessels
2.	Number of unoccupied slips or buoys and length of time unoccupied during each year
3.	Number of vessels confirmed with copper-based hull paints and approximate length of time occupying a slip or buoy in facility each year
4.	Number of vessels confirmed with aged-copper-based hull paints[a] and approximate length of time occupying a slip or buoy in facility each year
5.	Number of vessels confirmed with DPR Category I or low-copper paints[b] and approximate length of time occupying a slip or buoy in facility each year
6.	Number of vessels confirmed with alternative hull paints, by hull paint type, and approximate length of time occupying a slip or buoy in facility each year
7.	Number of vessels with unconfirmed information about hull paints and approximate length of time occupying a slip or buoy in facility each year
8.	Estimate of the dissolved copper load reduction achieved for the year (kg/yr and percent)

Notes:
a. Per 2013 Regional Board letter
b. Per Regional Board email dated October 21, 2015
DPR = Department of Pesticide Regulation; kg/yr = kilogram(s) per year

For all vessel tracking data submittals, lower copper (DPR Category I or low-copper) and non-copper hull paints were confirmed if the required supporting data that were provided (i.e., all of the required data fields were completed) for a given hull paint confirmed the USEPA registration number or product number and product name of a reported paint (Table 2-1). Vessels stored out of the water (e.g., on HydroHoists®) or in slip liners, or reported to have no bottom paint, were also confirmed as having non-copper paint for that slip. For vessels to be considered as having hulls with aged-copper paints, the painting date submitted must have been on or before December 31, 2015, for the 2018 monitoring year.

To be conservative, loading was calculated for unconfirmed paints by assuming that paint was copper-based if the vessel owner did not know the paint's USEPA registration number or product number. These data were used to calculate the annual dissolved copper load to SIYB from vessels under both confirmed and unconfirmed scenarios, as described further in Section 2.3.4.

2.3.3 Annual Copper Loads from Passive Leaching and In-Water Hull Cleaning

To estimate dissolved copper loads attributed to vessels for the SIYB TMDL monitoring program, the in-water hull-cleaning load (100 kg/yr) and passive leaching load (2,000 kg/yr) identified in Appendix 2 of the SIYB TMDL[3] were combined to form a total vessel-related load of 2,100 kg/yr. This vessel-related baseline load was divided by the total vessel population identified in the TMDL

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[3] Appendix 2 of the SIYB TMDL is at the following website address: http://www.waterboards.ca.gov/sandiego/water_issues/programs/watershed/souwatershed.shtml

(2,363 vessels), which resulted in an annual per-vessel load of 0.89 kg/yr (rounded to 0.9 kg/yr). Therefore, any reference to the annual per-vessel dissolved copper load is considered to be 0.9 kg/yr.

The dissolved copper load attributed to in-water hull cleaning was identified in Appendix 2 of the SIYB TMDL (Regional Board, 2005) as approximately 100 kg/yr. As part of this Regional Board's load estimation, it was assumed that all SIYB vessel hulls were painted with copper paint, all hulls were cleaned approximately monthly, and in-water hull-cleaning BMPs were used during half of the cleaning events.

As recommended in the 2015 Monitoring and Progress Report, starting in 2016 and continuing through 2018, the copper loads from passive leaching and in-water hull cleaning are presented separately. As discussed above, the annual per-vessel dissolved copper load is 0.9 kg/yr. This total annual per-vessel load is composed of the load from passive leaching (approximately 0.86 kg/yr) and in-water hull cleaning[4] (approximately 0.04 kg/yr) per Appendix 2 of the SIYB TMDL (Regional Board, 2005). The copper loading estimates in Section 3.2.3 present separate load estimate calculations for passive leaching and in-water hull-cleaning contributions using the TMDL assumption.

2.3.4 Annual Dissolved Copper Load

The SIYB TMDL copper load reduction is assessed by tracking the number of vessel hulls with copper paint, lower copper paint (DPR Category I or low-copper), aged-copper paint, or non-copper paint, as well as by counting the number of vacant slips in SIYB. Vessels that have aged-copper paint are considered to have a lower copper load (i.e., 0.45 kg/yr), but are tracked separately.

The vessel tracking program estimates loading reductions conservatively. If the hull paint name and type were unknown, the paint was assumed to be copper-based. Additionally, if the latest painting date was unknown, the vessel was assumed to be painted recently. Lastly, if the occupancy time of a slip or mooring was not reported, the slip or mooring was assumed to be occupied 100 percent of the time (i.e., 365 days per year). Data on paint categories for transient vessels visiting the Port-operated transient vessel dock and temporary anchorage were not available; therefore, these vessels were assumed to have copper hull paints.

The assumptions below were used by the Regional Board to derive the baseline copper loading identified in Appendix 2 of the SIYB TMDL (Regional Board, 2005). Calculation of loading reductions for the 2018 SIYB TMDL monitoring program was based on comparisons with these baseline conditions:

- All 2,363 SIYB slips or buoys were occupied by a number of vessels (N_v).
- All 2,363 recreational vessels moored within SIYB have copper-based paints 100 percent of the time.
- Annual loading from passive leaching basin wide (L_p) equals 2,000 kg/yr.

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[4] The annual copper load contribution from in-water hull cleaning (0.04 kg/yr) presented in this report is based on the TMDL load assumption of 5 percent.

- Annual loading from hull cleaning (L_h) equals 100 kg/yr.
- Average annual loading per vessel (L_v) with copper hull paint equals 0.9 kg/yr, where $L_v = (L_p + L_h)/N_v$.

In accordance with the SIYB TMDL, this loading reduction analysis assumed an average loading reduction of approximately 0.9 kg/yr for every vessel in SIYB that converted from copper-based to non-copper-based paints. The use of lower copper hull paints was also recognized in the SIYB TMDL as a viable means of reducing copper loading to the basin. Lower copper paints are identified as DPR Category I paints and paints having a copper content of less than 40 percent (i.e., low-copper). This loading reduction analysis also assumed that, on average, each vessel that transitioned to lower copper hull paints reduced annual dissolved copper loading by 50 percent (0.43 kg/yr for passive leaching + 0.02 kg/yr for in-water hull cleaning). Aged-copper paints also were considered as a 0.45-kg/yr load if they were applied prior to December 31, 2015.

The assumptions for the calculations of annual dissolved copper loading are in Table 2-3.

Table 2-3.
Dissolved Copper Loading Calculation Assumptions

Dissolved Copper Loading Assumptions	
1.	All vessels moored in SIYB at the enactment of the TMDL had copper hull paints.
2.	Average annual dissolved copper load from a vessel with copper paint equals 0.9 kg/yr.
	a. The passive leaching load from a vessel with copper paint equals 0.86 kg/yr.
	b. The cleaning load from a vessel with copper paint equals 0.04 kg/yr.
3.	Vessels with unknown hull paints have copper paint
4.	Slips/moorings for which occupancy data are not provided are considered to be 100 percent occupied.
5.	Annual dissolved copper load from a vessel with non-copper hull paint equals 0 kg/yr.
6.	DPR Category I paints are paints with leach rates ≤9.5 μg/cm²/day. These paints are considered as lower copper.
7.	Low-copper hull paints are paints with less than 40 percent copper. These paints are also considered as lower copper.
8.	Average annual dissolved copper load from a vessel with lower copper paint equals 0.45 kg/yr
	a. The passive leaching load from a vessel with lower copper paint equals 0.43 kg/yr.
	b. The cleaning load from a vessel with lower copper paint equals 0.02 kg/yr.
9	Vessels determined to have aged-copper paint (i.e., copper paint applied to a vessel hull prior to December 31, 2015[a]) have an annual dissolved copper load equal to 0.45 kg/yr.
10.	Annual loads are normalized by the percent of time vessels are docked in SIYB.

Notes:
a. December 31, 2015, is the cutoff date for vessels to be considered to have aged-copper paint for the 2018 annual monitoring and progress report load calculation. This cutoff date will advance by one year for each subsequent annual load calculation.
μg/cm²/day = micrograms per square-centimeter per day; DPR = Department of Pesticide Regulation; kg/yr = kilogram(s) per year; SIYB = Shelter Island Yacht Basin; TMDL = total maximum daily load

Annual loading was calculated for each slip by multiplying the reported dissolved annual loading for a given hull paint category by the percentage of time a slip was reported to be occupied (e.g., the product of 0.9 kg/yr for copper hull paints and 90 percent occupancy results in an annual loading of 0.81 kg/yr). In the case of the Port-operated anchorage, data on the number of three-day permits issued weekly were used to calculate annual occupancy and loading. For each issued permit, it was assumed that the vessel occupied the anchorage for an average of three days, and because no hull paint data were collected, all vessels were assumed to have copper paints.

Therefore, annual dissolved copper loading due to passive leaching and hull cleaning was calculated by multiplying the annual dissolved copper load (0.9 kg/yr) by the average number of vessels occupying the anchorage weekly in 2018 and the average percentage of time that slips were occupied.

2.4 Water Quality Monitoring

Water quality was sampled to measure the average concentration of dissolved copper in the basin. The monitoring used methods were consistent with those of prior studies conducted by the Regional Board in SIYB, as reported in Appendix 6 of the SIYB TMDL Technical Report (Regional Board, 2005). To be consistent with these prior studies, water quality was monitored at six stations in SIYB and at one reference station in the main channel of San Diego Bay adjacent to SIYB. These station locations were similar to those sampled by the Regional Board and met the Investigative Order requirement of spatially representing dissolved copper concentrations in SIYB, as described in the original Monitoring Plan and most recent update (Weston Solutions, Inc. [Weston], 2011; Wood Environment & Infrastructure Solutions, Inc. [Wood], 2018a).

As required in the SIYB TMDL, dissolved copper concentrations were compared with the surface water baseline level of 8.28 ± 1.36 µg/L (mean plus or minus standard error). This value was calculated using surface water quality data collected between 2005 and 2008 from stations in the immediate vicinity of the Regional Board monitoring station network (Weston, 2011).

2.4.1 Sampling Station Locations

The SIYB water quality monitoring station network was composed of six stations within SIYB (i.e., SIYB-1 to SIYB-6) and one reference station in the main channel of San Diego Bay outside of the mouth of the basin (SIYB-REF) (Table 2-4 and Figure 2-1). To the greatest extent possible, samples were collected within approximately ±3 meters of the target coordinates.

Table 2-4.
Sampling Station Coordinates

Station	Target		Actual	
	Latitude	Longitude	Latitude	Longitude
SIYB-1	32.71821	-117.22601	32.71821	-117.22600
SIYB-2	32.71412	-117.22921	32.71412	-117.22930
SIYB-3	32.71550	-117.22989	32.71550	-117.22990
SIYB-4	32.71683	-117.23203	32.71681	-117.23203
SIYB-5	32.71217	-117.23297	32.71213	-117.23296
SIYB-6	32.70858	-117.23514	32.70877	-117.23510
SIYB-REF	32.70406	-117.23232	32.70407	-117.23231

Path: Q:\Aquatics\POSD\ShelterIsland\YachtBasin\MXD\Review\TMDL_MonitoringLocations_overview.mxd, corey.sheredy 7/11/2016

Figure 2-1. Shelter Island Yacht Basin TMDL Sampling Station Locations

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2.4.2 Sampling Date

Surface water at the seven sampling stations (six SIYB stations and one San Diego Bay reference station) was sampled on August 13, 2018. In accordance with the Monitoring Plan, water sampling bracketed slack high tide during the summer, as depicted in Figure 2-2.

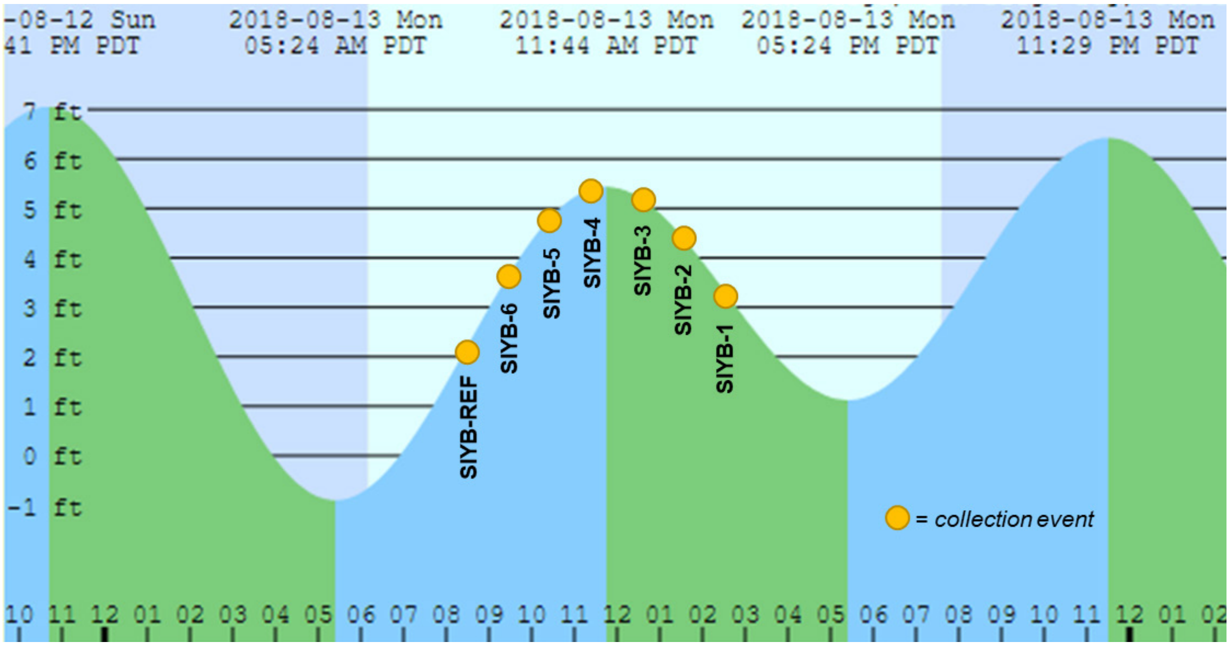

Figure 2-2. 2018 Sample Collection Times versus Tide

2.4.3 Sample Collection

Discrete water samples were collected at each station using a Niskin bottle deployed from a sample collection vessel. “Clean-hands” sampling techniques were used, consistent with the project-specific and approved SIYB Quality Assurance Project Plan (QAPP) (Wood, 2018b). All stations were located using the Differential Global Positioning System.

Samples were collected within the top 1 meter of the basin surface; these samples are referred to as “surface water.” Field measurements were taken at each station for hydrogen ion concentration (pH), salinity, and temperature using a YSI Incorporated (YSI) Pro Plus data sonde. Following the collection and preservation of water samples, a top-to-bottom water quality profile using a Sea-Bird Electronics (SBE) Conductivity, Temperature, and Depth (CTD) profile instrument was completed to evaluate pH, temperature, light transmittance, dissolved oxygen (DO), and salinity at the station. In situ analytical methods and detection limits are listed in Table 2-5.

Table 2-5.
In Situ Analytical Methods and Detection Limits

Water Quality Measurement	Method	Instrument Sensitivity
Salinity	SBE CTD and YSI Pro Plus	± 0.1 ppt
Temperature	SBE CTD and YSI Pro Plus	± 0.1 °C
pH	SBE CTD and YSI Pro Plus	± 0.1 pH unit
Dissolved Oxygen	SBE CTD	± 0.1 mg/L
Light Transmittance	SBE CTD	± 0.1 %

Notes:
% = percent; °C = degrees Celsius; mg/L = milligrams per liter;
pH = hydrogen ion concentration; ppt = part(s) per thousand;
YSI = YSI Incorporated; SBE = Sea-Bird Electronics; CTD = conductivity, temperature, and depth

After collection, water samples were transferred to labeled containers for analysis of total and dissolved copper and zinc, total organic carbon (TOC), dissolved organic carbon (DOC), total suspended solids (TSS), and toxicity.

Detailed field notes were recorded during sample collection at each station and all samples were logged on a chain-of-custody (COC) form, and then placed in a cooler on ice. Samples were stored at 4 degrees Celsius (°C) in the dark until delivered to the appropriate laboratory for analysis, within 24 hours of collection. Water chemistry analyses were conducted by Weck Laboratories, Inc. (Weck) of City of Industry, California; toxicity tests were conducted by Nautilus Environmental (Nautilus) of San Diego, California. Both laboratories are accredited through the California Environmental Laboratory Accreditation Program (ELAP). Photographs taken during field sampling are presented in Figure 2-3.

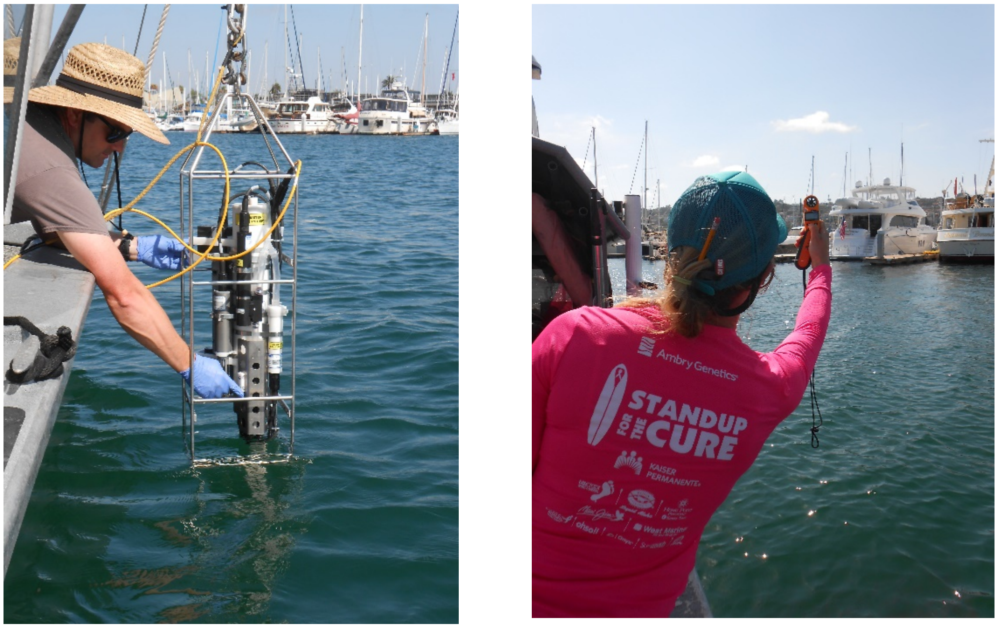

Photo A. Following sample collection, a water column profile of temperature, salinity, conductivity, and transmissivity using a CTD profiler.

Photo B. Recording of weather conditions, activities such as boat cleaning, and any other observations that may have an impact on water quality is an important component of the field monitoring program.

Photo C. Water sample collection for trace level copper analysis uses a Niskin bottle following clean sampling techniques.

Photo D. Filtration of water samples is conducted in the field immediately after collection for analysis of dissolved metals.

Figure 2-3. Field Sampling Photographs

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2.4.4 Equipment Decontamination and Cleaning

The Niskin bottle was cleaned prior to sampling with clean, soapy water and thoroughly rinsed with deionized water. Upon deployment, the Niskin bottle received a thorough site water rinse prior to sample collection. After collection, water samples were transferred using the clean-hands method from the Niskin bottle to laboratory-certified, contaminant-free, high-density polyethylene bottles. The Niskin bottle was also rinsed thoroughly with deionized water between sites, and then rinsed with the site water of each station before sample collection.

2.4.5 Chemical Analyses

After collection was completed, samples were transported to the laboratory under customary COC protocols. Samples were analyzed for total and dissolved copper, total and dissolved zinc, TOC, DOC, and TSS, following certified USEPA or Standard Method (SM) test methods. Test method selection was based on the best available combination of sensitivity (low-level detection limits), accuracy (minimum susceptibility to bias or matrix interference), and precision (reproducibility) in accordance with the QAPP.

General water quality measurements (of salinity, temperature, TOC/DOC, TSS, and pH) were also taken at each station. Natural water quality parameters such as DOC are well known to affect the bioavailability and toxicity of copper in marine environments (Delgadillo-Hinojosa et al., 2008; Rosen et al., 2005; and Zirino et al., 2002). Zinc was also included for testing because it can be used as an alternative biocide in antifoulant paints. Both total zinc and dissolved zinc were measured to determine whether concentrations are increasing as vessel hull paints are converted from copper-based to non-copper-based paints.

Analysis of water quality data included calculations of average surface water dissolved copper concentrations to compare with the dissolved copper CTR WQO (3.1 µg/L). In Section 3.0, the 2018 dissolved copper results are compared with the 2005–2008 baseline data as reported in the Monitoring Plan (Weston, 2011) to evaluate the change in dissolved copper levels in the surface waters over time.

The laboratory analytical methods and detection limits are specified in Table 2-6.

Table 2-6.
Laboratory Analytical Methods

Water Quality Measurement	Method	Method Detection Limit	Reporting Limit
Total Copper	USEPA 1640	0.0038 µg/L	0.010 µg/L
Dissolved Copper	USEPA 1640	0.0038 µg/L	0.010 µg/L
Total Zinc	USEPA 1640	0.036 µg/L	0.20 µg/L
Dissolved Zinc	USEPA 1640	0.036 µg/L	0.20 µg/L
TOC	SM 5310 B	0.016 mg/L	0.10 mg/L
DOC	SM 5310 B	0.016 mg/L	0.10 mg/L
TSS	USEPA 2450 D	1.0 mg/L	5.0 mg/L

Notes:
µg/L = microgram(s) per liter; DOC = dissolved organic carbon; mg/L = milligram(s) per liter; SM = Standard Method; TOC = total organic carbon; TSS = total suspended solids; USEPA = United States Environmental Protection Agency

2.4.6 Toxicity Testing

Toxicity testing consisted of a 96-hour acute bioassay test to be consistent with the SIYB TMDL guidance (Regional Board, 2005) using Pacific topsmelt (*Atherinops affinis*). Additionally, a 48-hour chronic bioassay test using mussel larvae (*Mytilus galloprovincialis*) was performed. Previous studies have used the 48-hour mussel larvae chronic test as their primary indicator of toxicity because *Mytilus galloprovincialis* is considered one of the most sensitive genera used in the calculation of the water quality criterion for copper in marine environments (USEPA, 1995a). However, both tests were used to assess compliance with the narrative toxicity objective.

2.4.6.1 Topsmelt 96-Hour Acute Bioassay

Topsmelt acute toxicity tests were initiated on August 14, 2018 (the day following sample collection) following the procedures described in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (USEPA, 2002).

Juvenile topsmelt were exposed for 96 hours to three sample concentrations (0.5 dilution series) and a control. Each concentration was tested with six replicates and five topsmelt per replicate. Water quality measurements were conducted daily of DO, temperature, pH, and salinity. Test conditions are summarized in Table 2-7. After 96 hours, percent survival was calculated. The test was considered acceptable if mean survival was greater than or equal to 90 percent in the controls.

A 96-hour reference toxicant test using copper chloride was conducted concurrently with the project sampling to evaluate the relative sensitivity of test organisms to a single known chemical, as well as the laboratory's proficiency with the test procedure. The topsmelt reference toxicant test was conducted with copper concentrations of 0, 50, 100, 200, 400, and 800 µg/L. The reference toxicant test was conducted concurrent to the SIYB testing and used test organisms from the same batch. Following test termination, the median lethal concentration (LC_{50}) was calculated and compared with historical laboratory reference toxicant test data for this species. Test organisms are considered appropriately sensitive when the test LC_{50} is within two standard deviations of the historical laboratory standard.

Table 2-7.
Conditions for the 96-Hour Pacific Topsmelt Bioassay

96-Hour Acute Fish Survival Bioassay	
Samples Tested	SIYB-1, SIYB-2, SIYB-3, SIYB-4, SIYB-5, SIYB-6, SIYB-REF
Date Sampled	August 13, 2018
Test Dates	August 14–18, 2018
Test Species	Pacific topsmelt *(Atherinops affinis)*
Test Protocol	USEPA Acute Manual, 2002 (EPA-821-R-02/012)
Test Acceptability Criterion	≥90 percent mean survival in the laboratory control
Test Type and Duration	Acute survival/96-hour static-renewal (48-hour water renewal)
Organism Supplier	Aquatic Biosystems, Fort Collins, Colorado
Control Water Source	Scripps Pier seawater, 20-µm filtered
Acclimation Time	3 days
Age at Test Initiation	15 days old
Test Concentrations	0 (laboratory control), 25, 50, and 100 percent sample
Replicates per Sample	6
Organisms Exposed per Replicate	5
Exposure Volume	250 mL

Notes:
µm = micrometer(s); mL = milliliter(s); USEPA = United States Environmental Protection Agency

2.4.6.2 Bivalve 48-Hour Bioassay

The 48-hour bivalve larvae tests were initiated on August 14, 2018, for all samples collected in SIYB and followed the procedures described in *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (USEPA, 1995b).

Bivalves were exposed to five sample concentrations and a control. Each concentration was tested with five replicates and approximately 150 larvae were targeted for inoculation into each replicate. Daily water quality measurements included DO, temperature, pH, and salinity. Test conditions are summarized in Table 2-8.

After test termination, the percentage of surviving embryos with normal development was calculated to determine whether normality had been significantly reduced. The test was considered acceptable if (1) at least 50 percent of larvae survived in the controls, and (2) an average of 90 percent of surviving larvae developed normally in the controls. In addition, the percent minimum significant difference in the test must be less than 25. A combined endpoint of normal surviving embryos is reported.

Table 2-8.
Conditions for the 48-Hour Mussel Development Bioassay

48-Hour Chronic Bivalve Survival and Shell Development Bioassay	
Samples Tested	SIYB-1, SIYB-2, SIYB-3, SIYB-4, SIYB-5, SIYB-6, SIYB-REF
Date Sampled	August 13, 2018
Test Dates	August 14–16, 2018
Test Species	Mediterranean mussel *(Mytilus galloprovincialis)*
Test Protocol	USEPA/600/R-95/136 (USEPA, 1995b); ASTM 1998; PTI 1995
Test Acceptability Criteria	Mean percent survival in the lab control must be 50 percent, and 90 percent of surviving organisms must have normal shell development. The percent minimum significant difference (PMSD) in the test must be less than 25.
Test Type/Duration	Bivalve larvae survival and development (endpoint reported as normal development of surviving embryos) – Static/48 hours
Organism Supplier	Kamilche Seafarms (Shelton, Washington)
Control Water Source	Scripps Pier seawater, 20-µm filtered
Age Class of Mussels Exposed	<4 hour-old embryos
Test Concentrations	0 (laboratory control), 6.25, 12.5, 25, 50, and 100 percent sample
Replicates/Sample	5
Initial Density of Organisms Exposed per Replicate	~150
Exposure Volume	10 mL

Notes:
µm = micrometer(s); mL = milliliter(s); PTI = Pesticide Toxicity Index; USEPA = United States Environmental Protection Agency

A 48-hour reference toxicant test using copper chloride was conducted concurrently with the project sampling to evaluate the relative sensitivity of test organisms as well as the laboratory's proficiency with the test procedure. The bivalve reference toxicant test was conducted with copper concentrations of 0, 2.5, 5.0, 10, 20, and 40 µg/L. The same batch of test organisms was used for both the reference toxicant test and the project samples. At test termination, the median effective concentration (EC_{50}) was calculated and compared with historical laboratory reference toxicant test data for this species. Test organisms are considered to be responsive and appropriately sensitive if the test EC_{50} was within two standard deviations of the respective historical laboratory mean.

2.4.7 Toxicity Statistical Analyses

Determinations of toxicity using the 96-hour topsmelt and 48-hour mussel bioassays were statistically assessed using the Comprehensive Environmental Toxicity Information System™, Tidepool Scientific Software. Survival of topsmelt fish and normal development of surviving mussel embryos in each test dilution from SIYB were compared with organism performance observed in control exposures to filtered clean seawater collected from the end of the pier at Scripps Institution of Oceanography in La Jolla, California. Results were used to determine LC_{50} and EC_{50} values. If fish survival and normal embryo development in the controls did not differ significantly from those of the treatments, then conditions within were considered nontoxic at the station. The test of significant toxicity (TST) method was used to identify any samples that exhibited a statistically significant difference from the control (USEPA, 2010).

2.5 Quality Assurance and Quality Control

Sampling process QA/QC included preparation prior to, during, and after sample collection to minimize the possibility of compromising sample integrity. The sample collection team was trained in and followed field sampling standard operating procedures (SOPs), as described in the SIYB QAPP (Wood, 2018b). As part of the updated field collection protocol, QA/QC reviewers from the Port and Wood were onboard the sampling vessel at all times to review each step of the sample and data collection process. Additionally, Port-approved field checklists were used throughout the sampling event to ensure that all procedures were consistent at each location, all samples were collected in exactly the same manner at every station, and all required field data were properly recorded (see Appendix D). Observations of activities (e.g., vessel hull cleaning) surrounding the sampling area were recorded on field data sheets at each station and during movement between stations.

Field staff members were careful to avoid contamination of samples at all times, wore powder-free nitrile gloves during sample collection, and used the clean-hands technique. All samples were collected in laboratory-supplied, laboratory-certified, contaminant-free sample bottles. Field measurement equipment was checked for operation in accordance with the manufacturer's specifications and was inspected for damage prior to use and when returned from use. The QA/QC checks for the 2018 monitoring year are summarized as follows:

- QAPP updates
- Verification of laboratory certifications
- Field mobilization and equipment checklists
- Field sampling QA/QC checklists
- Field equipment calibrations records
- Observations of water clarity
- Staff training on QAPP-required field procedures
- Field conditions and water quality data sheets
- Onboard QA/QC oversight
- Observations for hull cleaning or other water-quality-impacting activities near sampling station locations

As required by Surface Water Ambient Monitoring Program (SWAMP) protocols, the monitoring program also included the addition of a field replicate. The field replicate sample consisted of a second complete set of samples collected at one of the sampling station locations (SIYB-1 in the 2018 monitoring program). The purpose of the field replicate is to assess variability in sampling procedures as well as ambient conditions.

Chemistry and toxicity samples were uniquely identified on sample labels using indelible ink. All sample containers were identified by the project title, appropriate identification number, date and time of sample collection, and preservation method. Sample labels were inspected by a QA reviewer before and after bottles were filled at each station to ensure that every sample and analysis type was labeled correctly before moving to the next station. All samples were kept on ice from the time of sample collection until delivery to the analytical laboratory for analysis within method-specified holding times (Table 2-9). Wood delivered samples on the same day as sample collection to Nautilus and the following day (August 14, 2018) to Weck. Both Weck and Nautilus are accredited by the California ELAP for the specific tests that were performed at the time they were conducted.

Table 2-9.
Sample Holding Times

Analyte	Holding Time
TOC	28 days
DOC	28 days[a]
Total Copper	180 days
Dissolved Copper	48 hours[b]
Total Zinc	180 days
Dissolved Zinc	48 hours[b]
TSS	7 days
48-hour Acute Bioassay	36 hours
96-hour Chronic Bioassay	36 hours

Notes:

a. The holding time is applicable to preserved sample. The sample is filtered in the field into a bottle with sulfuric acid (H_2SO_4) preservative for DOC analysis.

b. The holding time for metals after preservation is 180 days. The dissolved fraction is filtered in the field through a 0.45-micrometer (µm) glass fiber filter using a bottle top vacuum filtration system. Samples are preserved at the laboratory immediately upon receipt from the courier, within 24 hours of sample collection.

DOC = dissolved organic carbon; TOC = total organic carbon; TSS = total suspended solids

The QA objectives for chemical analysis conducted by the participating analytical laboratories are provided in their individual laboratory QA manuals. The objectives for accuracy and precision involved all aspects of the testing process, including:

- Methods and SOPs
- Calibration methods and frequency
- Data analysis, validation, and reporting
- Internal QC
- Preventive maintenance
- Procedures to ensure data accuracy and completeness

Results of all laboratory QA/QC analyses are reported in Appendix D. Any QC samples that failed to meet the specified QA/QC criteria in the methodology or QAPP were identified, and the corresponding data were appropriately qualified. Furthermore, in cases where laboratory data were not within control limits, follow-up testing was performed by the laboratory to verify results wherever applicable. All QA/QC records for the various testing programs are kept on file for review, as applicable.

2.6 Chain-of-Custody Procedures

COC procedures were used for all samples throughout the collection, transport, and analytical process. The principal documents used to identify samples and to document possession were COC records, field logbooks, and field tracking forms. COC procedures were initiated during sample collection. A COC record was provided with each sample or group of samples. Each Wood employee who had custody of the samples signed the form and ensured that the samples were always attended unless properly secured.

Documentation of sample handling and custody included the following:

- Client and project name
- Sample identifier
- Sample collection date and time
- Any special notations on sample characteristics or analysis
- Initials of the person collecting the sample
- Date the sample was sent to the analytical laboratory

Completed COC forms were placed in a plastic envelope and kept inside the cooler containing the samples. As previously noted, Wood staff members physically couriered the bay water samples from the dock on SIYB to Weck and Nautilus on the same day that the samples were collected or the following day (August 13–14, 2018). This level of effort provided an additional security for the COC process and ensured that all holding times were met.

Upon sample delivery to the analytical laboratory, the COC form was signed by the person receiving the samples. COC records were included in the final reports prepared by the analytical laboratories. Following completion of the analytical analyses, remaining sample material was stored until the holding time expired; samples were then disposed of properly.

2.7 Data Review and Management

Field and laboratory data were reviewed for completeness and accuracy prior to analysis and reporting, and were stored in a database, as described in Sections 2.7.1 and 2.7.2.

2.7.1 Data Review

After each survey, field data sheets were checked for completeness and accuracy by the field crew and the QA reviewer. In addition, all sample COC forms were checked against sample labels at the end of the day prior to sample transport to the laboratories. In the laboratory, technicians documented sample receipt and sample preparation activities in laboratory logbooks or on bench sheets. Data validation included use of dated and signed entries by technicians on the data sheets and logbooks used for samples, sample tracking and numbering systems to track the progress of samples through the laboratory, and QC criteria to reject or accept specific data. Data for laboratory analyses were entered directly onto data sheets. Data sheets were filled out in ink and signed by the technician, who checked the sheet to ensure completeness and accuracy. The technician who generated the data had primary responsibility for the accuracy and completeness of the data. Each technician reviewed the data to ensure the following:

- The sample description information was correct and complete.
- The analysis information was correct and complete.
- The results were correct and complete.
- The documentation was complete.

All data were reviewed and verified by participating team laboratories to determine whether data quality objectives had been met, and whether appropriate corrective actions had been taken when necessary.

2.7.2 Data Management

All laboratories supplied analytical results in Adobe Portable Data Format (PDF) files. After completion of the data review by participating team laboratories, laboratory results were forwarded to Wood for review and reporting. All laboratory records that were submitted, including any raw data, are included in Appendix D with each laboratory report.

3.0 RESULTS

This section provides details on new and ongoing dissolved copper BMP implementation activities; results of the vessel tracking census; estimates of copper load reduction; and results of the ambient water quality and toxicity monitoring performed in SIYB in August 2018.

3.1 SIYB TMDL Implementation

Evaluation, interpretation, and tabulation of data and information are provided in this section. Through enhanced activities by marina and yacht club managers to survey boaters, approximately 90 percent of boat owners responded (based on the final combined 2018 survey) and reported their hull paint data. This response rate is indicative of continual reporting improvements and invested effort from year to year. Figure 3-1 illustrates the changes in response rate over previous surveys.

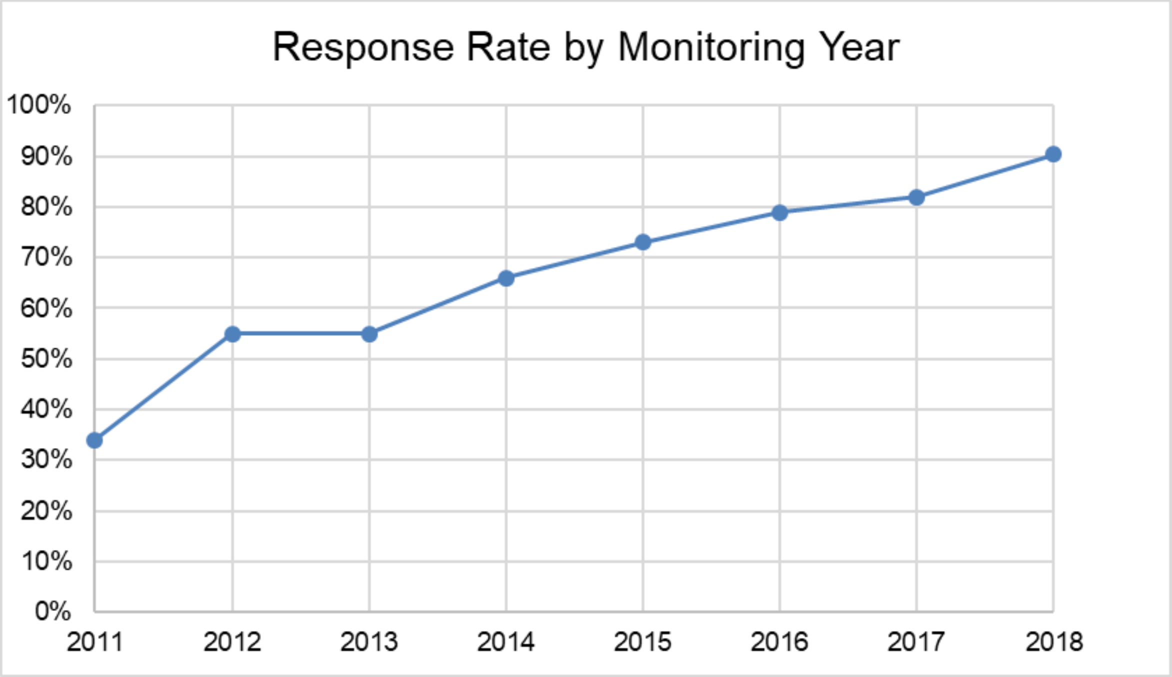

Figure 3-1. Vessel Census Response Rate by Monitoring Year

3.1.1 BMP Implementation

The Port and marina and yacht club owners and operators have developed and/or implemented several categories of BMPs and other actions to reduce dissolved copper discharges to SIYB, which may include:

- Hull paint transition
- Hull-cleaning BMPs
- Education and outreach
- Grant funding and incentives
- Alternative hull paint studies
- Monitoring
- Reporting
- Policy/regulation
- Testing and research
- Structural and mechanical BMPs
- Agency-wide activities

Sections 3.1.1.1 and 3.1.1.2 describe specific BMPs used during the 2018 monitoring year. Section 3.1.1.1 was provided directly by the Port and Section 3.1.1.2 was provided directly by the SIML TMDL Group and individual marinas and yacht clubs, when applicable.

3.1.1.1 Port of San Diego BMPs to Reduce Copper Loading

SIYB TMDL Implementation

This section provides details on new and ongoing dissolved copper BMP implementation activities undertaken by the Port, marinas, and yacht clubs; results of the vessel tracking census; estimates of copper load reduction; and results of the ambient water quality and toxicity monitoring performed in SIYB in August 2018.

BMP Implementation

The Port, along with the marinas and yacht clubs, have implemented or are in the process of planning and implementing several categories of BMPs and other actions to reduce dissolved copper discharges to SIYB, including:

- Hull paint transition
- Hull-cleaning BMPs
- Education and outreach
- Grant funding and incentives
- Alternative hull paint studies
- Agency-wide activities
- Monitoring
- Reporting
- Policy/regulation
- Testing and research
- Structural and mechanical BMPs

Port of San Diego BMPs to Reduce Copper Loading

In 2009, the Board of Port Commissioner's Resolution 2009-230 was passed. This resolution memorialized the strategies for the Copper Reduction Program, aimed at removing dissolved copper in and around San Diego Bay. As part of its Copper Reduction Program, the Port has initiated, and is in the process of planning and implementing, a number of BMPs and other actions to reduce discharges of dissolved copper into harbors and marinas within SIYB, throughout San Diego Bay, and statewide. The Port's program is a pragmatic approach that complies with the interim and final goals of the SIYB TMDL. The program focuses on the largest source contributions, identifies a strategic approach for implementing projects over the short and long term, and effectively achieves regulatory compliance while balancing economic and public interests.

The projects implemented by the Port since the Regional Board adopted the SIYB TMDL have reduced dissolved copper discharges to SIYB. The Port's Copper Reduction Program began in 2007 and identified over 30 key initiatives, many of which enabled the Port to comply with the SIYB TMDL's first and second interim targets.

2018 marked the first year of the Final Compliance Phase, in which a significant focus was placed on education and outreach efforts to reengage stakeholders and interested parties on the TMDL requirements and Port's BMP approach, highlighting the importance of further reducing copper loading in SIYB to reach final compliance requirements. Outreach and education efforts also aimed to disseminate information about the new DPR Rule to the boating community.

In addition to focused education and outreach, progress was made across all focused areas of the Copper Reduction Program:

- **Policies and Regulation**: A variety of separate initiatives were completed, including hosting a visit with the DPR to discuss relevant copper issues across the state, holding a workshop for interested stakeholders regarding the new copper paint regulation, and continuing in-water hull cleaning regulations.
- **Testing and Research:** Two pilot projects are currently under agreement within the Port's Blue Economy Incubator that may assist with copper remediation.
- **Implementation and Facilitation of Hull Paint Transitions**: All Port vessels continue to be painted with non-copper hull paints.
- **Boater Education and Outreach**: All stakeholders affected by the SIYB were exposed to the issues via outreach efforts such as TMDL status updates to stakeholder groups, regular meetings with the marinas and yacht clubs, information dissemination through print material and digital efforts, conference presentations, newspaper articles, and other outreach initiatives;
- **Companion Programs**: Construction site inspections, commercial business inspections, and Standard Urban Stormwater Mitigation Plan (SUSMP) implementation continued.
- **Monitoring and Reporting**: A special study of dissolved copper concentrations over tidal cycles in SIYB was completed, in addition to core monitoring efforts for water and sediment quality as well as biota in San Diego Bay through the Regional Harbor Monitoring Program (RHMP).

The main elements of the Port's 2018 Copper Reduction Program efforts are described below. A complete list of the Port's BMPs, the status of each, and brief effectiveness assessments are in Appendix B. Unless otherwise footnoted, the following BMPs have been implemented for the SIYB TMDL.

Policies and Regulation to Reduce Copper Loading

Policies, regulations, and legislative efforts to reduce copper loading are instrumental to the Port's Copper Reduction Program, not only to help meet regulatory compliance requirements, but also to work toward reducing copper throughout San Diego Bay.

When the Port adopted Resolution 2009-230 in 2009, the objective was to specifically detail strategies for reducing copper throughout San Diego Bay, including the following:

- Complying with the provisions of regulatory requirements and achieving reductions in copper levels within or in advance of the time frames specified in the SIYB TMDL,
- Identifying viable options for reducing copper levels in San Diego Bay,
- Supporting regulations on hull paints at a state or federal level,
- Developing, as necessary, policies, ordinances, procedures, and/or programs to achieve load reductions,

- Working with tenants and stakeholders to identify and implement copper reduction strategies, and
- Maintaining the Port operated vessel fleet as 100 percent non-copper.

Strategies outlined in Resolution 2009-230 have resulted in the Port's policy, regulation, and legislative efforts to date, all of which are in place to assist in copper reduction throughout San Diego Bay.

Copper Hull Paint Legislation

DPR Copper Paint Regulation Implementation

On July 1, 2018, a new DPR Rule (3 California Code of Regulations [CCR] section 6190) went into effect to set a maximum leach rate for copper antifouling paints. Under the new regulation, paint manufacturers are no longer allowed to import or sell paints in the state of California with leach rates greater than 9.5 $\mu g/cm^2/day$. While this new point-of-sale regulation will assist in reaching TMDL requirements, the DPR has cautioned that additional mitigation measures are still required. Current stock can be sold until June 30, 2020. This regulation is the result of joint efforts by the Port and state legislators with the passing of Assembly Bill (AB) 425, requiring the DPR to adopt a leach rate protective of aquatic environments.

2018 Interim Registration Review Decision

In December 2018, the USEPA announced availability of the *Interim Registration Review Decision*[5] on several pesticides, including copper compounds. The *Interim Registration Review Decision* summarized the findings of the risk assessments for copper compounds, addressed public comments and concerns that had been submitted during the review period, and addressed interim risk mitigation decisions. Based on public comment, the USEPA made modifications to the mitigation requirements originally outlined in the *Proposed Decision.* Significant changes were made to mitigation requirements specifically for copper-based AFPs, as highlighted in the following:

- The USEPA adopted a maximum allowable leach rate, which became immediately effective with the publishing of the 2018 *Interim Registration Review Decision*, of 9.5 $\mu g/cm^2/day$. The *Proposed Decision* stated that a leach rate cap would be determined after obtaining leach rate data from all products. However, based on public comment and available data provided, the USEPA determined that additional leach rate data were not needed to set a maximum leach rate. Products that are not in compliance are subject to cancellation or are required to either reformulate or amend labels to state they can be used only on vessels larger than 65 feet.
- The USEPA will accept the submission of product-specific copper leach rates generated using the Industry Organization for Standardization (ISO) 10890-2010 method. The *Proposed Decision* specified that copper leach rates generated using the ASTM method were acceptable, and the USEPA later reversed this determination. However, the USEPA will still require use of the ASTM method for other active ingredients.

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[5] https://www.regulations.gov/document?D=EPA-HQ-OPP-2010-0212-0129

Of note, the USEPA credited the recent decision setting the federal 9.5 µg/cm^2/day maximum leach rate to synchronize with rates of other regulatory agencies and to be responsive to stakeholder comments. In their response to comments, the USEPA agreed with the Port's comment regarding the need for legally available paint products to be protective of water quality standards. The USEPA also stated that it determined its federal 9.5 µg/cm^2/day leach rate maximum based on the scenarios developed by the California DPR, an end result of AB 425, further demonstrating the role of the Port's leadership on shaping copper reduction policy.

Correspondence with State and Federal Agencies

Regular communications with state and federal agencies, policy makers, and legislators promote consistency in requirements being developed across the state. They also provide a valuable networking mechanism to discuss strategies for implementation of activities and lessons learned and to build upon successful activity models. During 2018, the following correspondences occurred:

DPR

Port and DPR staff held several conference calls, continuing an ongoing collaborative partnership that promotes consistency in copper paint-related regulations across the state. As such, the Port's efforts in 2018 focused on collaborating with the DPR to understand and be able to disseminate correct information regarding the new regulation, which includes DPR's message that additional mitigation efforts will still be required. Questions regarding the new paint regulation and other copper-related issues were discussed and clarified. **This partnership was critical for Port staff to fully understand the new regulation, and in turn, develop outreach methods (discussed in depth below) to answer stakeholder questions pertaining to the new regulation. This partnership also enables long-term copper reduction planning to align with state efforts.**

In July 2018, Port staff hosted a site visit with DPR staff. During this visit, both agencies discussed copper issues affecting the Port, reviewed the current status of the TMDL, and toured SIYB. Site visits by state agencies such as the DPR help to raise awareness of issues specific to SIYB to those responsible for implementing policy and regulation.

California Boating and Waterways Commission

At the May 10, 2018, Boating and Waterways Commission Meeting in Sacramento, California, the DPR gave a presentation titled *Copper Paint from a Regulatory Perspective*. Within this presentation, the DPR discussed the new paint regulation, and used SIYB as an example of how their efforts are assisting, but not completely solving, copper impairment issues throughout the state. **Port staff attended this meeting and delivered two supporting presentations following the DPR, highlighting the Port's support for legislation and regulatory efforts that promote consistency statewide.**

Port staff presenting at the 2018 Boating and Waterways Commission Meeting

2018 California Marine Affairs and Navigation Conference Washington Week

In March 2018, the Port participated in the California Marine Affairs and Navigation Conference (CMANC) committee's annual "Washington Week" trip to Washington D.C. The purpose of Washington Week is to bring high-level issues related to California ports and harbors to elected officials and federal agency administrative offices. A key meeting with the USEPA focused on the future of TMDLs across the nation. One of the key issues raised by CMANC was the concern about the various dissolved copper TMDLs facing California and the need for regulatory agencies to work together when setting product use regulations and water quality objectives. Another discussion point related to the achievement of final TMDL targets and predicted water quality improvements. Additionally, Port staff were able to have idea-sharing discussions with other California port/harbor staff from Newport Beach and other cities facing similar water quality challenges.

San Diego Regional Water Quality Control Board

PORT of SAN DIEGO

Update on the Shelter Island Yacht Basin TMDL Monitoring Program

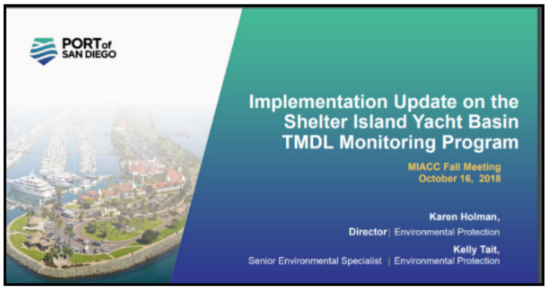
May 24, 2018

Kelly Tait,
Senior Environmental Specialist | Environmental Protection

On May 24, 2018, Port staff and the SIML TMDL Group met with Regional Board staff to present 2017 findings and highlight Copper Reduction Program successes as well as compliance achievements for the second interim compliance phase. At this meeting, and in follow-up written correspondence on June 28, 2018 (see Appendix E), Port staff requested confirmation from the Regional Board that the second interim compliance target had been achieved. Regional Board staff responded via correspondence on September 11, 2018 (see Appendix E) acknowledging conclusions from the May 24, 2018, meeting and following up on requests in the June 28, 2018, correspondence. At the October 10, 2018, Regional Board Monthly Meeting, the Executive Officer's Report (see Appendix E) confirmed and memorialized that the SIYB TMDL efforts had successfully achieved the second interim compliance requirement. **Port staff and SIML TMDL Group representatives spoke during the public comment period in support of the Executive Officer Report's findings.**

Marina Inter-Agency Coordinating Committee

Two Marina Inter-Agency Coordinating Committee (MIACC) meetings occurred during the 2018 reporting year, one on March 21, 2018, and the second on October 16, 2018. Topics of discussion for the March 2018 meeting included an update from the DPR regarding copper antifouling paint mitigation efforts and activities; a discussion pertaining to the SWRCB proposal to update water quality objectives associated with recreational exposure to water containing fecal bacteria; Southern California Coastal Water Research Project (SCCWRP) efforts to determine quantitative microbial risk assessment eligibility at urban beaches; and the partnership between San Francisco Estuary and Bay Foundation's *Pump out Nav* smartphone application.



PORT of SAN DIEGO

Implementation Update on the Shelter Island Yacht Basin TMDL Monitoring Program

MIACC Fall Meeting
October 16, 2018

Karen Holman,
Director| Environmental Protection
Kelly Tait,
Senior Environmental Specialist | Environmental Protection

Port staff were invited by MIACC organizers to present an update to the SIYB TMDL during the October 2018 meeting. This presentation provided information on progress in implementing the SIYB TMDL through the end of the second interim compliance phase. Port staff discussed the TMDL overview, the second compliance phase milestone, water quality and toxicity data, and SIYB as it relates to statewide copper reduction efforts. Other topics of discussion at the October 2018 meeting included an update on in-water vessel hull-cleaning studies being conducted by the University of Maryland; Occupational Safety and Health Administration (OSHA)/Cal OSHA safety pollution regulations for the compliant vessel antifouling coating replacement process; a Clean Marinas update; and a discussion on the implementation of the State Lands Commission biofouling regulatory program.

Regulations for In-Water Hull Cleaning

Diver cleaning a boat hull

Since October 2011, in-water hull-cleaning regulations have been in place requiring hull-cleaning businesses to obtain Port-issued permits to conduct hull cleaning on tidelands, develop BMP plans and implement BMPs during all cleaning activities, and ensure that all hull cleaners are trained on the BMPs. The regulations also require marinas to check each hull cleaner for proof of a valid permit and to prohibit non-permitted divers from working in their facility. At the end of 2012, the Port began issuing identification cards to all permitted hull cleaners to facilitate check-in at the marinas, a process that continued into 2018.

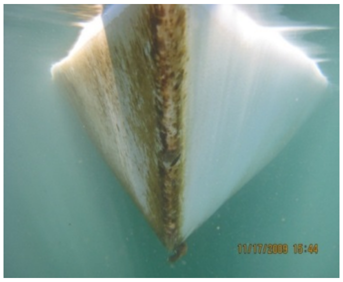
Validation of the permits continued in 2018 via collaborative efforts made by the Port, marinas, and yacht clubs to continue implementing the check-in process. Port staff inspected marinas and hull-cleaning practices[6], with 18 marina and yacht club facility inspections bay-wide in 2018.

In addition, 14 hull-cleaning permits had reached their end of the two-year permit term in 2018. Five of those businesses renewed their permits during this reporting period and nine of the expired permitted businesses either no longer existed or the permit was not renewed.

For the 2018 reporting period, key permitting statistics are as follows:

- 90 permits have been issued since the onset of the regulation.
- 47 hull-cleaning permits are active (as of December 31, 2018).
- 7 new hull-cleaning permits were issued in 2018.
- 5 hull-cleaning permits were renewed in 2018 (as of December 31, 2018).

To date, the regulations helped to reduce copper loads from in-water hull cleaning via requiring the use of diver BMPs.



Boat hull before and after cleaning

Testing and Research

The Testing and Research component of the Copper Reduction Program was developed to find effective hull paint alternatives. Starting in 2016 and continuing through the current reporting year, the testing and research program element has been adapted to focus on efforts beyond hull paint research and paint testing.

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[6] The Port of San Diego had a cyber security issue in September 2018 that resulted in the loss of data and files. Hull-cleaning inspection data, warning letters, and corrective action letters were affected by the security breach.

Additional testing and research strategies that could further assist with copper reduction in SIYB include the following:

- Studying innovative ways to remove copper from the waters and/or sediments in SIYB,
- Exploring basin hydrodynamics, and
- Exploring paint alternatives or options for paint replacement.

In 2017, new strategies were incorporated into the Copper Reduction Program via the Port's Blue Economy Incubator. These efforts continued through 2018.

Copper Removal Approaches

The Port's Blue Economy Incubator was established in 2016 to support entrepreneurship, foster sustainable aquaculture, and help drive blue tech innovation. Ideal candidates for the Port's Blue Economy Incubator include technologies that may help improve sediment and water quality in San Diego Bay. In April 2016, a request for proposal (RFP) was issued through the Port's Blue Economy Incubator specifically for innovative hull-cleaning and copper remediation technologies. In 2017, two companies were selected and moved through Board-authorized negotiations to conduct copper-related pilot projects through the Blue Economy Incubator. A San Diego-based company, Red Lion Chem Tech, proposed a one-year pilot project to demonstrate their core technology to remove soluble copper in seawater through an active and passive filtration system. A Sweden-based company, Rentunder, proposed a two-year pilot project to demonstrate their drive-in boatwash technology, a new approach that offers an alternative to current in-slip hull-cleaning practices, which may help reduce copper particulates released into San Diego Bay.

In 2018, the Rentunder Boatwash Pilot Project commenced, demonstrating technology that offers an alternative to current in-slip hull-cleaning practices. Using this technology, vessel hulls are cleaned in an enclosed basin: a gate is opened and allows for boats to enter prior to cleaning; the gate is then raised for the duration of cleaning and lowered again after cleaning to allow the boat to exit. In addition, particulate matter resulting from the cleaning is captured in the basin floor and removed via vacuuming. In 2018, this technology was tested using both mechanical brushes and a diver. The pilot project is expected to continue through 2019.

Boatwash Pilot Project water quality sampling event

Red Lion Chem Tech submitted a draft work plan to the Blue Economy Incubator for review during 2018. The Red Lion Chem Tech pilot project aims to remove dissolved copper from the water column using both active and passive filtration systems. The active system pumps water through a resin that removes dissolved copper, and the passive system has resin contained in a bag that is deployed in the water for extended periods of time, passively up taking dissolved copper. It is anticipated that the work plan will be completed and the pilot project will begin in 2019.

Basin Flow Approaches

One idea currently being researched is the feasibility of construction of a culvert to increase the flow of water through SIYB by connecting it to America's Cup Harbor. Increasing the flow may decrease the residence time of water in SIYB and may help to further enhance water quality when paired with other management strategies. In 2013, the effectiveness of a culvert was modeled and suggested that location-specific reduction in copper concentration averages from 17 to 21 percent were predicted for SIYB. This modeling was followed by an engineering feasibility study, completed by the Port in 2016.

The Port continues to internally evaluate the feasibility of a culvert in terms of technical, logistical, and financial constraints. The Port recognizes that (1) this option alone will not bring the basin into water quality compliance, and (2) further assessment of both basins (SIYB and America's Cup Harbor) is necessary to ensure that no unintentional impacts would occur.

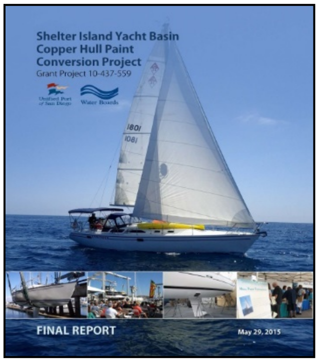
Hull Paint Transitions

The transition from high- to low- or non-copper alternatives is one of the most direct approaches to reduce copper loading. By transitioning to the available non-copper alternatives, load reduction is achieved by both active removal during in water hull cleaning and passive leaching. The Port recognizes that while the new DPR paint regulation will assist in attaining TMDL goals, additional mitigation measures will still be necessary to achieve full compliance with the final loading target in SIYB. The Port continues to maintain a copper-free fleet.

Conversion of Port Fleet

During the previous compliance phase, the Port completed transition of its fleet of boats to use of non-copper paints; all Port vessels now use non-copper paint. For 2018, the Port fleet remained non-copper. Boats were painted with various alternatives, largely depending on their use patterns. ***All 17 of the Port's boats continue to use non-copper paints, resulting in a 15.3-kg/yr copper load reduction.***

Private Boaters



In 2011, the Port successfully secured a Clean Water Act Section 319(h) non-point source program grant from the SWRCB for $600,000 to help with hull paint transition. The grant-funded SIYB Hull Paint Conversion Project provided cost offsets for SIYB boaters who use non-biocide paints. This project was completed in May 2015 and it is believed that some participants continue to use non-biocide paints. **Forty -one boats were transitioned as a result of this effort, and it is the Port's understanding that most of these conversions currently remain in place. This resulted in a direct load reduction of 36.9 kg/yr.**

Education and Outreach

The Port has developed an extensive education and outreach program geared toward educating boaters and other stakeholders on the use of alternative hull paints and increasing their awareness of the environmental impacts of copper paints.

Audiences Reached in 2018

The Port continued to ensure that frequent and consistent messages were delivered through multiple media avenues. Outreach efforts continued via email and phone-call responses to public inquiries, regular meetings with marinas and yacht clubs, and continued hosting of web-access to brochures and information. One new effort this reporting year included scheduling "one-on-one" meetings with SIYB marina and yacht club managers to encourage accurate vessel tracking and reporting and to discuss additional copper reduction efforts. The efforts under the Education and Outreach component of the Copper Reduction Program were designed to reach different stakeholders and audiences, depending on the outreach mechanism. While each component was designed for a primary audience, secondary audiences may also benefit from the information. Table 3-1 lists the individual outreach efforts of 2018, as well as the audiences reached.

Table 3-1.
2018 Outreach Efforts and the Audiences Reached.

Outreach Component	**Audience Reached**							
	Regulators	**Academics**	**Government Agencies**	**Boaters**	**Marinas**	**Boatyards**	**Paint Manufacturers**	**General Public**
Booths at Events	S	S	P	P	S	S	S	P
Conference Attendance	P	P	P	-	-	-	-	-
Guest Speaking Engagements	P	P	P	P	P	P	S	S
Workshops	P	S	P	S	S	P	P	S
Printed Outreach Material	S	S	S	P	P	S	S	P
Dedicated Web Address to Copper Reduction Program	S	S	S	P	P	S	S	P
Peer-Based Testimonials	S	S	S	P	P	S	S	P
Newspaper Articles	P	S	P	P	P	P	P	P
"One-on-One" Meetings	-	-	-	P	P	-	-	-

Notes:
P = Primary Audience, indicating that the most likely audience reached with the associated outreach effort.
S = Secondary Audience, indicating audiences that could be potentially reached with the associated outreach effort.

During 2018, the outreach and education component of the Copper Reduction Program became a primary focus and attempted to reengage stakeholders in TMDL requirements, TMDL progress and new state regulations, and to encourage further voluntary copper reduction efforts. This approach focused on more personal communication between Port staff and individual yacht clubs and marinas, which allowed for better engagement with stakeholders and offered personalization of the way in which messaging was delivered.

One-on-One Marina and Yacht Club Meetings

In July 2018, Port staff reached out to the 11 marina and yacht club tenants that are co-listed as Responsible Parties on the TMDL to schedule voluntary one-on-one meetings. These meetings were intended to personalize outreach efforts to foster collaborative relationships among marina managers, yacht club managers, and Port staff to help achieve additional copper reduction at each facility. The Port had three goals associated with the meetings:

1) Revisit TMDL requirements and discuss tenant copper reduction efforts for the final compliance phase, recognizing that copper reduction at each facility may not be a "one-size fits all" approach;

2) Encourage managers to continue with submitting complete vessel tracking records and offer Port assistance in areas with remaining deficiencies; and

3) Discuss the new DPR regulation as it relates specifically to the SIYB TMDL compliance requirement. Managers and Port staff discussed how the regulation will help SIYB achieve the 2022 TMDL compliance requirement, but also highlighted the importance of additional copper reduction efforts needed to achieve full compliance.

The one-on-one meetings gave managers the opportunity to share with Port staff their ideas and challenges faced related to copper reduction and the TMDL. **Eight of the 11 elected to participate in one-on-one meetings. Such feedback may help inform Copper Reduction Program efforts and strategies during the final compliance phase.**

Booths at Outreach Events

California Ports Day

Port staff attended the inaugural California Ports Day in Sacramento on February 21, 2018. Staff hosted a booth to highlight environmental initiatives across the Port on the Capitol lawn. Specifically, Port staff had the opportunity to discuss the SIYB TMDL, the Copper Reduction Program, and the Blue Economy Incubator efforts with state legislators and their staff, as well as the general public.

Port of San Diego booth at the California Ports Day

This platform allowed for the continued messaging of the need for continuity in environmental regulations at the state level and allowed Port staff to highlight how legislative efforts (such as AB 425) are successful in assisting with the Port's efforts in navigating environmental challenges, such as TMDL compliance.

Workshops, Seminars, and Conferences

Ongoing public education and outreach also can occur in the form of conference attendance and invited speaker opportunities. In addition to providing information on the Port's Copper Reduction Program and TMDL status, staff in attendance may also gain valuable insight from other presentations that discuss regulatory framework and project examples. Further, seminars and workshops allow for more focused topics to be discussed in depth and at length, thus providing the opportunity to both disseminate proper information and provide additional learning experiences for Port staff.

Conferences

In 2018, Port staff attended three conferences with a focus on sediment and water quality, as well as regulatory updates.

Staff attended:

- California Marine Affairs and Navigation Conference (CMANC) in Los Angeles, CA (January 18–19, 2018).
- Southern California Society of Environmental Chemistry and Toxicology (SoCal SETAC) in Los Angeles, CA (April 12–13, 2018).
- American Association of Port Authorities (AAPA) Energy and Environment Seminar in Jersey City, NJ (September 11–12, 2018).

2018 AAPA conference

Conference content at each meeting included the latest science and policy regarding sediment and water quality at the international/national (AAPA), state (CMANC), and regional (SoCal SETAC) levels.

Port staff speaking at the annual SoCal SETAC meeting

Guest Speaker Invitations

In 2018, Port staff were invited to present at six speaking engagements at the local, regional, state, and national/international levels. Topics covered included SIYB TMDL status, TMDL management efforts, and Copper Reduction Program efforts thus far. The various speaking engagements highlighted SIYB TMDL status updates, the importance of program planning to achieve regulatory compliance, SIYB TMDL and Copper Reduction Program successes to date, lessons learned, and discussions of the value in adaptive management. The number and diversity of speaking engagements that were requested specifically related to the SIYB TMDL reflect the interest across many platforms in the SIYB TMDL progress and Copper Reduction Program efforts.

The following guest speaker appearances were made:

- California Marine Affairs and Navigation Conference, Los Angeles, CA. Port staff presented "Navigating TMDLs: A Perspective on Science and Management," where the SIYB Dissolved Copper TMDL progress was discussed in depth. Approximately 75 people attended the conference (January 18, 2018).
- San Diego Environmental Professionals July Luncheon. Port staff presented the SIYB TMDL and efforts thus far to a diverse group of local environmental professionals (July 10, 2018). Approximately 50 people attended.
- Dockmasters Meeting. Port staff were invited to present on the SIYB TMDL efforts to date. The Dockmasters group comprises yacht club and marina managers from San Diego County, many directly involved with SIYB (August 15, 2018). Approximately 35 people attended.
- AAPA Energy and Environment Seminar. Port staff were asked to present and participate on a panel titled "Incorporating Resiliency into Port Planning and Environmental Projects." Approximately 100 people attended the platform and conference.
- MIACC Presentation. Port staff presented an update on the SIYB TMDL at the fall MIACC meeting (October 16, 2018). Approximately 100 people remotely attended.
- Shelter Island Master Leaseholders Group Monthly Meeting. Port staff spoke about the new DPR Rule, addressed its effects on vessel tracking and reporting, and discussed the upcoming reporting schedule with the SIML TMDL Group (November 14, 2018). Approximately 12 people attended.

Copper Paint Roundtable

Because the DPR regulation that went into effect on July 1, 2018, is still relatively new, the Port recognized that many SIYB stakeholders affected by the new regulation may still have questions about how the regulation will affect their business interests and lifestyles.

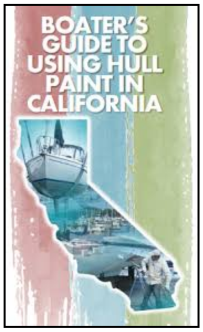
Port staff facilitated a roundtable discussion with Ms. Aniela Burant from the DPR as the keynote speaker to help clarify remaining questions that stakeholders directly affected by the new DPR regulation (mainly boatyards and paint manufacturers) may have. The Port also organized this visit with the DPR to further develop the working relationship between the two agencies, because collaboration and communication are critical for achieving Copper Reduction Program and TMDL goals.

The meeting was held at Driscoll Boat Works on Shelter Island and was attended by 27 individuals from the DPR, the Port, and both the boatyard and paint manufacturing stakeholder community. Boatyard representatives and Port staff also brainstormed ways to improve the process in which recreational boaters receive information from the boatyards regarding their hull paint products.

Outreach Materials—Printed Literature

Development of printed literature such as paint brochures, event flyers, project frequently asked questions (FAQs), and handouts is an effective way to disseminate information to the public. Event attendees can take the information home and read it at their leisure, rather than having to wait to get information during the event. In addition, the printed materials also provide a web link and other contact information so that readers can do additional research.

Updates to Printed Literature



Boater's Guide to Using Hull Paint in California brochure

With the adoption of the new DPR Rule, the printed pamphlet titled *Boater's Guide to Using Hull Paint in California* required an update to remove information regarding paint types that are no longer available in the state of California. A series of conference calls with the Port, Los Angeles County Beaches and Harbors, the DPR, and the Department of Boating and Waterways were held throughout the fall of 2018 to revise the pamphlet. A draft of the updated brochure was completed in December 2018 and the brochure is expected to be finalized in the first quarter of 2019.

Web and Media Tools

The use of a dedicated website for Copper Reduction Program information is another effective mechanism to reach the public.

Dedicated Web Address

The Port has developed a dedicated web address, www.sandiegobaycopperreduction.org, that links viewers to all elements of its Copper Reduction Program. The link, which was started in 2010, provides information on hull paint conversion efforts such as the 319(h) grant project, hull-cleaning regulations, and general paint research information. The site also contains downloadable materials such as FAQs, applications to obtain a hull-cleaning permit, and recent press releases relevant to copper reduction. Monitoring studies are also available on the website***. During the 2018 reporting period, Port staff provided updated lists of permitted hull cleaners as new information became available. Staff also ensured that the website was readily available, and that information remained current and easy to find.***

Peer-Based Testimonials

Another media tool is peer-based marketing, with local boaters discussing their experiences using the alternative products. During 2012, video testimonials were developed and displayed at the 2012 expo. In 2013, the video was posted on the Port's website. Additional written testimonials were also included so that readers could learn about other local boaters' experiences***. As of December 31, 2018, the video had been viewed 1,010 times.***

Press Releases

Press releases and email messages are effective media tools to announce special happenings of interest in the copper reduction program. Regular use of press releases also helps to keep the topic fresh in the public's mind. Using established distribution lists, email blasts ensure that the press release information can reach the intended target audiences quickly. Additionally, repeat messaging has been shown to be an effective way to change behavior. The press releases have primarily focused on the increasing use of alternative paints and have highlighted some of the new tools for facilitating hull paint conversion (grant funds, cost calculator, etc.).

Newspaper Articles

The Log newspaper has a 52,000-person readership in southern California and is available at more than 500 boating-related locations throughout the region. **In 2018, one article appeared in The Log related to the Port of San Diego's Copper Reduction Program, and specifically Shelter Island Yacht Basin. The Log publication reaches many in the local boating community and has served as an important vehicle for informing the public about the Port's efforts regarding copper reduction in San Diego Bay:**

- June 29, 2018: This article, *Port of San Diego continues to tout copper reduction program*, summarized and recapped the results of the 2017 SIYB Annual Report, and discussed the continued efforts being explored for the final compliance phase of the Dissolved Copper TMDL.

Internal Education

Increasing Port-wide awareness about the copper reduction program, alternative paint use, and status of water quality regulations is vital to a successful program. A solid understanding of the program attracts support by the Port's decision makers, such as the Board of Port Commissioners and executive team, and so enables projects and policy decisions to move forward. An informed executive team can also ensure that adequate funding is available to implement the program. As such, the Port continually seeks opportunities to provide information on key items of the copper reduction program. The following information was provided to the Port Board and executives during 2018:

- January 9, 2018: Port staff appeared before the Board to present updates on Red Lion Chem Tech and Rentunder Remediation Applications, two Blue Economy Incubator pilot projects aimed at reducing copper in San Diego Bay.
- April 19, 2018: A Port Board memorandum provided notification of the submittal of the 2017 Shelter Island Yacht Basin Dissolved Copper TMDL Annual Monitoring and Progress Report.
- June 12, 2018: Port staff appeared before the Board to present program status and updates for the SIYB TMDL.
- July 12, 2018: A Port Board memorandum provided notification of summer monitoring events around San Diego Bay, including TMDL monitoring and field work associated with the 2018 RHMP.
- August 2, 2018: A Port Board memorandum provided a summary of the DPR visit and the copper paint roundtable workshop.

Partnerships and Collaboration

Since the inception of the SIYB TMDL, the Port has been working to identify opportunities with tenants, academia, and other agencies to develop and provide outreach, testing opportunities, funding opportunities, and policies. As of December 2018, the Port has participated in multiple collaborative opportunities with groups within San Diego and throughout the California boating and regulatory communities. These activities and groups include:

- Coordination with hull cleaners on In-Water Hull-Cleaning regulations;

- Coordination with the SIML TMDL Group on SIYB TMDL annual reporting;
- Regular participation in state-led MIACC meetings for antifouling and marina-related topics;
- One-on-one meetings with SIYB TMDL listed tenants (i.e., marinas and yacht clubs) to foster collaborative relationships that may result in accurate vessel tracking and innovative copper reduction efforts that are facility specific; and
- Collaborative discussion with Los Angeles County Beaches and Harbors to discuss Copper Reduction Program efforts and lessons learned from the SIYB TMDL to date.

Additional Efforts (Companion Programs)

Several other Port programs directly or indirectly support the Copper Reduction Program's efforts. The Blue Economy Incubator (discussed above) will continue to be instrumental in identifying potential pilot studies that may assist in continued efforts to reduce copper concentrations throughout San Diego Bay.

The Port's Stormwater Program incorporates BMPs to decrease copper loading from landside activities bay-wide and specifically into SIYB. These efforts, described below, are primarily related to compliance requirements set forth in the Municipal Separate Storm Sewer System (MS4) Permit.

Construction Site Inspections

Construction inspections ensure that sites undergoing development or redevelopment control pollution and prevent discharges. For construction sites and facilities that do not comply, the Port takes enforcement action. ***In 2018, 289 inspections were performed, and 20 violations were issued. An overall BMP implementation rate of 93.1 percent was observed.***

Commercial Business Inspection Program

Per the requirements of the Municipal Permit, the Port inspects commercial facilities in SIYB and bay-wide. One component, the Port's marina inspection program, provides opportunities to educate boat owners about pollution prevention, focusing on visual observations to identify sources of pollution and the pollution prevention practices implemented at the marinas and yacht clubs. The goal of the inspections is to help implement behavior changes that will help reduce pollution (including copper) in bay waters. ***In SIYB, the inspections confirmed that BMPs were being implemented appropriately at most facilities. Written warnings were used to resolve deficiencies at eight facilities during 2018, six of which lacked proper material storage. Written warnings were given for 14 deficiencies that included lack of BMP training logs, observed sediment accumulation, lack of BMPs for overwater activities, and improper capture of wash water.***

Stormwater Quality Management Plan and Development of Regulations

The Port incorporates Stormwater Quality Management Plan (SWQMP) requirements on applicable development and redevelopment projects bay-wide. Depending on the type and size of the projects, SWQMP requirements could include site design, source controls, and treatment controls such as low-impact development (LID). All efforts help reduce copper loading into San Diego Bay. Since 2009, 34 bay-wide projects overall with metals as priority pollutants have been implemented, treating a total of 114.25 acres. In SIYB, there have been five existing projects overall with metals as priority pollutants, treating a total of 9.19 acres. ***There were no new projects in SIYB during 2018 with metals as a priority pollutant. As a result, the total treated area did not change.***

Monitoring and Reporting

The main goal of the Monitoring and Reporting component of the Copper Reduction Program is to assess long-term improvements in water quality. Several special studies have been implemented to address data gaps in basin water quality dynamics. The data collected for the annual monitoring program and through various special studies have all contributed to a better understanding of basin water quality dynamics in SIYB.

Shelter Island Yacht Basin Time Series Special Study

The Time Series Special Study was conducted to gain a better understanding on the potential effects of tidal variations on concentrations of dissolved copper in surface waters in SIYB. At three sampling locations throughout the SIYB, water samples were collected every 2 hours over the course of one full mixed semidiurnal tidal cycle. Sampling occurred in January 2018, and results were provided as Appendix E of the 2017 Shelter Island Yacht Basin Dissolved Copper TMDL Monitoring and Progress Report.

Regional Harbor Monitoring Program

This bay-wide monitoring program assesses the ambient conditions found in San Diego Bay and other southern California harbors on the basis of comparisons with historical data and comparisons of contaminant concentrations with known surface water and sediment thresholds. The program samples water, sediment, benthic infauna, and a variety of fish species in San Diego Bay. Upon completion of the study, a comprehensive report is generated. The Port is the lead agency on this project.

Core monitoring was conducted at 58 stations in San Diego Bay from July through September 2018, with 10 of these stations in marina strata. Each station was sampled for water quality, sediment quality, and benthic community health. Data analysis is currently underway and will be summarized when the final report is available, estimated in early 2021.

3.1.1.2 Marina, Yacht Club, and SIML TMDL Group BMPs to Reduce Copper Loading

The SIML TMDL Group reported that the following BMPs and actions were ongoing or implemented in 2018 as a part of the group’s TMDL BMP activity. These BMP actions are described in more detail in Appendix B.

- ***Meetings*** – Participation and attendance at SIYB TMDL Group meetings since 2005, including 10 group meetings in 2018
- ***Collaboration*** – Participation in meetings and coordination with Port staff and Port consultants on new and ongoing scientific studies
- ***Procedures*** – Ongoing procedures for verifying and monitoring Port Diver Permit compliance at facilities, including:
  - Training marina staff on Port Diver Permits – Regular dock walks to ensure plumes are not created

- ***BMP Sub-committee*** –6 meetings conducted in 2018.
- ***Outreach*** – 91 percent of boaters holding slips in member organizations were contacted about antifouling paint usage. The BMP Committee initiated an outreach program, including correspondence to the marinas and yacht clubs, to support the relevance of low-leach paints and new regulations in 2018.
- ***Workshops*** – Presentations made to the San Diego Bay Dockmaster Group
- ***Communication*** – Email blasts and newsletter sent to boatowners.
- ***Education*** – Boater education through newsletters, fliers, workshops and readily available literature
- ***Training*** – Ongoing staff trainings for existing and new marina employees

- Ensuring that all divers have valid Port hull-cleaning permits prior to entering leaseholds
- Reporting hull cleaners who arrive by boat and do not check in with the dock master's office to the Port
- Reporting hull cleaners who create visible paint plumes during hull cleaning to the Port
- Posting diver BMP signs at marinas and yacht clubs entrances

Posted sign informing hull cleaners and boat owners about BMPs

BMP copper-reducing strategies such as the Hydra Hoist® (left) and dry space storage (right)

- ***Outreach to Boatyards and Paint Manufacturers***
- ***Consultancy and Guidance –*** Environmental professional retained
- ***Vessel Tracking*** – 9 percent increase in completeness and response over last year boat owner surveys conducted for data collection and reporting in 2018

- **Alternative Methods**
  - Facilitate dry storage on land
  - Encourage use of slip liners
  - Encourage use of in-water lift systems
  - Hold intra-club sailing regattas using dry storage boats to provide sailing experience
- ***Incentives*** – Marinas are encouraged to offer paint-based incentive programs, which include slip wait list priority for boats with non-copper paints or low leach paints

An example of a boat slip liner – a common type of copper-reducing BMP strategy

3.2 Vessel Counts by Hull Paint Type

Vessel conversion calculations were based on data provided by SIYB marinas and yacht clubs in addition to Port vessels, transient slips, and mooring buoys. The 2018 census of the hull paint types reported by all SIYB marinas and yacht clubs is as follows:

- 772 vessels have copper or unknown (assumed to be copper) hull paint.
- 695 vessels have paints considered as lower copper. These vessels consist of the following:
  - 672 vessels have paint that is listed as a DPR Category I (low leach) paint.
  - 35 vessels have low-copper paint (confirmed [23 vessels] and unconfirmed [12 vessels]).
- 541 vessels have aged-copper hull paint.
- 109 vessels have either non-copper paints or no paint at all (confirmed [101 vessels] and unconfirmed [8 vessels]).

The 2018 census of the hull paint types reported from the Port-maintained slips (Port vessels, transient slips, and mooring buoys) is as follows:

- 68 transient dock vessels have copper or unknown (assumed to be copper) hull paint.
  - 1 known research vessel occupied one slip at the transient dock for approximately 10 months in 2018. The paint type could not be verified; therefore, the vessel is assumed to have copper hull paint.
- 17 Port-operated vessels have non-copper paints.

3.2.1 Slip Count and Occupancy

Based upon the information provided by the SIML TMDL Group, individual facilities and the Port, 2,313 slips[7] in SIYB were available to be occupied by vessels in 2018, including a Port-operated anchorage with a capacity of up to 40 guest vessels, 28 transient docks, and 17 slips at the Harbor Police dock. The total slip count was consistent with the 2017 monitoring year count, with a decrease of 50 slips compared with the 2,363 identified slips and moorings reported in the SIYB TMDL (Tables 3-3 and 3-4).

Of the 2,313 slips and moorings in SIYB during 2018, 99 slips were reported to be vacant year-round (or at least at the time the survey was conducted), leaving 2,214 slips that were occupied for at least a portion of time in 2018. Slip occupancy rates for each hull paint type are also shown in Table 3-1 (yacht clubs and marinas) and Table 3-2 (Port-operated facilities). On average, slips and moorings in SIYB were occupied 88 percent of the time.

3.2.2 Vessel Dimensions

The average size vessel in SIYB in 2018, based on reported hull lengths and beam widths, was 38.9 feet (11.9 meters, total length) by 12.3 feet (3.7 meters, beam width) (Appendix C). The average wetted hull surface area of 2018 SIYB vessels was calculated to be 37.7 square meters (m^2). Figure 3-2 depicts average wetted hull surface area from 2012–2018.

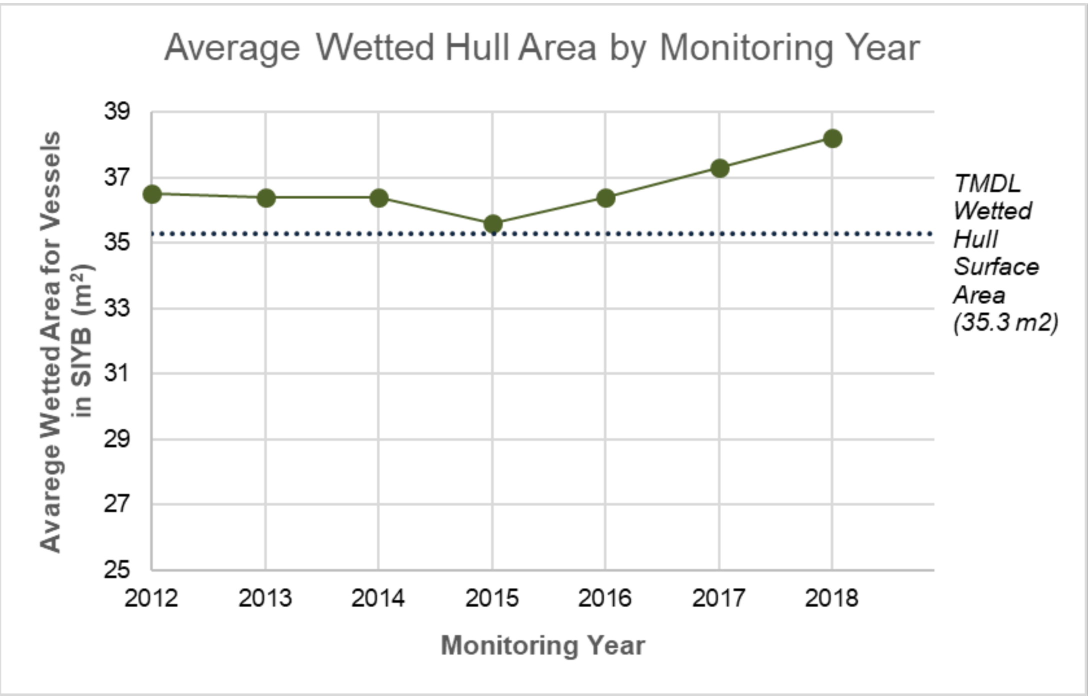


Figure 3-2. Average Wetted Hull Surface Area in SIYB by Monitoring Year, 2012-2018

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[7] At several locations in SIYB, single slips can be occupied by more than one vessel. In these cases, the slip count may include each vessel within the slip. For example, if two vessels occupy a single slip, the slip count for this location may have been reported as two slips, not one. Efforts to improve consistency on this issue remain ongoing.

3.2.3 Estimated Copper Load

Copper loads from passive leaching and in-water hull cleaning are being reported separately for the 2018 monitoring year. Dissolved copper loads in 2018 attributed to passive leaching are shown in Table 3-2 (yacht clubs and marinas) and Table 3-3 (Port-operated facilities). Dissolved copper loads in 2018 attributed to in-water hull cleaning are shown in Table 3-4 (yacht clubs and marinas) and Table 3-5 (Port-operated facilities).

Table 3-2.
2018 Copper Load by Vessel Hull Type and Reported Occupancy at Yacht Clubs and Marinas as a Result of Passive Leaching Using TMDL Assumptions

Vessel Hull Paint Category	Number per Category	Average Time Occupied[c]	Copper Load per Vessel (kg/yr)[d]	Total Copper Load (kg/yr)
Copper or Unknown (Assumed Copper)	772	85.9%	0.86	570
DPR Category I (Low Leach)	672	93.3%	0.43	270
Low-Copper (Confirmed)	23	83.8%	0.43	8.29
Low-Copper (Unconfirmed)[a]	12	94.0%	0.86	9.70
Aged-Copper Paint[b]	541	90.3%	0.43	210
Non-Copper (Confirmed or Not Painted)	101	90.4%	0	0
Non-Copper (Unconfirmed)[a]	8	91.1%	0.86	6.27
Vacant Slips (Yacht Clubs and Marinas) (Note: vacant slips are not included in the total vessel count below)	99	--	--	0
Total Vessels (Yacht Clubs and Marinas)	***2,129[e]***	***--***	***--***	***1,074***

Notes:

a. Low- or non-copper paints that were not confirmed are counted as high-copper paint, per the Monitoring Plan.

b. Calculations for aged-copper paints are similar to those for low-copper paints (0.43 kg/yr load).

c. The average total occupancy was derived by the count within each vessel hull paint category multiplied by the average percent occupancy for that category; values are presented to three significant figures.

d. Based upon per-vessel load identified for passive leaching in Appendix 2 of the SIYB TMDL.

e. Note: Vacant slips are not included in this total.

% = percent; DPR = Department of Pesticide Regulation; kg/yr = kilogram(s) per year

Table 3-3.
2018 Copper Load by Vessel Hull Type and Reported Occupancy at Port-Operated Facilities as a Result of Passive Leaching Using TMDL Assumptions

Vessel Hull Paint Category	Number per Category	Average Time Occupied[b]	Copper Load per Vessel (kg/yr/vessel)[d]	Total Copper Load (kg/yr)
Port Fleet (Confirmed Non-Copper)	17	100%	0	0
Port Transient Dock[a] (Copper or Unknown and Assumed to be Copper)	28[c]	61.8%	0.86	14.9
Port Weekend Anchorage[a] (Copper or Unknown and Assumed to be Copper)	40	33.5%	0.86	11.5
Vacant Slips (Port HPD Dock)	0	0%	--	0
Total (Port-Operated Facilities)	***85***	***--***	***--***	***26.4***

Notes:
a. Calculated as an average, based on total number of days a slip was occupied by a guest vessel.
b. The average total occupancy was derived by the count within each vessel hull paint category multiplied by the average percent occupancy for that category; values are presented to three significant figures.
c. A known research vessel occupied one slip at the transient dock for 10 months in 2018. The paint type could not be verified; therefore, the vessel is assumed to have copper-based hull paint.
d. Based upon per vessel load identified for passive leaching in Appendix 2 of the SIYB TMDL.
% = percent; kg/yr = kilogram(s) per year; HPD = Harbor Police Dock

Table 3-4.
2018 Copper Load by Vessel Hull Type and Reported Occupancy at Yacht Clubs and Marinas as a Result of In-Water Hull Cleaning Using TMDL Assumptions

Vessel Hull Paint Category	Number per Category	Average Time Occupied[c]	Copper Load per Vessel (kg/yr)[d]	Total Copper Load (kg/yr)
Copper or Unknown (Assumed Copper)	772	85.9%	0.04	26.5
DPR Category I (Low Leach)	672	93.3%	0.02	12.5
Low-Copper (Confirmed)	23	83.8%	0.02	0.39
Low-Copper (Unconfirmed)[a]	12	94.0%	0.04	0.45
Aged-Copper Paint[b]	541	90.3%	0.02	9.77
Non-Copper (Confirmed or Not Painted)	101	90.4%	0	0
Non-Copper (Unconfirmed)[a]	8	91.1%	0.04	0.29
Vacant Slips (Yacht Clubs and Marinas) (Note: vacant slips are not included in the total vessel count below)	99	--	--	0
Total (Yacht Clubs and Marinas)	***2,129***[e]	***--***	***--***	***49.9***

Notes:
a. Low- or non-copper paints that were not confirmed are counted as high-copper paint, per the Monitoring Plan.
b. Calculations for aged-copper paints are similar to those for low-copper paints (0.02 kg/yr load for cleaning).
c. The average total occupancy was derived by the count within each vessel hull paint category multiplied by the average percent occupancy for that category; values are presented to three significant figures.
d. Based upon per vessel load identified for in-water hull cleaning in Appendix 2 of the SIYB TMDL.
e. Note: Vacant slips are not included in this total.
% = percent; DPR = Department of Pesticide Regulation; kg/yr = kilogram(s) per year

Table 3-5.
2018 Copper Load by Vessel Hull Type and Reported Occupancy at Port-Operated Facilities as a Result of In-Water Hull Cleaning Using TMDL Assumptions

Vessel Hull Paint Category	Number per Category	Average Time Occupied[b]	Copper Load per Vessel (kg/yr/vessel)[c]	Total Copper Load (kg/yr)
Port Fleet (Confirmed Non-Copper)	17	100%	0	0
Port Transient Dock[a] (Copper or Unknown and Assumed to be Copper)	28[d]	61.8%	0.04	0.69
Port Weekend Anchorage[a] (Copper or Unknown and Assumed to be Copper)	40	33.5%	0.04	0.54
Vacant Slips (Port HPD Dock)	0	0%	--	0
Total (Port-Operated Facilities)	***85***	***--***	***--***	***1.23***

Notes:

a. Calculated as an average, based on total number of days a slip was occupied by a guest vessel.

b. The average total occupancy was derived by the count within each vessel hull paint category multiplied by the average percent occupancy for that category; values are presented to three significant figures.

c. Based upon per vessel load identified for in-water hull cleaning in Appendix 2 of the SIYB TMDL.

d. A known research vessel occupied one slip at the transient dock for 10 months in 2018. The paint type could not be verified; therefore, the vessel is assumed to have copper-based hull paint.

% = percent; kg/yr = kilogram(s) per year; HPD = Harbor Police Dock

Passive load estimates were calculated by multiplying the number of vessels in each category by either 0.86 kg/yr (for copper, assumed copper, and unconfirmed low-copper paints, or unconfirmed non-copper paints), or 0.43 kg/yr (for DPR Category I, low-copper, and aged-copper paints). In-water hull cleaning load estimates were calculated by multiplying the number of vessels in each category by either 0.04 kg/yr (for copper, assumed copper, and unconfirmed low-copper paints, or unconfirmed non-copper paints) or 0.02 kg/yr (for DPR Category I, low-copper, and aged-copper paints).

The load estimate for each category was then corrected for average vessel occupancy (i.e., Average Time Occupied in Tables 3-2 through 3-5). The combined 2018 load estimates from passive and in-water hull cleaning sources are presented in Table 3-6 and as follows:

- Vessels with copper (or assumed copper) paints contributed a load of 625 kg/yr (this total includes 597 kg/yr from vessels in yacht clubs and marinas and 27.7 kg/yr from vessels in Port-operated facilities).
- DPR Category I paints contributed a dissolved copper load of approximately 282 kg/yr.
- Low-copper hull paints contributed a dissolved copper load up to 8.68 kg/yr.
- Aged-copper paints contributed an annual dissolved copper load of 220 kg/yr.
- Vessels that were reported to have unconfirmed low-copper (10.2 kg/yr) or unconfirmed non-copper (6.56 kg/yr) paints contributed an annual dissolved copper load of 16.8 kg/yr.
- No dissolved copper load was contributed to SIYB by the 118 vessels (including Port-operated vessels and vessels in yacht clubs and marinas) with either confirmed non-copper paint, vessels in slip liners or HydroHoists®, or vessels that were unpainted.

- A total of 99 slips within the SIYB yacht clubs and marinas were reported to be vacant year-round, and so were not loading dissolved copper into the basin.

In summary, vessels painted with copper paints, DPR Category I paints, low-copper hull paints, and aged-copper paints contributed a combined passive and in-water hull cleaning load of 1,152 kg/yr (i.e., approximately 1,124 kg/yr for yacht clubs and marinas plus approximately 27.7 kg/yr for Port-operated facilities) of dissolved copper to SIYB in 2018.

3.2.4 Estimated Copper Load Reduction

The dissolved copper load reduction for 2018 is shown in Table 3-6. Load reduction is determined by subtracting the estimated dissolved copper load from the 2,100-kg/yr baseline load attributed to vessels identified in the SIYB TMDL Technical Report (passive leaching = 2,000 kg/yr and in-water hull cleaning = 100 kg/yr).

Based upon these calculations, the 2018 estimated copper load reduction is 948 kg/yr (i.e., 2,100 kg/yr minus 1,152 kg/yr = 948 kg/yr), which is a 45.2 percent reduction compared with the baseline load identified in the TMDL.

Table 3-6.
2018 Estimated Copper Load Reduction

Copper Loading Category	Total Copper Load (kg/yr)
SIYB Vessels in Yacht Clubs and Marinas with Copper or Unknown Paint (Assumed Copper)	597
SIYB Vessels in Yacht Clubs and Marinas with DPR Category I (Low Leach Paint)	282
SIYB Vessels in Yacht Clubs and Marinas with Confirmed Low-Copper Paint	8.68
SIYB Vessels in Yacht Clubs and Marinas with Unconfirmed Low-Copper Paint	10.2
SIYB Vessels in Yacht Clubs and Marinas with Aged-copper Paint	220
SIYB Vessels in Yacht Clubs and Marinas with Confirmed Non-Copper Paint or No Paint	0
SIYB Vessels in Yacht Clubs and Marinas with Unconfirmed Non-Copper Paint	6.56
Port HPD Fleet	0
Port-Operated Docks in SIYB	27.7
SIYB Yacht Club and Marina Year-Round Vacancies	0
Grand Total Load	1,152
Load Reduction from TMDL[a]	**948** (**45.2**%)

Notes:
a. The total copper load from the TMDL equals 2,100 kg/yr from vessel paints (passive leaching and in-water hull cleaning, combined). The estimated load due to background, urban runoff, and atmospheric deposition is not included in this total.
% = percent; DPR = Department of Pesticide Regulation; HPD = Harbor Police Dock; kg/yr = kilograms per year; SIYB = Shelter Island Yacht Basin; TMDL = Total Maximum Daily Load

3.3 SIYB TMDL Water Quality Monitoring

This section summarizes the results of the 2018 annual analytical chemistry and toxicity monitoring program conducted in SIYB. Detailed laboratory reports are in Appendix D.

3.3.1 Surface Water Chemistry

Annual water quality monitoring was performed on August 13, 2018. Surface water samples were tested for concentrations of total and dissolved copper and zinc, DOC, TOC, and TSS. Results of the monitoring survey are presented in Table 3-7, including the in situ water quality measurements; a QA/QC summary of all analytical laboratory data is in Section 3.3.1.2. The chemistry results reports submitted by each analytical laboratory are in Appendix D.

Table 3-7.
Chemistry Results for SIYB Surface Waters, August 2018 Event

Station	Dissolved Copper (µg/L)	Total Copper (µg/L)	Dissolved Zinc (µg/L)	Total Zinc (µg/L)	DOC (mg/L)	TOC (mg/L)	TSS (mg/L)
SIYB-1	**10**	11	24	26	1.7	1.6	11
SIYB-2	**7.0**	8.1	16	17	1.6	1.6	10
SIYB-3	**7.4**	8.4	18	19	1.6	1.7	12
SIYB-4	**7.4**	7.5	19	18	1.8	1.7	4 J
SIYB-5	**6.2**	6.5	16	16	1.7	1.6	13
SIYB-6	1.9	2.4	4.6	5.5	2.0	1.4	12
SIYB-REF	0.65	0.87	1.9	2.6	1.6	1.7	12

Notes:
Values in **bold** are above the USEPA National Recommended Water Quality criterion continuous concentration (CCC) for dissolved copper of 3.1 µg/L in marine waters.
No values were above the zinc CCC of 81 µg/L.
High tide on 08/13/2018 was +5.95 feet at 11:44 am; tidesandcurrents.noaa.gov
µg/L = microgram(s) per liter; DOC = dissolved organic carbon; J = below the reporting limit, value is estimated; mg/L = milligram(s) per liter; REF = reference; SIYB = Shelter Island Yacht Basin; TOC = total organic carbon; TSS = total suspended solids

Dissolved Copper – Dissolved copper levels within SIYB ranged from 1.9 to 10 µg/L. The lowest concentration within the basin occurred at the outermost station (SIYB-6); the highest level was recorded at an inner station (SIYB-1). The concentration of dissolved copper at the reference station (SIYB-REF) was 0.65 µg/L. Dissolved copper concentrations at five of the six SIYB stations exceeded the dissolved copper USEPA National Recommended Water Quality CTR WQO of 3.1 µg/L.

Total Copper – Total copper concentrations measured in SIYB followed a similar spatial pattern, ranging from 2.4 µg/L at the outermost station in the basin (SIYB-6) to 11 µg/L at the innermost station (SIYB-1). The total copper concentration at the reference station (SIYB-REF) was 0.87 µg/L.

Dissolved Zinc – Dissolved zinc levels in SIYB followed a spatial pattern similar to that of dissolved copper. Concentrations ranged from 4.6 to 24 µg/L within SIYB (lowest at SIYB-6 and highest at SIYB-1). The concentration at SIYB-REF was 1.9 µg/L. Dissolved zinc levels in SIYB have remained well below the USEPA criterion continuous concentration (CCC) of 81 µg/L during all SIYB TMDL monitoring events.

Total Zinc – Total zinc concentrations followed the same spatial pattern, with values ranging from 5.5 µg/L at SIYB-6 to 26 µg/L at SIYB-1. The concentration of total zinc at the SIYB-REF station was 2.6 µg/L.

DOC – DOC concentrations in the water column, which have been shown to affect the bioavailability of free copper, were relatively consistent throughout SIYB, ranging from 1.6 to 2.0 milligram(s) per liter (mg/L).

TOC – Similarly, measured concentrations of TOC were relatively consistent for all samples, ranging from 1.4 mg/L to 1.7 mg/L.

TSS – Measured concentrations of TSS were relatively consistent for five of the six stations, ranging from 10 mg/L to 13 mg/L; the concentration of TSS at SIYB-4 was 4 mg/L.

3.3.1.1 Comparison of SIYB Dissolved Copper Levels Over Time

An average basin-wide dissolved copper concentration was calculated (excluding the reference station) for comparison with the prior SIYB TMDL monitoring results (Figure 3-2). The basin-wide average concentration of dissolved copper measured in 2018 was 6.7 µg/L ± 1.1 µg/L (mean ± standard error), which was approximately 20 percent lower than the 2005–2008 baseline level.

As shown in Figure 3-3, the dissolved copper levels in the surface waters of the basin have been relatively consistent over the previous five TMDL monitoring events (2014–2018).

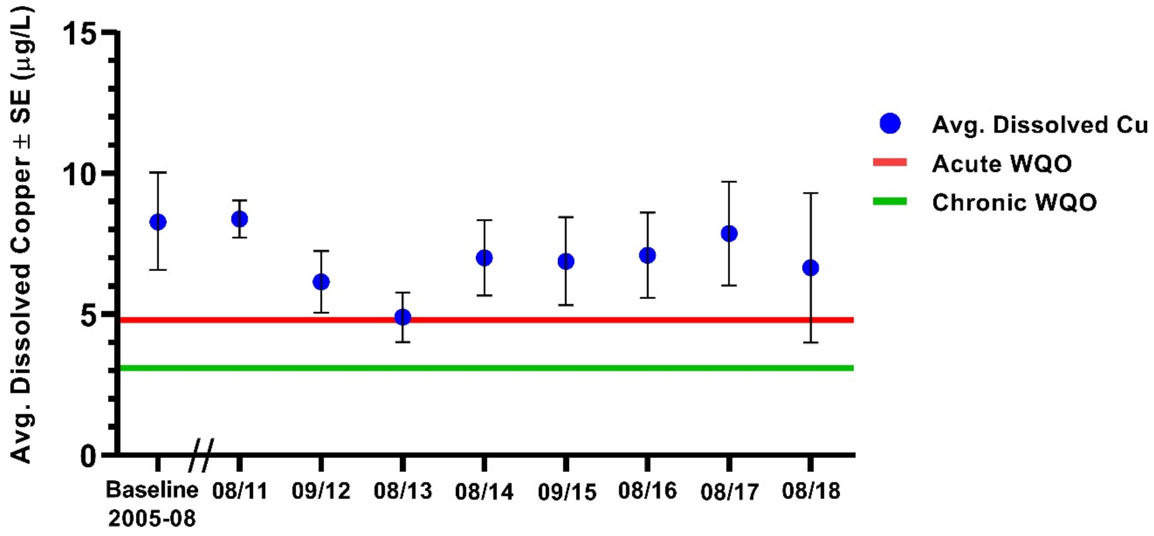

Figure 3-3. Dissolved Copper Concentrations in SIYB Relative to Baseline Conditions

3.3.1.2 Analytical Chemistry QA/QC

All samples were submitted to the analytical laboratories on the day after they were collected (August 14, 2018). The samples were received in good condition at Weck, at 7.5°C and on ice. The samples for dissolved metals analyses were filtered by the laboratory immediately upon receipt. All samples met holding time requirements for analysis.

Analytical chemistry results underwent a thorough QA/QC evaluation; they were determined to meet the data quality objectives in the QAPP and were deemed acceptable for reporting purposes, with qualifications as noted in the QA section of the individual laboratory reports (these issues are summarized below). The analytical laboratory reports in Appendix D have specific QA/QC sections that highlight any qualified data.

The following information summarizes the relevant data QA/QC-related findings associated with the 2018 SIYB TMDL study:

- **Issue** – Similar to results in 2016, higher-than-expected levels of dissolved and total zinc were observed in the equipment rinsate blank. Ideally, the level of metals in this QA sample should be very low or non-detect. The field blank contained concentrations less than those of the equipment blank, which is indicative of potential trace contamination of equipment. The concentrations of the metals in the equipment rinsate are similar to the concentrations measured at the reference station for zinc.
- **Issue** – Higher-than-expected levels of DOC/TOC were observed in the equipment rinsate blank and the field blank. These low-level detections are of a range similar to those of previous events and may be representative of trace contamination. Corresponding laboratory QA/QC samples meet all project-specific limits in the QAPP.

  Resolution – Trace detections of metals, DOC, and TOC were measured in the equipment rinsate. The source of these detections is unknown. Based on similar low-level detections of contaminants of concern in the equipment rinsate, several best field practices are employed as part of the field collection. Specifically, the Niskin bottle used for sample collection was the same piece of equipment that has been used for previous SIYB TMDL monitoring events. Furthermore, prior to the TMDL sampling event, the Niskin bottle was scrubbed with an Alconox® solution, thoroughly rinsed with deionized water, and sealed in a plastic bag. Prior to the equipment rinsate collection, the Niskin bottle was rinsed again with laboratory-certified deionized water. The low-level detections were not considered significant enough to warrant retesting or recollection of samples and testing. All results are considered usable for their intended data purposes and are reported as provided by the laboratory.
- **Issue** – DOC values in some cases were higher than the TOC values reported for the same sample. Corresponding laboratory QA/QC samples met all QAPP limits, and concentrations measured in the associated laboratory blanks were very low to non-detect. The magnitudes of these minor differences are in general agreement with results from previous events and these differences appear to be inherent to the method. The exact source of these low-level detections is unknown, but they may be a trace-level artifact introduced as part of the filtration step.
- **Resolution** – The minor differences were not considered significant enough to warrant retesting or recollection of samples and testing. All results are considered usable for their intended data purposes and are reported as provided by the laboratory.
- **Issue** – Metals analyses were spiked at a higher level than specified in the QAPP.
- **Resolution** – A subsequent set of spikes was performed to meet the QAPP specifications; QA measures confirmed data acceptability.

3.3.2 Toxicity

In addition to water chemistry analyses, the samples were tested for toxicity using an acute 96-hour survival exposure with a marine larval fish (Pacific topsmelt) and a chronic 48-hour survival and development test using bivalve embryos (Mediterranean mussel). The complete toxicity laboratory report for the 2018 study is in Appendix D.

3.3.2.1 Pacific Topsmelt 96-Hour Acute Bioassay

Pacific topsmelt survival ranged from 80 percent to 100 percent in the laboratory controls. The lab control associated with stations SIYB-1, SIYB-2, and SIYB-3 did not meet the minimum test acceptability criterion of 90 percent mean survival; therefore, the concurrent lab control for stations SIYB-4 and SIYB-5 (93.3 percent mean survival) was substituted for statistical analyses[8]. No toxicity was observed in samples from stations SIYB-1, SIYB-2, SIYB-3, or SIYB-5 (Table 3-8). However, a significant decrease in Pacific topsmelt survival was observed in the 100 percent concentration (i.e., undiluted SIYB water) sample from SIYB-4 relative to the control (a 43 percent reduction in survival) using both the USEPA 1995b statistical methods (i.e., a one-tailed t-test with the Bonferroni adjustment) and the Test of Significant Toxicity (TST)[9] (USEPA, 2010). Statistically significant reductions in survival were also observed in the 50 and 100 percent concentrations of the SIYB-6 sample and the 25 percent concentration of the SIYB-REF sample using the USEPA 1995b methods; however, both of these 100 percent SIYB water samples passed the TST analysis (Table 3-8).

Table 3-8.
Results of the 96-Hour Pacific Topsmelt Bioassay

Concentration (% Sample)	Sample ID/Mean Survival (%)						
	SIYB-1	SIYB-2	SIYB-3	SIYB-4	SIYB-5	SIYB-6	SIYB-REF
Laboratory Control	93.3[a]	93.3[a]	93.3[a]	93.3	93.3	100	100
25	90.0	96.7	100	93.3	80.0	93.3	**70.0**
50	90.0	100	80.0	93.3	96.7	**83.3**	100
100	90.0	90.0	90.0	**53.3**	96.7	**86.7**	100
TST (Pass/Fail)	Pass	Pass	Pass	Fail	Pass	Pass	Pass
NOEC (%)	100	100	100	50	100	25	100
LOEC (%)	N/A	N/A	N/A	100	N/A	50	N/A
LC_{50} (%)	>100	>100	>100	>100	>100	>100	>100

Notes:
Values in **bold** indicate a statistically significant decrease in survival compared to the lab control using the USEPA 2002 acute method guidance flowchart statistical methods.
The reference toxicant EC_{50} value (196 µg/L copper) for this test was within two standard deviations of the Nautilus historical mean (124 ± 136 µg/L copper), indicating typical organism sensitivity to copper.
a. The lab control associated with stations SIYB-1, SIYB-2, and SIYB-3 did not meet the minimum test acceptability criterion of 90 percent mean survival (result was 80 percent); therefore, the concurrent lab control with stations SIYB-4 and SIYB-5 was substituted for statistical analysis.
% = percent; ID = identification; LC_{50} = concentration estimated to be lethal to 50 percent of the organisms; LOEC = lowest observed effect concentration; N/A = not applicable (because test treatment had NOEC of 100%); NOEC = no observed effect concentration; TST (Pass/Fail) = test of significant toxicity; TST Pass = sample is nontoxic according to the TST calculation; TST Fail = sample is toxic according to the TST calculation

3.3.2.2 Bivalve Larvae 48-Hour Chronic Bioassay

Results of the mussel development tests conducted on SIYB surface water samples are summarized in Table 3-9. Results are presented as a combined endpoint of survival and development per the USEPA 1995b protocol.

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[8] The substitution of laboratory controls was based on the best professional judgment of the laboratory and Toxicity QA Officer. See Section 3.3.2.3 (Toxicity QA/QC) for more information.

[9] The TST is a USEPA-developed statistical approach to evaluate the whole effluent and ambient toxicity by using hypothesis testing techniques based on research and peer-reviewed publications.

Table 3-9.
Results of the 48-Hour Bivalve Larvae Bioassay

Concentration (% Sample)	Mean Combined Survival and Normal Development						
	SIYB-1	SIYB-2	SIYB-3	SIYB-4	SIYB-5	SIYB-6	SIYB-REF
Laboratory Control	91.2	92.2	87.0[b]	90.2	88.9[b]	86.9[b]	90.7
6.25	91.9	92.4	93.7	93.5	89.4	85.1	91.3
12.5	88.9	92.2	92.1	91.9	92.0	90.7	90.8
25	91.9	93.9	88.8	90.1	90.4	90.5	91.7
50	91.2	91.6	87.5	94.2	87.3	90.3	92.1
100	**55.2**	87.9	85.6	86.9	86.3	88.2	90.4
100 (0.45-µm filtered)[a]	**86.5**[c]	91.4	91.2	88.2	90.6	88.2	88.3
TST (Pass/Fail) unfiltered sample	Fail	Pass	Pass	Pass	Pass	Pass	Pass
TST (Pass/Fail) filtered sample	Pass	Pass	Pass	Pass	Pass	Pass	Pass
EC_{50} (% unfiltered sample)	>100	>100	>100	>100	>100	>100	>100
EC_{50} (% filtered sample)	>100	>100	>100	>100	>100	>100	>100

Notes:
The reference toxicant EC_{50} value (7.65 µg/L copper) for this test was within two standard deviations of the Nautilus historical mean (8.46 ± 3.86 µg/L copper), indicating typical organism sensitivity to copper.
Values in **bold** indicate a statistically significant decrease compared to control.
a. Each undiluted sample was also tested filtered through 0.45-µm filter to remove potentially harmful native algae that might interfere with test organism performance. Mean combined survival and normal development in the filtered control was 91.0 percent.
b. The combined survival and normal development endpoint reported did not meet a mean of 90 percent in the lab control. However, normal development in these controls was over 90 percent, meeting the minimum test acceptability criteria. Additionally, all controls resulted in well over 50 percent survival.
c. The presence of copepods was observed in three of five sample replicates.
% = percent; µm = micrometer; EC_{50} = concentration estimated to cause an adverse effect on 50 percent of the organisms; TST (Pass/Fail) = test of significant toxicity; TST Pass = sample is nontoxic according to the TST calculation; TST Fail = sample is toxic according to the TST calculation

Bivalve tests were conducted on both filtered and unfiltered samples (for the 100 percent treatments only). Filtration on the 100 percent concentration samples was conducted to safeguard against potential undesirable effects from resident organisms in the raw water samples. The need to filter the samples prior to conducting the bivalve larvae test is further discussed in Section 3.3.2.3.

A bivalve larvae test is considered acceptable (i.e., valid) if at least 50 percent of the control larvae survived and an average of 90 percent of surviving control larvae developed normally. Control survival for the 2018 tests ranged from 92.7 percent to 100 percent; average control survival was 97.3 percent (which exceeds the test acceptability criteria of 50 percent survival; see toxicity report in Appendix D). Bivalve larvae normality in the controls ranged from 90.2 percent to 94.3 percent; average control normality was 92.1 percent (which exceeds the test acceptability criteria of 90 percent normal development). Based upon these high levels of control survival and normal development, the 2018 SIYB bivalve larvae tests met the required acceptability criteria and the tests were deemed valid.

A statistically significant decrease in the combined survival and development endpoint using the TST test was observed in one of the six samples tested (SIYB-1) from within the basin. Exposure of bivalve larvae to the undiluted and unfiltered SIYB-1 sample (i.e., 100 percent concentration) resulted in 55.2 percent combined survival and normal development compared with the laboratory control level (91 percent); these effects were statistically significant using both the USEPA 1995b statistical approach and the TST analysis. For the undiluted and filtered samples tested, a statistically significant decrease in the combined survival and normal development endpoint was also observed in the SIYB-1 sample (86.5 percent combined survival and normal development). However, this difference was not significantly different from the lab control using the TST analysis. The EC_{50} for the filtered and unfiltered SIYB-1 sample was >100 percent. Bivalve larvae toxicity was not observed in samples collected from any of the other stations in SIYB (SIYB-2 through SIYB-6 and SIYB-REF). The full toxicity testing report is provided in Appendix D.

3.3.2.3 Toxicity QA/QC

Field Observations

On the day prior to sample collection (August 12, 2018), a reconnaissance survey was conducted in SIYB to evaluate the study area for the presence of algal blooms and for general water clarity. In addition to these visual assessments, the reconnaissance survey also included collection of several water samples that were sent to the laboratory to be analyzed for the presence of harmful algal species. Although an algal bloom was prevalent the week prior to the reconnaissance survey, the analysis showed that the water clarity in SIYB was acceptable and that the collected water samples did not contain an abundance of harmful algae species. Based upon these findings, it was determined that the collection project should proceed as planned. No other QA/QC issues were noted for this test, and all water quality parameters were within the appropriate ranges for the duration of the test.

Sample Receipt

Samples were received in good condition on the same day that they were collected (August 13, 2018). The SIYB samples were delivered on ice and received in the laboratory within the USEPA recommended temperature range of 0–6°C. All tests were initiated within the 36-hour holding time requirement.

Toxicity Test Validity

The controls for each test met the minimum test acceptability criteria set by the USEPA, as well as internal laboratory QA program requirements, with the exception of the laboratory control associated with stations SIYB-1, SIYB-2, and SIYB-3 for the acute topsmelt survival test. The laboratory control associated with these stations resulted in 80 percent mean survival, which is below the minimum test acceptability criteria of 90 percent. However, based on the best professional judgment of the laboratory and Toxicity QA Officer, the two concurrent controls met the minimum testing acceptability criteria, and the control associated with stations SIYB-4 and SIYB-5 was substituted for test acceptability and statistical analyses purposes. Additionally, the calculated effect concentration is considered reliable based on the dose responses observed during the tests. All other protocol-required minimum acceptability criteria were met for the Pacific topsmelt 96-hour acute survival and the bivalve 48-hour chronic development tests. The Nautilus QA/QC summary of the toxicity test results is in Appendix D.

Reference Toxicant Tests

Concurrent topsmelt and bivalve reference toxicant results are summarized in Table 3-10 and Table 3-11, respectively. The controls for both reference toxicant tests met the minimum test acceptability criteria, and the calculated EC_{50} value for the bivalve test fell within two standard deviations of the laboratory historical mean. This result indicates that the test organisms used during this round of testing had typical sensitivity to copper. The LC_{50} for the Pacific topsmelt test was also within two standard deviations of the historical mean, indicating that the fish used during this round of testing had typical sensitivity to copper.

Table 3-10.
Summary of Reference Toxicant Test Results for Pacific Topsmelt

Copper Chloride Reference Toxicant Test			
Concentration (µg/L Copper)	**Mean Percent Survival**	**LC_{50} (µg/L Copper)**	**Historical Mean ± 2 Standard Deviations (µg/L Copper)**
Laboratory Control	90	196	124 ± 136
50	100		
100	75		
200	55		
400	10		
800	0		

Notes:
µg/L = microgram(s) per liter; LC_{50} = concentration estimated to be lethal to 50% of the organisms

Table 3-11.
Summary of Reference Toxicant Test Results for Bivalve Larvae

Copper Chloride Reference Toxicant Test			
Concentration (µg/L Copper)	**Mean Combined Survival and Normal Development**	**EC_{50} (µg/L Copper)**	**Historical Mean ± 2 Standard Deviations (µg/L Copper)**
Laboratory Control	90.7	7.65	8.46 ± 3.86
2.5	93.2		
5.0	88.5		
10	8.1		
20	0		
40	0		

Notes:
µg/L = microgram(s) per liter; EC_{50} = concentration estimated to cause an adverse effect on 50% of the organisms

Curved Hinged Larvae

During the 2014 monitoring, it was noted that some of the abnormal larvae (approximately 70 percent) were enumerated as “abnormal” because they had a slightly curved-hinged shell (i.e., bean-shaped) rather than a straight-hinged D-shaped shell.[10] To evaluate the recurrence of this observation for future TMDL bivalve larvae tests, the laboratory scored the larvae as (1) larvae with a fully developed shell with a straight-hinged D-shape, (2) partially developed larvae with a concave or curved hinge, and (3) larvae that fail to develop a shell or display severe morphological defects.

As described in Appendix D, approximately 2.5 to 30 percent[11] of the bivalve larvae in the undiluted, unfiltered samples for SIYB-1 through SIYB-4 for the 2018 study were partially developed but did not possess a straight hinge. One of these samples, from SIYB-1, resulted in statistically significant toxicity to bivalve larvae. This response was not observed in any of the control replicates, nor was it observed in samples from SIYB-5, SIYB-6, or SIYB-REF. A much smaller percentage of the larvae were partially developed with a curve-hinged shell in 2018 compared with 2014. The factor(s) that contributed to the elevated number of curve-hinged shells observed in the SIYB-1 sample in 2014 (>70 percent) did not recur in 2018 (see the Nautilus study report contained in Appendix D for more information).

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[10] Photographs of bivalve larvae with slightly curved hinged shells were included in the 2014 SIYB TMDL report (AMEC Environment & Infrastructure, Inc., 2015).

[11] This proportion is higher than that observed in 2017, which ranged from 0 to 3.5 percent at stations SIYB-1 through SIYB-5. However, the total number of grossly abnormal larvae was reduced, indicating that the overall magnitude of effect in the sample was reduced from the previous year.

4.0 ONGOING INITIATIVES AND STUDIES RELEVANT TO THE SIYB TMDL

This section provides a summary of additional local, state, and federal initiatives or studies that occurred in 2018 that are relevant to the SIYB TMDL. These initiatives are instrumental in supporting the objectives of the Port's Copper Reduction Program to both meet regulatory compliance requirements and work toward reducing copper loading in SIYB and San Diego Bay.

4.1 DPR Efforts

Implementation of DPR Rule – Section 6190 of Title 3, California Code of Regulations (i.e., the DPR Rule) became effective on July 1, 2018. This action established a maximum allowable copper leach rate for copper-based AFP products registered in California for use on recreational vessels. Copper-based AFP products that do not meet the maximum leach rate of 9.5 µg/cm^2/day (i.e., non-Category I paints) can no longer be registered through the DPR, and products exceeding the maximum leach rate are subject to cancellation. The implementation of this new regulatory requirement is a critical component of the SIYB TMDL, because, by 2020, all non-Category I paints will no longer be available for application on recreational vessels in California.[12] As the regulation becomes fully realized, additional reductions in the copper loading into SIYB should occur.

4.1.1 DPR Rule Outreach

In efforts to expand local knowledge of the new DPR Rule, Port staff facilitated a roundtable discussion regarding the new regulation and included local stakeholders. The Port invited the DPR as the keynote speaker, to assist in clarifying remaining questions from those stakeholders directly affected by the new DPR rule (mainly boatyards and paint manufacturers). The Port also organized this visit with the DPR to further develop a working relationship, as collaboration and communication are critical for achieving Copper Reduction Program and TMDL goals. Further details about the roundtable discussion are presented in Section 3.1.1.1.

4.2 USEPA Interim Decisions on Copper Compounds

In December 2018, the USEPA announced availability of the *Interim Registration Review Decision*[13] (USEPA, 2018) on several pesticides, including copper compounds. Triennial Reviews allow the USEPA to consider the latest science when determining whether current regulations for copper require additional changes from the current rules in place.

During the 60-day public comment period in 2017, the Port submitted comments on the *Proposed Interim Registration Review Decision*[14]. Staying informed and submitting comment letters allow the Port to be involved in the transparent processes set forth by the USEPA and give a platform for discussing the science and policy aspects that would assist in meeting TMDL compliance. In summary, the Port provided the following comments on the proposed interim registration review:

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[12] On July 24, 2018, DPR staff confirmed that boatyards, retailers, and private parties could use the remaining Category II paint supply; however, manufacturers may no longer sell Category II products.

[13] https://www.regulations.gov/document?D=EPA-HQ-OPP-2010-0212-0129

[14] https://www.federalregister.gov/documents/2017/09/22/2017-20327/registration-review-proposed-interim-decisions-for-several-pesticides-notice-of-availability

- The Port strongly encouraged the USEPA to consider the most recent scientific findings and water quality impacts, especially in areas with known impairments, to ensure that legally available AFPs do not continue to contribute to impairments in those regions.
- The Port strongly encouraged the submittal of specific hull cleaning practices and maintenance expectations for each product.

The *Interim Registration Review Decision* included significant changes to mitigation requirements specifically for copper-based AFPs from what was originally outlined in the *Proposed Interim Registration Review Decision*. Specifically, the changes include:

- The USEPA will accept the submission of product-specific copper leach rates generated using the International Organization for Standardization (ISO) 10890-2010 method. The *Proposed Interim Registration Review Decision* document specified that copper leach rates generated using the ASTM method was acceptable. However, the USEPA will still require the use of the ASTM method for other active ingredients.
- The USEPA is adopting a maximum allowable leach rate of 9.5 micrograms per square centimeter per day (μg/cm^2/day). The *Proposed Interim Registration Review Decision* document stated that a leach rate cap would be determined after obtaining leach rate data from all products. Products that are not in compliance will be subject to cancellation or will be required to have reformulated or amended labels to state they can be used only on vessels larger than 65 feet.

5.0 DISCUSSION

This section highlights some of the findings associated with the load reductions and water quality monitoring as they relate to initiatives implemented within this reporting period.

5.1 Dissolved Copper Load

The vessel tracking program for 2018 estimated an annual dissolved copper load to SIYB of 1,152 kg/yr. This value was calculated by adding together the estimated contributions from (1) copper and assumed-copper paints, (2) DPR Category I and confirmed low-copper paints, and (3) aged-copper paints, and taking occupancy rate into account. Figure 5-1 shows the dissolved copper loads from 2011 to 2018 compared with the TMDL baseline load (2,100 kg/yr). This figure also shows the estimated yearly load in relation to the TMDL interim and final load reduction targets.

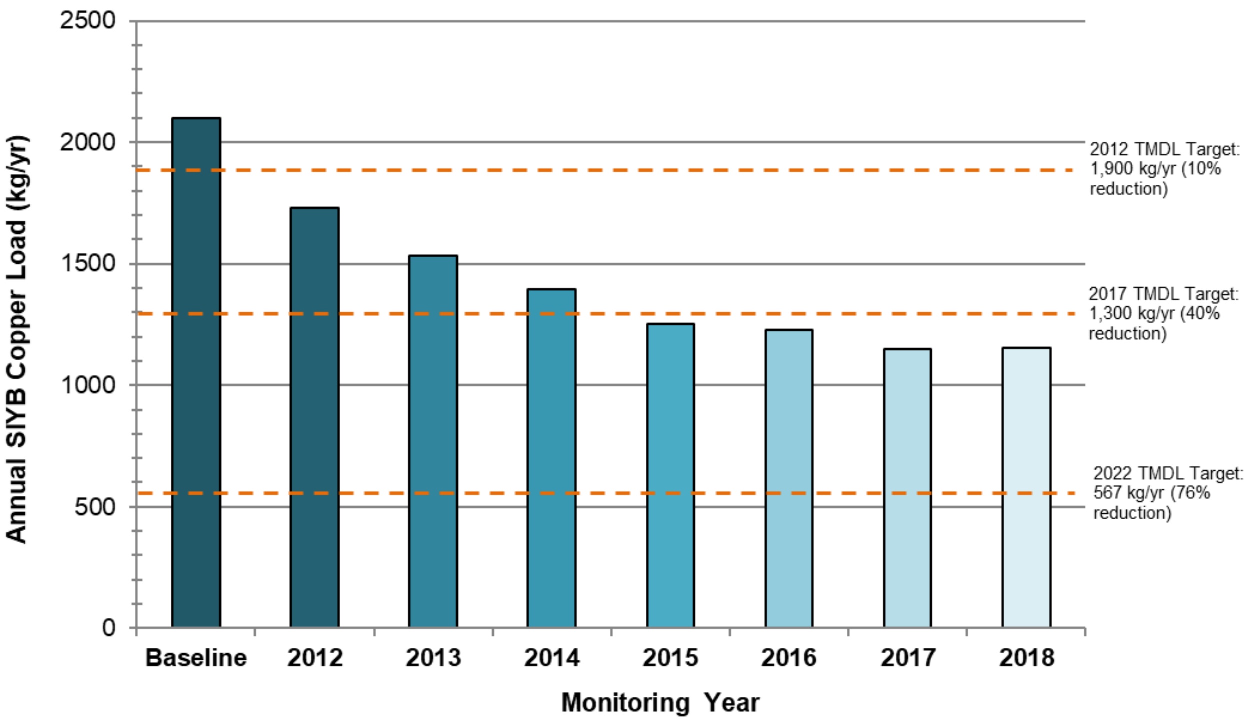


Figure 5-1. Annual SIYB Copper Load per Monitoring Year

5.1.1 Dissolved Copper Load Reduction Sources

The results of the vessel tracking efforts were used to estimate a dissolved copper load reduction of 45.2 percent (948 kg/yr) for 2018 compared with the TMDL baseline load (2,100 kg/yr). This reduction is relatively consistent with results reported for the past several years. The estimated load reduction (948 kg/yr) was calculated by adding together all the individual load contribution sources, and then subtracting this sum from the TMDL baseline (i.e., 2,100 kg/yr minus 1,152 kg/yr equals 948 kg/yr). The relative load reduction from each reduction category is shown in Figure 5-2.

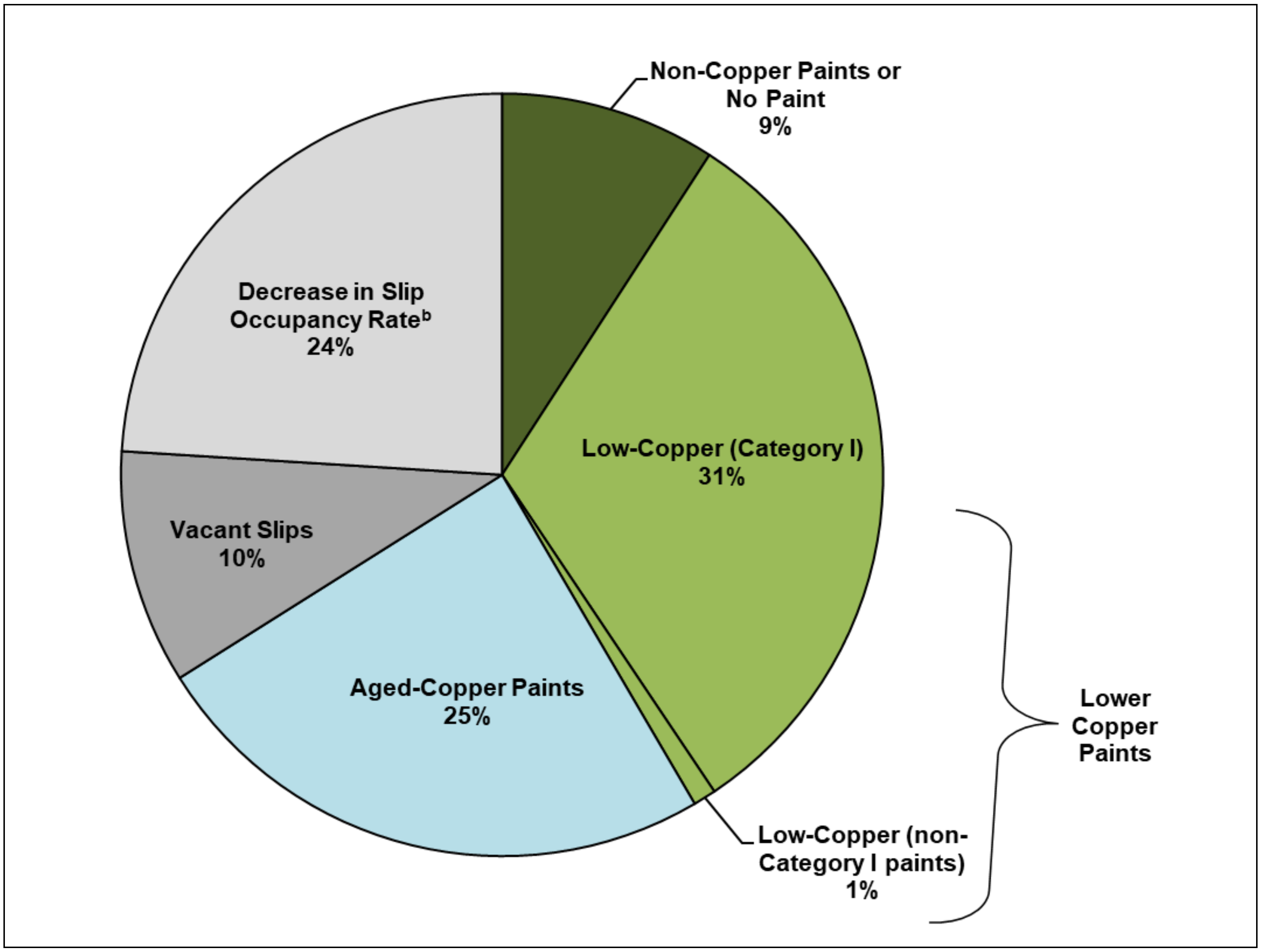


Figure 5-2. 2018 Estimated Load Reduction (948 kg/yr) Relative Percentage per Category[a]

Notes:

a. The 2018 load reduction was determined by subtracting the estimated dissolved copper load (1,152 kg/yr) from the TMDL baseline load (2,100 kg/yr). This value does not include the load reduction due to the difference between the number of total slips used in the TMDL load calculation (2,363) and the number of slips reported in 2018 (2,313). Therefore, the percent breakdown per category is relative to the 948-kg/yr estimated load reduction.

b. Decrease in average slip occupancy represents the load reduction due to an average occupancy rate of 88% for all vessels in SIYB.

The SIYB TMDL identified vessel conversions from copper to low- or non-copper paints as the primary method for reducing dissolved copper loads to SIYB. In reality (as shown in Figure 5-2), there are numerous ways by which load reduction can occur, such as conversions to DPR Category I or low-copper paints, more time between repainting (i.e., aged-copper paint), reducing occupancy rate, or an increase in the number of slip vacancies. Over the life of the vessel tracking program, numerous modifications were made to the copper load contributions from various loading sources. These modifications were made when new information was obtained that allowed a more accurate copper load assignment, compared with the more conservative TMDL loading assumptions. For example, the reclassification of vessels with aged paint reduced the per-vessel copper load of 0.9 kg/yr to 0.45 kg/yr, which resulted in a significant decrease in annual copper loads. Using actual yearly occupancy rate information in the load calculations rather than the TMDL assumption of 100 percent occupancy also resulted in a significant load reduction.

Overall, the data from 2018 show that low-copper paints (specifically Category I paints) and aged-copper paints account for most significant decrease in annual copper loads. Reductions in the overall occupancy rate (relative to the occupancy rate specified in the TMDL) as well as full vacancies account for the second largest copper load decrease. However, for 2018, total vacancies decreased from 2017. Non-copper paints, slip liners, and HydroHoists® are all considered non-copper alternatives, and accounted for the smallest fraction of copper reduction strategies in 2018.

5.1.2 Annual Variation in Dissolved Copper Load Categories

The thorough and rigorous annual vessel tracking program is essential to capture the continued change by SIYB vessels owners to use of Category I and non-copper paints as well as any substantial changes in the other load categories (e.g., occupancy and vacancy, aged-copper paints). Figure 5-3 shows the distribution of load categories throughout each monitoring year (2012–2018).

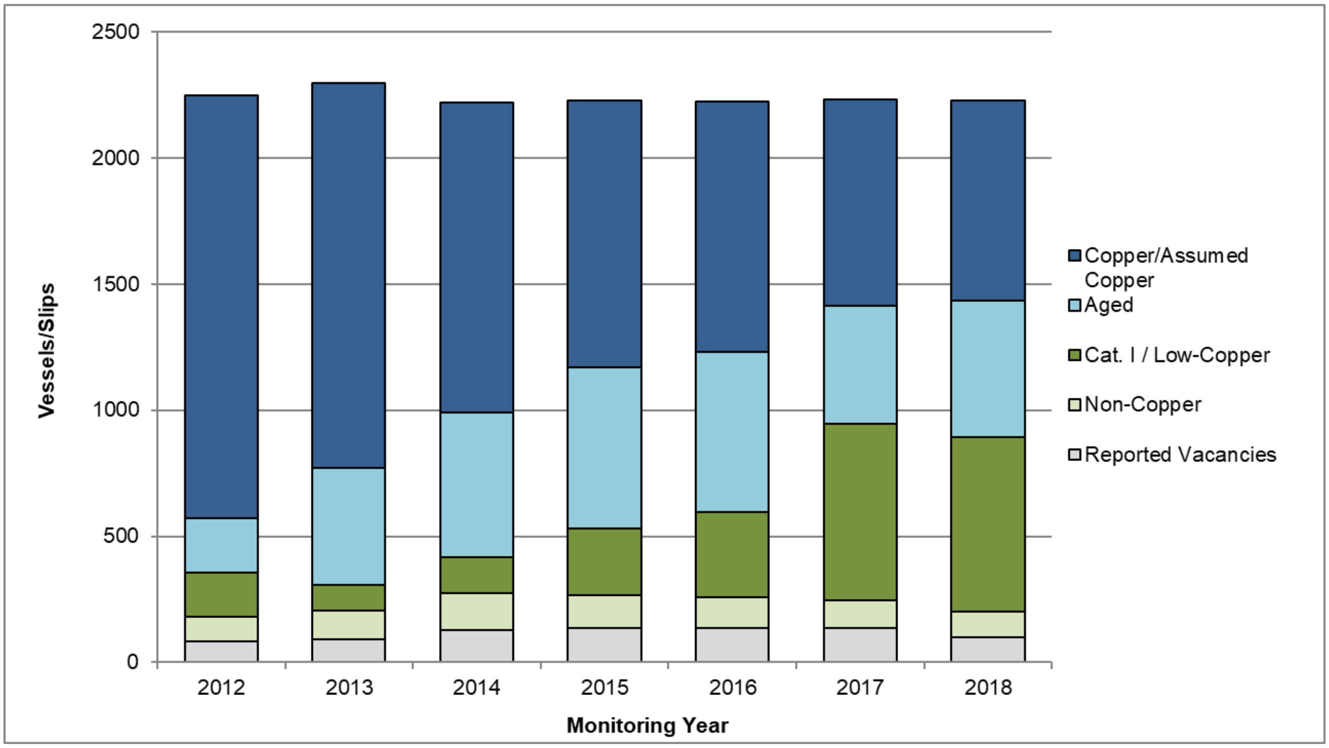


Figure 5-3. Load Categories per TMDL Year, 2012–2018

In 2018, the number of vessels with Category I and/or low-copper paints was comparable with the number from 2017. Similarly, the total number of vessels with higher copper (i.e., Category II) paints was comparable to the number in 2017. The number of vessels with aged-paints in 2018 increased considerably (14 percent) from the 2017 reporting year, contributing to the dissolved copper load reduction. Compared with 2017 results, there has been a decrease in the number of vessels using non-copper paint alternatives or those with no paint on their vessels. The number of vessels with non-copper paint alternatives also decreased by approximately 9 percent compared with the number during the 2017 reporting year (101 confirmed vessels in 2018 versus 111 in 2017). Notably, 99 vacancies were observed in 2018, approximately a 30 percent reduction compared with vacancies during the past five monitoring years (see Figure 5-4).

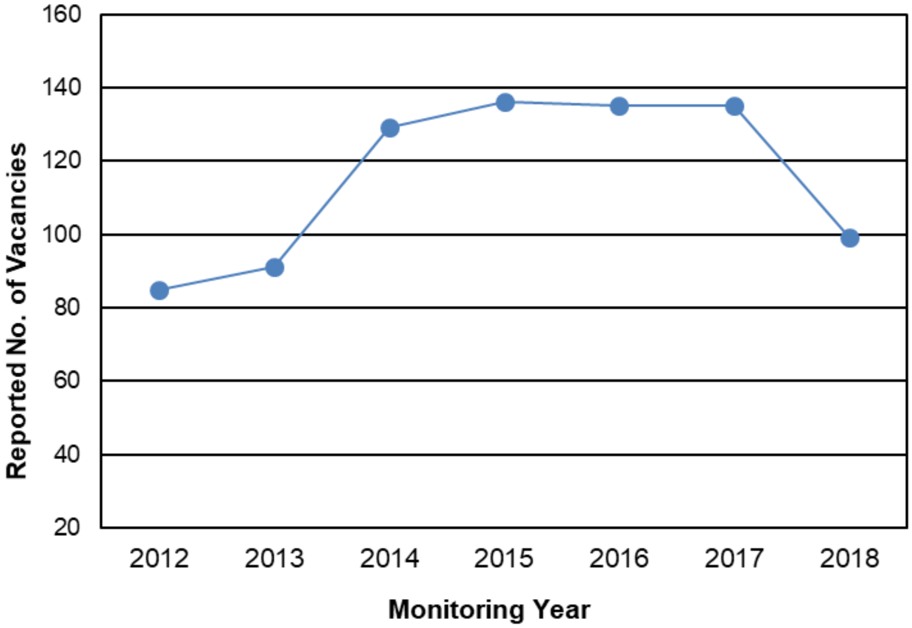


Figure 5-4. Reported Vacancies per TMDL Year, 2012–2018

5.1.3 Future Load Reductions

The DPR Rule went into effect on July 1, 2018, establishing a maximum allowable copper leach rate for copper-based AFP products registered in California for use on recreational vessels. As anticipated, the transition from high-copper to DPR Category I paints because of the DPR Rule was not fully realized in the 2018 monitoring program. However, as high-copper paints are transitioned out of use over the next three years, the DPR Rule should result in further copper load reductions to SIYB. This concept is presented in more detail below.

For future load reduction estimating purposes, as the supplies of non-DPR Category I paints are exhausted in the coming years, the TMDL copper loading category of "Copper or Unknown (Assumed Copper)" will no longer exist. This change would effectively eliminate any vessels that are counted as contributing a full dissolved copper load of 0.9 kg/year. The only dissolved copper loading categories that would remain are 0.45 kg/year (i.e., half-copper load for DPR Category I and aged-copper paints) and 0 kg/year for non-copper paints, unpainted vessels, or other alternatives (such as slip liners or HydroHoists®). Using the 2018 vessel count and occupancy information as a guide, this future loading scenario (i.e., the transition from high-copper paints to DPR Category I paints) over the final phase of the TMDL would result in an approximately 60 percent copper load reduction compared with the TMDL baseline load. This scenario is depicted in Figure 5-5.

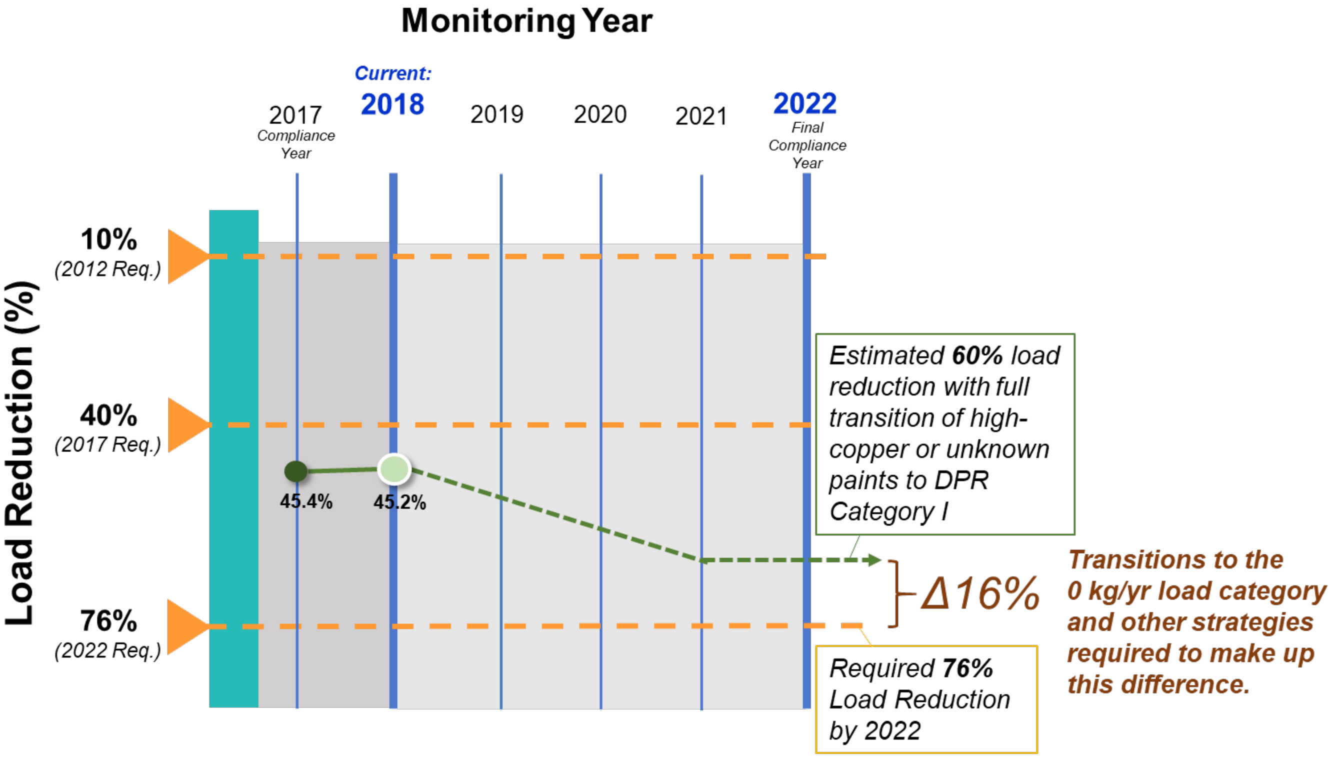
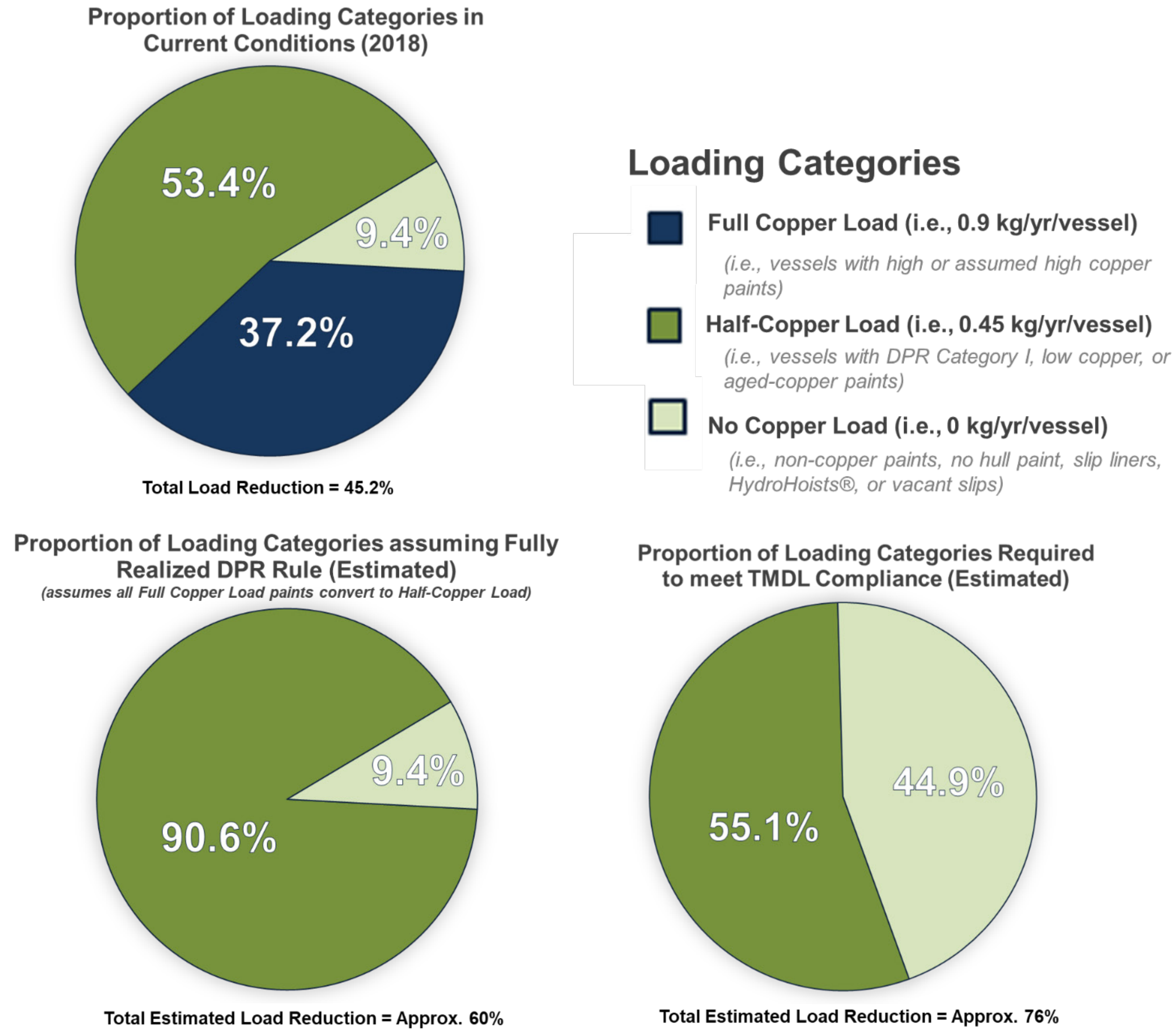


Figure 5-5. Estimated Load Reduction with Fully Realized DPR Rule and Required Reductions for TMDL Compliance

While this future scenario will produce a significant dissolved copper load reduction compared to current load estimates, this scenario alone is not enough to achieve the ultimate TMDL load reduction requirement of 76 percent by the end of 2022. As depicted in Figure 5-5, in order to achieve the difference between the future load reduction estimate of 60 percent and the TMDL compliance requirement of 76 percent, an increasing proportion of vessels in SIYB will need to transition from the 0.45 kg/yr category (i.e., DPR Category I paints or aged-copper paints) to the 0 kg/yr load categories (i.e., non-copper paints and other alternatives and/or vacancies). As an example, Figure 5-6 depicts the proportion of loading categories for the current monitoring year compared with future conceptual loading scenarios (i.e., full realization of the DPR Rule and required loading category proportions necessary to meet TMDL compliance). One such strategy may include focusing on vessels with aged-copper paints as ideal candidates to encourage the use of non-copper paints. Additional strategies that directly reduce copper loading into the water should also be considered.



Proportion of Loading Categories in Current Conditions (2018)

Total Load Reduction = 45.2%

Proportion of Loading Categories assuming Fully Realized DPR Rule (Estimated)
(assumes all Full Copper Load paints convert to Half-Copper Load)

Total Estimated Load Reduction = Approx. 60%

Proportion of Loading Categories Required to meet TMDL Compliance (Estimated)

Total Estimated Load Reduction = Approx. 76%

Figure 5-6. Proportion of Current and Estimated Future Loading Categories

Note: Estimated future loading is based on the 2018 average occupancy rate and total slip counts and vacancies.

5.2 Water Quality Monitoring

5.2.1 Dissolved Copper Levels

The basin-wide average dissolved copper level during the 2018 monitoring program was 6.7 µg/L. Copper levels at five of the six SIYB sampling stations exceeded the CTR WQO of 3.1 µg/L on the day of sample collection. Dissolved copper concentrations at the same five stations have exceeded the CTR each monitoring year since 2011. The 2018 monitoring event also showed that concentrations of dissolved copper at the same five stations exceeded the CTR acute criterion maximum concentration (CMC) water quality objective (4.8 µg/L); dissolved copper concentrations at four of the six stations exceeded the CMC in 2017.

Figure 5-7 depicts the dissolved copper levels measured at each station from 2011 through 2018. As shown on this figure, there is a gradient in dissolved copper levels in SIYB where higher concentrations are consistently found near the head of the basin, with levels decreasing moving toward the mouth (i.e., toward San Diego Bay).

Although the basin-wide dissolved copper average observed in the 2018 monitoring program (6.7 µg/L) is approximately 15 percent lower than that measured during the 2017 monitoring program (7.9 µg/L), it is comparable to that of the previous three monitoring programs (averages ranged from 6.9 µg/L to 7.1 µg/L). Additionally, this range in dissolved copper levels is in agreement with the results of the enhanced monitoring special study conducted in 2016 (Amec Foster Wheeler Environment & Infrastructure, Inc., 2017), in which the basin-wide dissolved copper average was 7.6 µg/L. The year-after-year dissolved copper levels are slightly variable, but overall appear to be remaining relatively steady (neither increasing nor decreasing in a statistically significant manner).

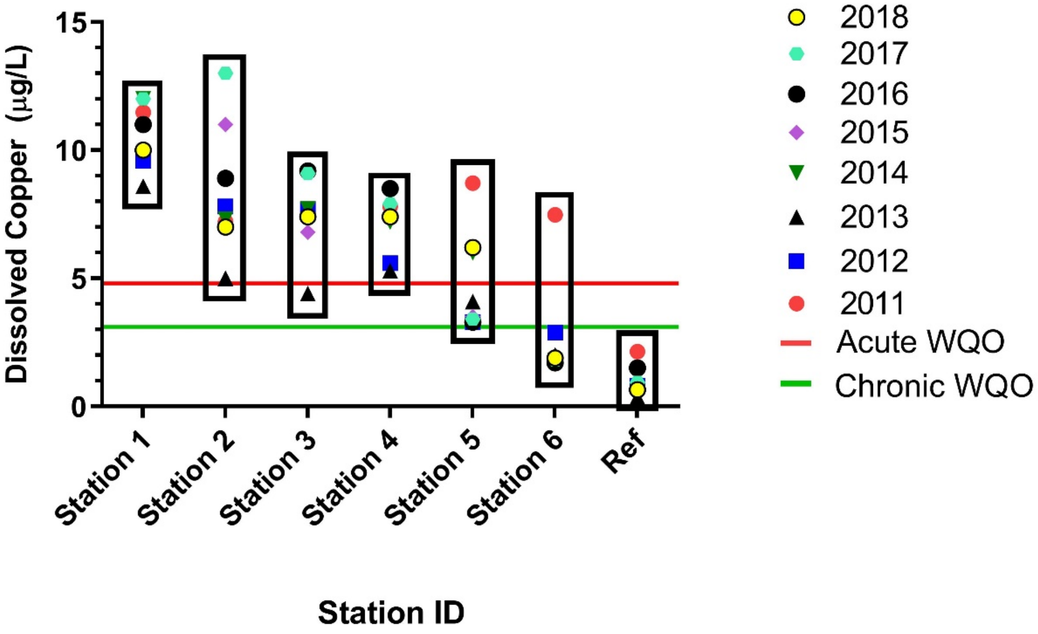


Figure 5-7. Dissolved Copper Comparison by Sampling Station

5.2.2 Acute and Chronic Toxicity

Toxicity was observed in both the acute and chronic toxicity tests in 2018. Chronic toxicity has been consistently observed in bivalve larvae in the station closest to the head of the basin (SIYB-1) during each year of the TMDL monitoring program, and occasionally at SIYB-2. However, 2018 was the first year in the TMDL monitoring program that acute toxicity was observed.

Chronic Toxicity: Bivalve Larvae Chronic Survival and Development

Similar to the recent findings of the dissolved copper chemistry analyses of SIYB surface waters, chronic toxicity of bivalve larvae in basin waters has been relatively constant. Chronic toxicity has been observed during each year of the TMDL monitoring program dating back to 2012; however, chronic toxicity has been limited to only two stations: SIYB-1 and SIYB-2. Station SIYB-1 showed a toxic response in 2018, as it has in each of the previous TMDL monitoring years since 2012. No toxic response was observed in station SIYB-2 in 2018 (in line with results from 2013, 2014, and 2016). As mentioned, Stations SIYB-1 and SIYB-2 are the closest to the head of the basin and have the highest concentrations of vessels within the immediate vicinity compared with other stations. Consistent with previous SIYB monitoring events, the 2018 monitoring found no chronic toxicity at the sampling stations in the middle or near the mouth of the basin. Bivalve larvae chronic survival is considered a primary indicator of copper toxicity, because the mussel species (*Mytilus galloprovincialis*) is considered one of the most sensitive genera used in the calculation of the water quality criterion for copper in marine environments (USEPA, 1995a). The 2018 results indicate that the toxicity observed in Station SIYB-1 was likely due to elevated dissolved copper concentrations; this result is consistent with findings from previous monitoring years.

Of note with regard to the bivalve larvae tests conducted in 2018, Nautilus observed the presence of copepods in three of five SIYB-1 100 percent treatment replicate test chambers. Nautilus indicated that the presence of copepods may have affected survival in these test chambers, in particular because the filtered SIYB-1 samples showed higher survival rates than the unfiltered samples. Additionally, the process of filtration may reduce toxicity (USEPA, 1995b); the occurrence of abnormal larvae was reduced in the filtered SIYB-1 100 percent treatment. The lessening of effects on bivalve larvae in 2018 resulting from the process of filtering the 100 percent treatment is consistent with the findings observed in previous years.

Acute Toxicity: Pacific Topsmelt Survival

Acute toxicity of Pacific topsmelt was observed in the SIYB-4 sample during the 2018 monitoring event, resulting in a failure of the TST. Additionally, statistically significant reductions in survival were also observed in the SIYB-6 sample (50 percent and 100 percent concentrations) and the SIYB-REF sample (25 percent concentration); however, both undiluted samples passed the TST (i.e., are not considered toxic). While this finding is the first observance of acute toxicity during the TMDL monitoring program, the observed patterns as well as the results of the chronic toxicity test indicate that this toxicity may not be caused by copper concentrations in the surface water. The Pacific topsmelt is ecologically relevant to the marina environment; however, it is not typically as sensitive to copper concentrations as bivalve larvae in the chronic toxicity test.

Observed acute toxicity to fish did not correlate to the chronic bivalve larva toxicity results or stations with elevated dissolved copper concentrations. A toxic effect was observed at SIYB-4, where dissolved copper concentrations were 7.4 µg/L. Statistically significant reductions in survival were observed in the sample dilutions of SIYB-6 and SIYB-REF, both of which had dissolved copper concentrations well below the CTR WQO of 3.1 µg/L. While the cause of the reduced survival observed in fish at SIYB-4 is unknown, it does not appear (based on a comparison of copper levels and bivalve larvae test results) that the observed effects were due to dissolved copper concentrations in the surface water.

6.0 CONCLUSIONS

The SIYB TMDL monitoring program results indicate that the third interim target achieved in 2017, a 40 percent load reduction, continued through the first year of the final TMDL compliance phase. Success thus far has been a result of improved vessel tracking (90 percent response rate), implementation of various BMPs (see Section 3.1.1), and conversions from high-copper paints to DPR Category I paints, low-copper paints, and non-copper alternatives (i.e., non-copper paints, slip liners, HydroHoists®, etc.). The 2018 vessel tracking data show a load reduction of 45.2 percent (approximately 948 kg/yr) in annual dissolved copper loading to SIYB from vessels when compared with the SIYB TMDL-assumed baseline loading of 2,100 kg/yr. These reductions are depicted in Table 6-1.

Table 6-1.
TMDL Interim Requirements and Achievements

TMDL Stage	Compliance Year	Required Load Reduction (%)	Required Load (kg/yr)	Actual Load Reduction (%)
1	2007	0%	2,163	Baseline
2	2012	10%	1,900	17.6% ✓
3	2017	40%	1,300	45.4% ✓
4	2022	76%	567	--

The 2018 load reduction results continued to meet the third interim load reduction requirement. The vessel tracking data indicate an increase in the number of vessels with DPR Category I paints; however, a decrease in the total number of vessels coated with non-copper paints (or other non-copper alternatives) was also observed. Vessel tracking and BMP efforts to date have been successful in achieving interim compliance requirements, and additional load reductions are expected as a result of the full realization of the DPR Rule. To date, vessel tracking response rates have continually improved, increasing the accuracy of the vessel tracking data.

Average dissolved copper concentrations throughout the basin have remained consistent over the past five monitoring events. Chronic toxicity continues to be restricted to stations in the head of the basin. For 2018, chronic toxicity was observed at only one station (SIYB-1). Dissolved copper concentrations in the surface water have remained relatively constant for the five most recent monitoring events (2014–2018). Additional direct load reductions should result in the continued improvement of water quality.

Continuing Actions for the Final TMDL Phase

Looking ahead, it is likely that additional direct load reductions will be needed to achieve the final TMDL compliance requirement of a 76 percent load reduction by 2022. Non-copper transitions, implementation of additional BMPs at SIYB facilities, and other alternative mechanisms that result in direct copper load reductions will be necessary. Direct load reductions should focus on closing the gap between the DPR Rule's estimated maximum 60 percent copper load reduction into SIYB and the TMDL compliance requirement of a 76 percent load reduction by 2022.

In this final TMDL phase, all stakeholders need to continue current vessel tracking efforts and work with boaters to resolve incomplete records. In addition, further BMP efforts should focus primarily on actions that directly decrease copper loading both from passive leaching and in-water hull cleaning [15]. Between the full realization of the DPR Rule and the identification and implementation of additional efforts, full TMDL compliance by the end of 2022 may be achieved.

The Port will continue to conduct outreach and engage with individual marinas and yacht clubs to better understand the direct load reductions to which the marinas and yacht clubs will commit to achieve 2022 TMDL compliance. Lastly, the Port will continue to reach out annually to the Regional Board regarding the program's progress toward the TMDL compliance requirement, and will seek input, where applicable, on strategies and direction needed to achieve final compliance.

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[14] This effort may include further consideration of the potential copper mitigation strategies identified the Port's Resolution 2009-230.

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APPENDIX A

SIYB DISSOLVED COPPER TMDL MONITORING PLAN REVISION 4

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FINAL
SHELTER ISLAND YACHT BASIN
TOTAL MAXIMUM DAILY LOAD
MONITORING PLAN
REVISION 4

Prepared for:
California Regional Water Quality Control Board
San Diego Region

Prepared by:

Wood Environment & Infrastructure Solutions, Inc.
(Formerly Amec Foster Wheeler Environment & Infrastructure, Inc.)
9210 Sky Park Court, Suite 200
San Diego, California 92123

In Coordination with:

Port of San Diego

May 2011
Revision 4: July 2018

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ACRONYMS AND ABBREVIATIONS

APHA	American Public Health Association
ASTM	American Society for Testing and Materials
Basin Plan	*Water Quality Control Plan for the San Diego Basin – Region 9*
BMPs	best management practices
COC	chain-of-custody
CTD	Conductivity, Temperature, and Depth
CTR	California Toxics Rule
DO	dissolved oxygen
DOC	dissolved organic carbon
DPR	Department of Pesticide Regulation
ELAP	California Environmental Laboratory Accreditation Program
Implementation Plan	SIYB TMDL Implementation Plan
Investigative Order	Investigative Order No. R9-2011-0036
L_h	hull cleaning annual loading
L_p	passive leaching annual loading
LC_{50}	median lethal concentration
LOEC	lowest observed effect concentration
MAR	marine habitat
Monitoring Plan	SIYB TMDL Monitoring Plan
N_v	number of vessels
NOEC	no observed effect concentration
OAL	Office of Administrative Law
pH	hydrogen ion concentration
Port	Port of San Diego
QA	quality assurance
QA/QC	quality assurance and quality control
QAPP	Quality Assurance Project Plan
QC	quality control
RHMP	Regional Harbor Monitoring Program
Regional Board	San Diego Regional Water Quality Control Board
SBE	SeaBird Electronics
SIML	Shelter Island Master Leaseholders
SIYB	Shelter Island Yacht Basin
SM	Standard Methods
SOPs	Standard Operating Procedures
SWAMP	Surface Water Ambient Monitoring Program
State Board	State Water Resources Control Board
TMDL	total maximum daily load
TOC	total organic carbon
USEPA	U.S. Environmental Protection Agency
TST	test of significant toxicity
Weston	Weston Solutions, Inc.
WILD	wildlife habitat
Wood	Wood Environment & Infrastructure Solutions, Inc.
WQO	water quality objective

UNITS OF MEASURE

%	Percent
°C	degrees Celsius
µg/L	micrograms per liter
µg/cm²/day	micrograms per square centimeter per day
cm	centimeter(s)
ft	feet or foot
kg/yr	kilograms per year
µm	micrometer(s)
m	meter(s)
mm	millimeter(s)
mg/L	milligrams per liter
mL	milliliter(s)
Nm	nanometer
ppt	parts per thousand
psu	practical salinity unit
yr	year(s)

1.0 INTRODUCTION

The *Shelter Island Yacht Basin (SIYB) Total Maximum Daily Load (TMDL) Monitoring Plan* (Monitoring Plan) describes the approach for assessing loading reductions through tracking conversion of vessels from copper to non-copper hull paints to determine compliance with TMDL load reduction targets. The Monitoring Plan also details the specific elements of the annual water quality monitoring program that are performed in SIYB to quantify ambient dissolved copper concentrations and toxicity. Water quality monitoring is used to evaluate annual basin-wide improvements in dissolved copper concentrations and toxicity levels, and to determine progress towards complying with the numeric and narrative objectives of the final TMDL.

This revised Monitoring Plan (Revision 3) is being submitted to the San Diego Regional Water Quality Control Board (Regional Board) to incorporate monitoring program modifications that arose during the 2016 monitoring period. The original Monitoring Plan was submitted to the Regional Board in May 2011 in response to a requirement specified in Resolution No. R9-2005-0019 (in which the Regional Board incorporated the dissolved copper TMDL into the *Water Quality Control Plan for the San Diego Basin—Region 9*) (Regional Board, 2005).

Revision 1 was submitted in 2013, and included program modifications that were made as recommendations to the Regional Board in the 2012 SIYB TMDL Monitoring and Progress Report (AMEC 2013). The modifications presented in Revision 1 were:

- Addition of the “aged-copper paint” category to the vessel classification template
- Modifications to the methods used to collect annual vessel census information
- Discontinuation of conducting *in situ* free copper analyses
- Analytical and data analysis method revisions

Revision 2 was submitted in March 2016, and included an additional paint tracking category to the annual SIYB vessel census. DPR Category I (low leach) was added as a paint tracking category for 2015. This category was added in response to the DPR’s February 23, 2015 list of hull paints by leach rate category. The Port recommended that Category I paint be added as tracking category during a 2015 project status meeting with the Regional Board held on October 5. This modification was approved by the Regional Board.[1] In addition, beginning in the 2015 Monitoring Year, the copper load contributions from passive leaching and in-water hull cleaning were presented separately. This is consistent with the loads provided in Appendix 2 of the SIYB TMDL (Regional Board, 2005). The vessel tracking template was also adjusted to include more relevant information for vessel tracking purposes.

Revision 3, submitted in August 2017, included the modification of several field procedures for the annual TMDL water quality monitoring program, as follows:

1. Field filtration of all samples collected for dissolved copper and zinc analyses, in agreement with the U.S. Environmental Protection Agency (USEPA) 1640 protocol.

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[1] Per E-mail correspondence between the Regional Board and Port dated October 21 and November 9, 2015.

2. Performing a top-to-bottom vertical water quality profile (using a conductivity, temperature, and depth [CTD] profiler) at each station to evaluate pH, temperature, light transmittance, and salinity with depth in the water column.
3. The addition of conducting total suspended solids (TSS) analyses.

Revision 4, submitted in July 2018, updates the language regarding the compliance schedule (further described in Section 1.1), as the second compliance period concluded in 2017. These modifications in Revision 4 of the Monitoring Plan are informational, and therefore do not require a response from the Regional Board.

This revised Monitoring Plan meets the requirements of Investigative Order No. R9-2011-0036 (Investigative Order), which directs the Port of San Diego (Port) to develop and submit a Monitoring Plan to track the progress of implementing the TMDL, and to revise the plan as needed. In addition, the project-specific Quality Assurance Project Plan (QAPP) is revised yearly (prior to the annual monitoring event). The QAPP defines project-specific objectives and organization, monitoring activities, data quality objectives, and quality assurance and quality control (QA/QC) procedures in compliance with the State Water Resources Control Board's *Surface Water Ambient Monitoring Program* (SWAMP) protocols.

1.1 Compliance Schedule

Under Resolution R9-2005-0019, the SIYB dissolved copper TMDL (herein referred to as "SIYB TMDL") requires that loading of dissolved copper into the water column be reduced by 76 percent to 567 kilograms per year (kg/yr) over a 17-year period (Regional Board, 2005). Based on the official TMDL approval date[2], this time period is set to end in 2022. No reductions in dissolved copper loading were required during the initial two-year orientation period (2005–2007). The subsequent 15-year period requires incremental reductions of dissolved copper loadings: a 10-percent reduction within seven years; a 40-percent reduction within 12 years; and a 76-percent reduction within 17 years (Table 1-1).

Table 1-1.
Loading Targets for TMDL Attainment

Stage	Time Period	Target Reduction from TMDL Estimated Loading	Reduction To Be Attained by End of Year	Estimated Target Loading (kg/yr of Dissolved Copper)
1	2005–2007	0%	N/A	N/A
2	2008–2012	10%[a]	2012 (7 years)	1,900
3	2013–2017	40%	2017 (12 years)	1,300
4	2018–2022	76%	2022 (17 years)	567

Notes:
a. Loading calculations in the *2012 TMDL Monitoring and Progress Report* showed that a 17-percent load reduction had been achieved. Compliance with the 2012 load reduction goal of 10 percent was confirmed by the Regional Board in a letter to the Port dated July 26, 2013.
kg/yr = kilograms per year; N/A = not applicable

The first compliance year for the TMDL was 2012. Loading reduction estimates presented in the *2012 Monitoring and Progress Report* (AMEC, 2013) indicated that dissolved copper loading to

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[2] For a TMDL to be incorporated into the Basin Plan, it must be approved by the Regional Board, State Water Resources Control Board (State Board), Office of Administrative Law (OAL), and USEPA Region 9. The official TMDL approval date is the date of OAL approval.

SIYB by the end of compliance year 2012 had been reduced by 17 percent, exceeding the 10-percent target. In a letter dated July 26, 2013, the Regional Board stated the following, “Based on the data submitted and information provided in the Report [2012 TMDL Monitoring and Progress Report], the 10-percent reduction in dissolved copper loading required to demonstrate compliance with the SIYB TMDL by the December 1, 2012, compliance date was achieved.”

The second compliance period began in January 2013 and concluded in December 2017. Based on the results of the *2017 Monitoring and Progress* report (Amec Foster Wheeler, 2018), the 40-percent reduction in dissolved copper loading required by December 31, 2017 was achieved[3].

The third and final compliance period began in January 2018 and will continue through 2022.

1.2 TMDL Implementation Plan

The *2011 SIYB TMDL Implementation Plan* (Implementation Plan) is the Named Parties' implementation strategy to reduce the loading of copper into the water column of SIYB, as directed by the SIYB TMDL and the Investigative Order. The Implementation Plan describes the approach to reducing copper loading into SIYB to preserve and restore water quality and beneficial uses of associated marine habitat (MAR) and wildlife habitat (WILD). The Implementation Plan takes a solutions-oriented approach of establishing and implementing best management practices (BMPs) that directly and indirectly help reduce copper loading into the basin to meet the SIYB TMDL interim and final dissolved copper loading compliance thresholds.

The Port has reviewed the BMP initiatives that were detailed in the SIYB TMDL Implementation Plan (Weston, 2011). Based upon this review, the strategic approach to planning and implementing copper reduction BMPs has not changed. The ongoing copper reduction program being implemented by the Port and the SIML TMDL Group is following the same adaptive management strategy and concept for selecting BMPs as was outlined in the Implementation Plan. The Port and SIML TMDL Group provide updates on the BMP program in each annual monitoring and progress report submitted to the Regional Board. Consequently, no revisions to the Implementation Plan are necessary at this time.

1.3 Sources of Dissolved Copper

Based on the Regional Board’s source analysis in the TMDL, the total mass load of dissolved copper to SIYB was estimated to be 2,163 kg/yr, of which 98 percent of inputs were attributable to (a) passive leaching of copper from copper-based hull paints on vessels, and (b) hull cleaning activities (Table 1-2).

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[3] Dissolved copper loading results from the 2017 SIYB TMDL were presented to Regional Board staff in May 2017. In this meeting, Regional Board staff verbally confirmed that the second compliance period load reduction was achieved.

Table 1-2.
Sources of Dissolved Copper to SIYB per the TMDL

Source	Estimated Mass Load (kg/yr)	Contribution (Dissolved Copper)
Passive Leaching	2,000	93%
Hull Cleaning	100	5%
Urban Runoff	30	1%
Background	30	1%
Direct Atmospheric Deposition	3	<1%
Sediment	0	0
Total	2,163	100%

Notes:
kg/yr = kilogram(s) per year

1.4 Water Quality Objective Criteria

The numeric water quality objective (WQO) for dissolved copper in SIYB is equal to the USEPA National Recommended Water Quality for Aquatic Life and California Toxics Rule (CTR) water quality values for dissolved copper in marine environments (USEPA, 2000). Continuous or chronic exposures may not exceed 3.1 micrograms per liter (µg/L) over a 4-day average; acute exposures should not exceed 4.8 µg/L over a 1-hour average. In addition, numeric WQOs must not be exceeded more than once every three years. Based on these numeric targets and existing monitoring data available at the time when the TMDL was implemented, the final waste load allocation was estimated to be 567 kg/yr. This includes a 10-percent margin of safety calculated to be 57 kg/yr.

In addition to numeric WQOs, the Basin Plan established narrative WQOs for toxicity and pesticides (Regional Board, 1994) as follows:

Toxicity Objective – All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms; analyses of species diversity, population density, and growth anomalies; bioassays of appropriate duration; or other appropriate methods as specified by the Regional Board.

Pesticide Objective – No individual pesticide or combination of pesticides shall be present in the water column, sediments, or biota at concentration(s) that adversely affect beneficial uses. Pesticides shall not be present at levels that will bioaccumulate in aquatic organisms to levels that are harmful to human health, wildlife or aquatic organisms.

Beneficial uses within SIYB threatened by elevated dissolved copper concentrations are MAR and WILD. The Regional Board indicated that if numeric WQOs are met for dissolved copper, then narrative WQOs will also be met.

1.5 Monitoring Purpose

Results of the vessel tracking program will be used to assess both interim and final compliance with the TMDL loading reduction requirements for dissolved copper into SIYB. Water quality monitoring will be used to annually assess dissolved copper concentrations and toxicity levels, and also to determine progress towards final numeric and narrative objectives. These objectives are as defined in Resolution No. R9-2005-0019, in which the Regional Board incorporated the dissolved copper TMDL into the *Water Quality Control Plan for the San Diego Basin—Region 9* (Basin Plan; Regional Board, 2005). By annually tracking vessels and monitoring water quality monitoring, the program will eventually be able to evaluate the relationship between reducing loads and improving water quality. Additionally, this approach will provide the data needed to assess the overall effectiveness of the TMDL implementation in attaining both loading reductions and numeric WQOs that protect the basin's MAR and WILD beneficial uses.

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2.0 BEST MANAGEMENT PRACTICE IMPLEMENTATION FOR SIYB

The Port has incorporated an adaptive management approach to reducing copper loads in SIYB and throughout San Diego Bay. This process is outlined in the SIYB TMDL Implementation Plan. The five elements of the Port's program are: (a) alternative hull paint testing and research, (b) hull paint transition, (c) policy development and legislation (e.g., required permits for in-water hull-cleaning businesses), (d) education of and outreach to boaters, and (e) monitoring and data assessment. The SIML TMDL Group was formed to represent the marinas and yacht clubs in SIYB. The group's purpose is to compile information from marinas and yacht clubs collected from the boat owners in each of their facilities for TMDL Investigative Order reporting requirements. In addition, the SIML TMDL Group has developed a BMP program specific to the marinas and yacht clubs in SIYB with similar components.

Over the course of developing the TMDL, multiple additional BMPs have been integrated to build on previous knowledge and to facilitate effective implementation of the SIYB TMDL program. Additional measures include meetings between the Port and other stakeholders in SIYB about the TMDL; increased scrutiny of water quality data and analytical methods; reassessment of field sampling techniques, including additional oversight of field procedures; and review of methods to track the type of bottom paints on vessels in SIYB. These measures were intended to collect relevant, quality data; enhance communication among all involved parties; and develop an iterative and collaborative process that provides both transparency to the process and a known and scientifically defensible dataset to support the TMDL compliance objectives.

The Port has developed a comprehensive copper reduction program and maintains a cumulative list of copper reduction BMPs implemented in support of the TMDL since 2007. In addition, the SIML TMDL Group is involved in selecting and implementing BMPs that contribute to the dissolved copper load reductions in SIYB. In compliance with Investigative Order reporting requirements, the SIML TMDL Group submits information annually to the Port detailing the BMPs and actions implemented throughout the year to reduce dissolved copper loads to SIYB. The various Port and SIML TMDL Group BMP activities undertaken throughout the year will be tracked and reported in detail in the annual monitoring and progress report. In addition, any updates of the copper reduction BMP strategies outlined in the TMDL Implementation Plan will be included in an appendix to the annual monitoring and progress report.

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3.0 TRACKING VESSEL CONVERSIONS

Based on the Regional Board's TMDL source analysis, the vast majority (98 percent) of copper loading to SIYB was attributed to antifouling paints on vessels moored within the basin.

3.1 Vessel Tracking

Annual reduction of copper loading will be assessed by (a) tracking conversions of hull paints from copper to non-copper or lower copper (either DPR Category I paints or paints containing less than 40-percent copper) products, (b) identifying vessels with aged-copper paints, and (c) estimating the resultant contribution from in-water hull cleaning of copper paints for vessels moored within SIYB.

3.1.1 Tracking Approach

On an annual basis, marina and yacht club owners/operators are responsible for soliciting pertinent information from SIYB boat owners of the percent of time slips in their facilities are unoccupied or are occupied by vessels with copper, non-copper, lower copper paints, aged copper, and unknown hull paints. The information will be gathered by distributing a survey form prepared by the SIML TMDL Group to the SIYB yacht club and marina operators. It will be the responsibility of the operators to ensure the survey form is disseminated to individual vessel owners. The SIML TMDL Group will collect and compile the completed survey forms into a database. If no initial response is received, the SIML TMDL Group will follow up with telephone calls and emails to gather the requested information. An example of the current survey form is in Attachment A.

After compiling the information, the SIML TMDL Group will submit the vessel tracking information to the Port annually, no later than January 15 for the previous calendar year. The vessel tracking data requested is listed in Table 3-1. The tracking reports will be submitted to the Regional Board as an appendix to the annual monitoring and progress report.

Table 3-1.
Required Vessel Tracking Data

Vessel Tracking Data Fields	
1.	Name of marina or yacht club
2.	Date of report
3.	Slip/Mooring reference number
4.	Slip/mooring occupation data (percent of year occupied)
5.	Vessel-specific information
	a. Vessel type (sail, power, multi-hull, etc.)
	b. Vessel length
	c. Vessel beam width
6.	Paint Type (copper, low copper, non-copper, no paint, etc.)

As a data QA/QC and confirmation check, additional information on paint type will be required for vessels reported to have lower copper (either DPR Category I paints or paints containing less than 40 percent copper) or non-copper hull paints (Table 3-2).

Table 3-2.
Required Lower Copper and Non-Copper Hull Paint Vessel Data

Vessel Tracking Data Fields	
1.	Paint brand name
2.	Product number
3.	USEPA Registration Number (if applicable)
4.	Name of boatyard that applied paint or purchase date
5.[a]	Painting date (month and year)

Notes:
a. This information is required for determining whether a vessel has aged-copper paint.

The Port will evaluate the vessel tracking data from the SIML TMDL Group to determine the percentage of time that slips are unoccupied or are occupied by vessels with copper, lower copper, aged-copper paint, non-copper, or unknown hull paints as required by the Investigative Order (Table 3-3). These data will be used to calculate the annual dissolved copper load to SIYB from vessels, the number of vessels converted from copper to lower copper or non-copper hull paints, and the reduction in dissolved copper loading achieved annually, as described in Section 3.2 (Annual Dissolved Copper Load Analysis). Estimates of the reductions in basin-wide loading and annual loading reductions will be presented in the annual monitoring and progress reports.

Table 3-3.
Vessel Tracking Data for Annual Monitoring as Required in Investigative Order

Vessel Tracking Data Fields	
1.	Total number of slips or buoys in facility available to be occupied by vessels
2.	Number of unoccupied slips or buoys and length of time unoccupied during each year
3.	Number of vessels confirmed with copper-based hull paints and approximate length of time occupying a slip or buoy in facility each year
4.[a]	Number of vessels confirmed with aged-copper hull paints and approximate length of time occupying a slip or buoy in facility each year
5.	Number of vessels confirmed with alternative hull paints, by hull paint type, and approximate length of time occupying a slip or buoy in facility each year
6.	Number of vessels with unconfirmed information about hull paints and approximate length of time occupying a slip or buoy in facility each year
7.	Estimate of the dissolved copper load reduction achieved for the year (kg/yr and percent)

Notes:
a. This vessel tracking category was not included in the Investigative Order, but was added as a recommendation in the 2012 Monitoring and Progress Report. The recommendation was approved July 26, 2013, letter signed by David Gibson, executive officer of the San Diego Regional Water Quality Control Board titled, “Comments on 2012 Shelter Island Yacht Basin Total Maximum Daily Load Monitoring and Progress Report.”

3.1.2 Tracking Templates

The SIML TMDL Group will coordinate with the marina and yacht club owners and operators, who are responsible for soliciting pertinent vessel information from SIYB boat owners. This includes tracking the number and paint types of all vessels moored at the respective marinas and/or yacht clubs within SIYB (if known and reported). The Port will be responsible for collecting vessel tracking information for the Port-operated facilities in SIYB, including the Harbor Police dock, transient vessel docks, and temporary anchorage. Vessel data submitted in the annual report will consist of (a) the information provided by the marina and yacht club owners and operators, and (b) the information gathered by the Port for the facilities it operates.

The vessel tracking templates are in a spreadsheet format and contain fields for required vessel tracking information such as facility name, slip reference number, type and size of vessel, boatyard used for hull painting, type of hull paint (brand and product number and USEPA registration number, if applicable), the date (month and year) the hull was last painted (this information will be used to determine whether the vessel qualifies as having aged-copper paint), and approximate percentage of time occupying a slip in SIYB during the monitoring year. An example of the vessel tracking template is provided in Attachment A.

3.2 Annual Dissolved Copper Load Analysis

Compliance with interim and final TMDL loading reduction goals will be assessed through basin-wide vessel tracking. Annual dissolved copper loading will be assessed through tracking the number of vessel hulls with copper paint, lower copper paint, aged-copper paint, or non-copper paint, the number of slips using BMPs to isolate hulls from water (i.e., slip liners, Hydro Hoists®) as well as the number of vacant slips in SIYB and input from in-water hull cleaning. Vessels that have aged-copper paint are considered to be in the low-copper category, but will be tracked separately.

The annual tracking program will use a conservative approach to estimating loading reductions. If the hull paint name and type are unknown, the paint will be assumed to be copper-based. Additionally, if the occupancy time of a slip or mooring is not reported, the slip or mooring will be assumed to be occupied 100 percent of the time (i.e., 365 days). If the paint categories for transient vessels visiting the Port-operated transient vessel dock and temporary anchorage are not collected, these vessels will be assumed to have copper hull paints.

This annual assessment will incorporate the following assumptions that were used by the Regional Board in determining loading allocations (Regional Board 2005, Appendix 2).

- All 2,363 SIYB slips or buoys were occupied by vessels (N_v).
- All 2,363 recreational vessels moored within SIYB have copper-based paints 100 percent of the time.
- Annual loading from passive leaching basin-wide (L_p) equals 2,000 kilograms per year (kg/yr).

- Annual loading from hull cleaning (L_h) equals 100 kg/yr[4].
- Average annual loading (L_v) per vessel with copper hull paint equals 0.9 kg/yr, where: $L_v = (L_p + L_h)/N_v$.

Based on the Regional Board assumptions in determining dissolved copper loading via passive leaching and hull cleaning combined, there will be an average loading reduction of 0.9 kg/yr for every vessel in SIYB that converts from copper-based to non-copper-based paint (a reduction of 0.86 kg/yr from passive leaching, and 0.04 kg/yr from the cleaning load). Beginning in 2015, the Regional Board recognized the use of DPR Category I hull paints (i.e., paints with leach rates ≤ 9.5 micrograms per square centimeter per day [µg/cm²/day]) as a viable means of reducing copper to the basin. This category coincides with the use of low-copper hull paints (i.e., hull coatings with less than 40-percent copper but leach rates greater than 9.5 µg/cm²/day). Category I hull paints and low-copper hull paints are grouped together to represent the lower copper group. This loading reduction analysis assumes that each vessel transitioned to low-copper hull paint will reduce (on average) annual dissolved copper loading by 0.45 kg/yr. Aged-copper paints (boat hulls that have not been repainted as of the cutoff date [Table 3-4]) will be considered to have low-copper hull paint (i.e., 0.45 kg/yr per vessel). Based upon these loading scenarios, calculations of annual dissolved copper loading will be based on the assumptions listed in Table 3-4.

Annual loading will be calculated for each slip by multiplying the reported dissolved annual loading for a given hull paint category by the percent of time a slip is reported to be occupied (e.g., the product of 0.9 kg/yr for copper hull paints and 90-percent occupancy results in an annual loading of 0.81 kg/yr). In the case of the Port-operated anchorage, data on the number of three-day permits issued weekly will be used to calculate annual occupancy and loading. For each issued permit, it will be assumed that the vessel occupied the anchorage for an average of two days. If no hull paint data is collected for a vessel that occupies the Port-operated anchorage, it will be assumed to have copper paint. Therefore, annual dissolved copper loading due to passive leaching is calculated by multiplying the annual dissolved copper load (0.9 kg/yr) by the average number of vessels occupying the anchorage on a weekly basis and the average percentage of time slips are occupied.

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[4] The TMDL assumed that 50 percent of the in-water hull cleaning in SIYB would be conducted using BMPs. The Port's hull cleaning ordinance requires 100 percent use of BMP; therefore, the load calculations assume that 100 percent of in-water hull cleaning is conducted using BMPs.

Table 3-4.
Dissolved Copper Loading Calculation Assumptions

Dissolved Copper Loading Assumptions	
1.	All vessels moored in SIYB at the enactment of the TMDL had copper hull paints.
2.	Average annual dissolved copper load from a vessel with copper paint equals 0.9 kg/yr.
	a. The passive leaching load from a vessel with copper paint equals 0.86 kg/yr.
	b. The cleaning load from a vessel with copper paint equals 0.04 kg/yr.
3.	Vessels with unknown hull paints have copper paint
4.	Slips/moorings for which occupancy data are not provided are considered to be 100-percent occupied.
5.	Annual dissolved copper load from a vessel with non-copper hull paint equals 0 kg/yr.
6.	DPR Category I paints are paints with leach rates ≤ 9.5 µg/cm^2/day. These paints are considered as lower copper.
7.	Low-copper hull paints are paints with less than 40-percent copper. These paints are also considered as lower copper.
8.	Average annual dissolved copper load from a vessel with lower copper paint equals 0.45 kg/yr
	a. The passive leaching load from a vessel with lower copper paint equals 0.43 kg/yr.
	b. The cleaning load from a vessel with lower copper paint equals 0.02 kg/yr.
9	Vessels determined to have aged-copper paint (i.e., copper paint applied to a vessel hull prior to December 31, 2015[a]) will have an annual dissolved copper load equal to 0.45 kg/yr.
10.	Annual loads will be normalized by the percent of time vessels are docked in SIYB.

Notes:

a. December 31, 2015, is the cutoff date for vessels to be considered to have aged-copper paint for the 2018 annual monitoring and progress report load calculation. This cutoff date will advance by one -year for each subsequent annual load calculation.

kg/yr = kilogram(s) per year; TMDL = total maximum daily load; µg/cm^2/day = micrograms per square-centimeter per day

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4.0 WATER QUALITY MONITORING

Water quality will be assessed annually to determine the average concentration of dissolved copper and toxicity levels in SIYB using a spatially representative sampling design. Water quality monitoring will supplement vessel tracking studies to assess long-term improvements in dissolved copper concentrations and toxicity levels that occur as a consequence of loading reductions throughout the interim stages. Water quality monitoring will also be used to determine attainment of final WQOs.

4.1 Water Quality Sampling and Analyses

Water quality will be sampled annually throughout SIYB to determine the average concentration of dissolved copper in the basin and to assess water quality trends over time. The monitoring will use methods consistent with prior studies conducted by the Regional Board in SIYB, which were used to establish the baseline copper levels and loading reduction requirements of the TMDL (Appendix 6 of the TMDL, Regional Board, 2005). To be consistent with studies conducted by the Regional Board, this monitoring program will include annual sampling at six stations and one reference station in the main channel of San Diego Bay adjacent to SIYB. These station locations are similar to those sampled by the Regional Board for development of the TMDL and meet the Investigative Order requirement of spatially representing dissolved copper concentrations in SIYB.

Based on an assessment of monitoring water quality data collected between 2005 and 2008 in SIYB from the Regional Harbor Monitoring Program (RHMP) Pilot Study (WESTON, 2008), the 2008 RHMP (WESTON, 2010), and the Neira et al. study (2009), surface water dissolved copper concentrations ranged from 3.4–13.5 micrograms per liter (µg/L), and the average concentration was 8.28 ± 1.36 µg/L (mean ± standard error). This average concentration was determined by using the surface water dissolved copper monitoring data collected from six stations in the immediate vicinity of the sampling stations that comprise the monitoring network.

4.1.1 SIYB Sample Locations

The annual monitoring program is conducted at six stations within SIYB and one station in the main channel of San Diego Bay (Table 4-1 and Figure 4-1). Monitoring was conducted at these stations for all SIYB TMDL monitoring events since 2011.

Table 4-1.
Sampling Station Coordinates

Station	Target	
	Latitude	Longitude
SIYB-1	32.71821	-117.22601
SIYB-2	32.71412	-117.22921
SIYB-3	32.71550	-117.22989
SIYB-4	32.71683	-117.23203
SIYB-5	32.71217	-117.23297
SIYB-6	32.70858	-117.23514
SIYB-REF	32.70406	-117.23232

4.1.2 Frequency of Sampling

Sampling will be conducted at the seven water quality stations once per year during the summer (i.e., in August or September). By sampling in the summer, dissolved copper concentrations are likely to be at their highest level in the water column because the release rates of copper from antifouling paints is higher at warmer sea surface temperatures and with a greater frequency of hull cleaning. As a consequence, this sampling design will provide the most conservative estimate for dissolved copper concentrations for SIYB. In addition, annual monitoring during the summer will facilitate integration with the RHMP, which includes sampling of a broader range of chemical and biological parameters once every five years during the summer.

Sampling annually to bracket the slack high tide at the same station locations during the summer will allow repeated measurements and temporal trend analyses to determine changes in dissolved copper concentrations with time[5]. Revisiting the same spatially representative stations allows basin-wide assessments of water quality, limiting spatial variability and facilitating better detection of trends. Additionally, correlation analyses can be used to assess relationships between estimated loading reductions from vessel conversions with surface water dissolved copper concentrations to track progress of the TMDL.

4.1.3 Sample Collection

Sample collection will start at the Reference station (SIYB-REF) located in San Diego Bay and continue northward to Station SIYB-1 located near the head of basin. Samples will be collected in the following order: SIYB-REF, SIYB-6, SIYB-5, SIYB-4, SIYB-3, SIYB-2, and SIYB-1. Collection of the samples will be timed so that the midpoint of the collection (SIYB-4) will occur as close to the slack high tide as possible. This sample collection approach will be followed for all annual water quality monitoring events to ensure consistency and repeatability.

Discrete water samples will be collected at each station using the “clean hands” techniques with a Niskin bottle deployed from a sampling vessel. In addition, the field manager will ensure that the sample collection boat is painted with a non-copper or non-zinc-containing hull paint. All stations will be located using the differential Global Positioning System. Samples will be collected within one meter of the surface. Upon collection, water samples will be transferred to labeled containers for analysis of total and dissolved copper, total and dissolved zinc, total organic carbon (TOC), dissolved organic carbon (DOC), total suspended solids (TSS), and toxicity testing. Water samples collected for dissolved metals analyses will be filtered in the field and preserved immediately upon arrival to the analytical laboratory. DOC samples will be filtered in the field into a bottle with sulfuric acid. Field measurements of the hydrogen ion concentration (pH), temperature, and salinity of the surface water at each station (i.e., within 1 meter (m) of the surface), will be made using a YSI meter according to manufacturer’s specifications.

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[5] Sampling schedule is adjusted annually to ensure that station SIYB-4 is sampled during the slack high tide to ensure consistency between monitoring years.

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amec foster wheeler

Shelter Island Yacht Basin
TMDL Monitoring Station Locations

FIGURE

4-1

Figure 4-1. Shelter Island Yacht Basin Monitoring Network

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Following the collection and preservation of water samples, Wood will use a Seabird Electronics SBE-19 Plus CTD instrument equipped with a YSI dissolved oxygen sensor (model SBE 43), a pH meter (model SBE 18 with Innovative pH Sensor), and a WET Labs C-Star laser transmissometer (25-centimeter [cm], 660-nanomether [nm]) to capture the profile of the entire water column at each station. The water quality characteristics collected by the CTD will be used for informational purposes only. For example, the CTD data can show how water quality parameters, such as water temperature and clarity, vary from top to bottom, at different locations in the basin, and from year to year.

All water samples will be logged on a chain-of-custody (COC) form (Attachment B) and placed in a cooler on ice. Samples will be stored at 4 degrees Celsius (°C) in the dark until delivered to the appropriate laboratory for analysis.

4.1.4 Equipment Decontamination and Cleaning

The Niskin bottle will be cleaned prior to sampling using clean soapy water and thoroughly rinse with deionized water. Upon deployment, the Niskin bottle will be rinsed with site water prior to sample collection. After collection, water samples will be transferred from the Niskin bottle to laboratory-certified, contaminant-free bottles that are of the appropriate type and containing the appropriate preservative for the required analyses.

4.1.5 Chemical Analysis

Water samples will be analyzed for total and dissolved copper, total and dissolved zinc, TOC, DOC, TSS, salinity, temperature, pH, dissolved oxygen, and transmissivity (Table 4-2). Zinc is commonly used as an alternative biocide in antifouling paints; therefore, total and dissolved zinc levels will be measured to assess changes in the ambient zinc levels in SIYB as vessels are converted from copper-based to non-copper-based paints.

Table 4-2.
Laboratory Analytical Methods and Detection Limits

Water Quality Measurement	Method	Method Detection Limit	Reporting Limit
Total Copper	USEPA 1640	0.0038 µg/L	0.010 µg/L
Dissolved Copper	USEPA 1640	0.0038 µg/L	0.010 µg/L
Total Zinc	USEPA 1640	0.036 µg/L	0.20 µg/L
Dissolved Zinc	USEPA 1640	0.036 µg/L	0.20 µg/L
TOC	SM 5310 B	0.016 mg/L	0.10 mg/L
DOC	SM 5310 B	0.016 mg/L	0.10 mg/L
TSS	USEPA 2450 D	1.0 mg/L	5.0 mg/L
Salinity	SBE CTD and YSI Pro Plus	NA	± 0.1 ppt
Temperature	SBE CTD and YSI Pro Plus	NA	± 0.1 °C
pH	SBE CTD and YSI Pro Plus	NA	± 0.1 pH unit
Dissolved Oxygen	SBE CTD	NA	± 0.1 mg/L
Light Transmittance	SBE CTD	NA	± 0.1 %

Notes:
µg/L = microgram(s) per liter; °C = degrees Celsius; DOC = dissolved organic carbon; mg/L = milligram(s) per liter; pH = hydrogen ion concentration; ppt = part(s) per thousand; SM = Standard Methods; TOC = total organic carbon; TSS = total suspended solids; USEPA = U.S. Environmental Protection Agency; YSI = YSI Incorporated; SBE = SeaBird Electronics; CTD = conductivity, temperature, and depth.

Surface water characteristics (salinity, temperature, pH, and visual observations of water clarity) will be collected to compare ambient conditions from year to year. All analytical methods will follow USEPA or Standard Methods (SM) of the American Public Health Association (APHA), 1998). Required analytical methods, detection, and reporting limits are presented in Table 4-2.

4.1.6 Toxicity Testing

Water column toxicity will be assessed at the six SIYB sampling stations and the reference station. Toxicity testing will consist of a 96-hour acute bioassay test using Pacific topsmelt (*Atherinops affinis*), consistent with the TMDL guidance (Regional Board, 2005). Additionally, a 48-hour chronic bioassay test using a mussel (*Mytilus galloprovincialis*) will also be conducted because previous studies have used the 48-hour mussel chronic test as the primary indicator of toxicity. Both tests will be used to assess the narrative toxicity objective described in Section 1.4 (Water Quality Objective Criteria) because both species have ecological relevance to the marina environment and have previously been found to be sensitive to dissolved copper.

The 96-hour acute bioassay with topsmelt will be conducted in accordance with procedures described in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (USEPA, 2002). Testing will be initiated within 36 hours of sample collection. Topsmelt will be exposed for 96 hours to three sample concentrations (25, 50, and 100 percent) and to a control. Each concentration will be tested with six replicates and five topsmelt per replicate. Water quality will be analyzed daily and include dissolved oxygen (DO), temperature, pH, and salinity. After 96 hours, percent survival will be calculated. The test will be considered acceptable if 90 percent or greater survive in the controls. Test conditions are summarized in Table 4-3.

A 96-hour reference toxicant test using copper chloride will be conducted concurrently with the SIYB project sample and using the same batch of test organisms to evaluate the relative sensitivity of test organisms as well as the laboratory's proficiency with the test procedure. The topsmelt reference toxicant test will be conducted with copper concentrations of 0, 50, 100, 200, 400 and 800 µg/L. At test termination, the median lethal concentration (LC_{50}) will be calculated and compared to historical laboratory reference toxicant test data for this species. Test organisms will be considered to be responsive and appropriately sensitive if the test LC_{50} is within two standard deviations of the historical mean from the previous 20 tests.

The 48-hour bivalve larvae test will be performed in accordance with procedures outlined in *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (USEPA, 1995) and ASTM E724-98 (ASTM, 2006). Testing will be initiated within 36 hours of sample collection. The test will be run for 48 hours or up to 54 hours if necessary to ensure development of the bivalve larvae to the D-hinged stage in the control. Bivalves will be exposed to five sample concentrations (6.25, 12.5, 25, 50, and 100 percent), and a control. Each concentration will be run with six replicates and 150–300 larvae will be targeted for inoculation into each replicate. Water quality will include DO, temperature, pH, and salinity at test initiation and termination. The test will be considered acceptable if at least 50 percent of larvae survived and an average of 90 percent of surviving larvae developed normally in the controls. A combined endpoint of normal surviving embryos will be reported. Test conditions are summarized in Table 4-4.

Table 4-3.
Conditions for the 96-Hour Pacific Topsmelt Bioassay

Test Conditions 96-Hour Acute Bioassay		
Test Species		*Atherinops affinis*
Test Procedures		EPA-821-R-02-012 (USEPA, 2002)
Age and Size Class		7–15 days
Test Type and Duration		Acute static-renewal / 96-hours
Sample Storage Conditions		4°C, dark, minimal head space
Holding Time		36 hours
Control Water Source		Scripps Pier seawater, 20 µm filtered
Recommended Water Quality Parameters	Temperature	21 ± 1°C
	Salinity	34 ± 2 ppt
	Dissolved Oxygen	>4.0 mg/L
	pH	Monitor for pH drift
Photoperiod		16 hours light, 8 hours dark
Test Chamber		500-mL beaker or plastic cup
Concentrations		3 (25, 50, and 100 percent) and a control
Number of Replicates per Sample		6
Number of Organisms per Replicate		5
Exposure Volume		250 mL
Aeration		None, unless DO falls below 4.0 mg/L
Feeding		once daily
Water Renewal		48 hours
Statistical Analysis		Test of Significant Toxicity (TST) - Control and test sample comparisons

Notes:
µg/L = microgram(s) per liter; µm = micrometer; °C = degrees Celsius; mg/L = milligram(s) per liter; mL = milliliter(s); pH = hydrogen ion concentration; ppt = part(s) per thousand; USEPA = U.S. Environmental Protection Agency

A 48-hour reference toxicant test using copper chloride will be conducted concurrently with the SIYB project sample and using the same batch of test organisms; this test will evaluate the relative sensitivity of test organisms as well as the laboratory's proficiency with the test procedure. The bivalve reference toxicant test will be conducted with copper concentrations of 0, 2.5, 5.0, 10, 20 and 40 µg/L. At test termination, the median effected concentration (EC_{50}) will be calculated and compared to historical laboratory reference toxicant test data for this species. Test organisms will be considered to be responsive and appropriately sensitive if the test EC_{50} is within two standard deviations of the respective historical laboratory mean. At the termination of the study, survival and shell development will be compared between the control and test concentrations to determine whether significant mortality or reduction in normality exists.

A close look at the test receiving waters for any potentially interfering algal species is recommended prior to initiating tests with *Mytilus* embryos. If algae are prevalent and densities appear to be of concern, filtration of a subsample of water from each site through a 1–2-µm mesh filter to remove the algae is highly recommended. This filtered sample is then tested side-by-side to the unfiltered sample for comparison purposes.

Table 4-4.
Conditions for the 48-Hour Mussel Development Bioassay

Test Conditions 48-Hour Chronic Bioassay		
Test Species		*Mytilus galloprovincialis*
Test Procedures		EPA/600/R-95/136 (USEPA, 1995)
Age and Size Class		<4-hour-old embryos
Test Type and Duration		Bivalve Larvae—Static / 48 hours
Sample Storage Conditions		4°C, dark, minimal head space
Holding Time		36 hours
Control Water Source		Scripps Pier seawater, 20 µm filtered
Recommended Water Quality Parameters	Temperature	15 ± 1°C
	Salinity	30 ± 2 ppt
	Dissolved Oxygen	> 4.0 mg/L
	pH	6-9; monitor for pH drift
Photoperiod		16 hours light, 8 hours dark
Test Chamber		20-mL glass shell vials
Concentrations		5 (6.25, 12.5, 25, 50, and 100 percent) and a control
Replicates and Sample		5
Number of Organisms/Replicate		Recommended: 15–30/mL
Exposure Volume		10 mL
Feeding		None
Water Renewal		None
Statistical Analysis		TST - Control and test sample comparisons

Notes:
µm = micrometer; °C = degrees Celsius; mg/L = milligram(s) per liter; mL = milliliter(s); pH = hydrogen ion concentration; ppt = part(s) per thousand; USEPA = U.S. Environmental Protection Agency

4.1.7 Water Quality Analysis

4.1.7.1 Water Chemistry

The basin-wide dissolved copper results (excluding the Reference site) will be used to calculate an average dissolved copper concentration. This average will be used to determine basin-wide compliance with the CTR dissolved copper chronic target (3.1 µg/L) or a potential site-specific objective. Because the same station locations will be revisited annually, repeated measurements will be used to evaluate reductions in dissolved copper levels with time.

4.1.7.2 Toxicity

Toxicity will be statistically assessed using the software program Comprehensive Environmental Toxicity Information System™ from Tidepool Scientific Software. With this software, survival of topsmelt fish and normal development of surviving mussel embryos in each test dilution from SIYB are compared to organism performance observed in control exposures to filtered clean seawater collected from the end of the pier at Scripps Institution of Oceanography in La Jolla, California. Results are used to determine LC_{50} and EC_{50} values. If fish survival and normal embryo development in the controls do not differ significantly from that of the treatments, then conditions are considered to be non-toxic at the station. The USEPA Test of Significant Toxicity[6] (USEPA 2010) approach will be used to determine statistically significant effects for this study.

4.2 Field and Analytical QA/QC Procedures

Strict QA/QC procedures will be employed throughout the entire study, from mobilization through delivery of samples to the laboratories. Extra care will be taken to minimize the possibility of compromising sample integrity. The sample collection team will be trained in, and follow, field sampling standard operating procedures (SOPs), as described in the SIYB QAPP (AMEC 2012). As part of the field collection procedures identified in the 2012 and 2013 QAPP updates, a QA/QC reviewer from the Port and the field contractor will be present onboard the sampling vessel at all times to review each step of the sample and data collection process. Additionally, Port-approved field and QA/QC checklists will be used throughout the sampling event to ensure that all procedures are consistent at each location; samples are collected in exactly the same manner at every station; and all required field data are recorded correctly and completely.

Field staff members will take care to avoid contamination of samples at all times by employing the clean hands technique and will wear powder-free nitrile gloves during sample collection. In addition, the field manager will ensure that the sample collection boat is painted with a non-copper or non-zinc containing hull paint. All samples will be collected in laboratory-supplied, laboratory-certified, contaminant-free sample bottles containing the correct preservative (if applicable). The sampling team will be provided the updated QAPP and field sampling standard operating procedures (SOPs) to ensure all sampling personnel are trained accordingly. Additionally, the field staff will be made aware of the significance of the project's detection limits and the requirement to avoid contamination of samples at all times. Field measurement equipment will checked and calibrated for operation in accordance with the manufacturer's specifications (calibration records will be recorded and maintained), and will inspected for damage prior to use and when returned from use. Observations of activities surrounding the sampling area will be recorded on field data sheets at each station and during movement between stations (i.e., boat hull cleaning).

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[6] A recommendation was made by the Port to the Regional Board in the 2012 monitoring report to begin using this new statistical method in place of previous statistical tests. The Regional Board agreed with this recommendation in its July 26, 2013, letter regarding SIYB TMDL progress. The TST method was used to identify any samples that exhibited a statistically significant difference from the control.

As required by SWAMP protocols, the monitoring program will include the addition of a field replicate. The field replicate sample will consist of a second complete set of samples collected at one of the monitoring locations and will be analyzed for chemical constituents only (no toxicity analyses will be conducted on the field replicate sample). The purpose of the field replicate is to assess variability in sampling procedures as well as ambient conditions. In addition to the field replicate, each batch of samples that is submitted to the laboratories for analyses will be accompanied by an equipment rinse blank and field blank, as specified under SWAMP.

Chemistry and toxicity samples will be uniquely identified with sample labels in indelible ink. All sample containers will be identified with the project title, appropriate identification number, date and time of sample collection, and preservation method. Sample labels are inspected by a Port and contractor QA reviewers before and after bottles are filled at each station to ensure that every sample and analysis type are labeled correctly before moving to the next station; this information will be recorded on the field checklist. All samples will be kept on ice from the time of sample collection until delivery to the analytical laboratory for analysis within method-specified holding times (Table 4-5). Samples will be delivered by courier to the analytical laboratories following the day of collection. All analyses will be conducted by laboratories that are accredited by the California Environmental Laboratory Accreditation Program (ELAP) for the specific tests that are required to be performed at the time they are conducted.

Table 4-5.
Sample Holding Times

Analyte	Holding Time
TOC	28 days
DOC	28 days[a]
Total Copper	180 days
Dissolved Copper	48 hours[b]
Total Zinc	180 days
Dissolved Zinc	48 hours[b]
Total Suspended Solids	7 days
48-hour acute bioassay	36 hours
96-hour chronic bioassay	36 hours

Notes:
a The holding time is applicable to preserved sample. The sample will be filtered in the field into a bottle with sulfuric acid (H_2SO_4) preservative for DOC analysis.
b The holding time for metals after preservation is 180 days. The dissolved fraction will be filtered in the field through a 0.45-micrometer (µm) glass fiber filter using a bottle top vacuum filtration system. Samples will be preserved at the laboratory immediately upon receipt from the courier, the next day after sample collection.
DOC = dissolved organic carbon; TOC = total organic carbon

The annual TMDL monitoring program will include the following QA/QC elements:

✓ QAPP and SOP updates
✓ Verification of laboratory certifications
✓ Field mobilization and equipment checklists
✓ Field sampling QA/QC checklists
✓ Field equipment calibrations records
✓ Staff training on QAPP-required field procedures
✓ Field conditions and water quality data sheets
✓ On-board QA/QC oversight
✓ Observations for hull cleaning or other water-quality-impacting activities near sample collection locations

The analytical laboratory will (a) be certified to conduct the analyses for the constituents of concern for the SIYB TMDL study, (b) be certified for the specific analysis methods required for this program, and (c) hold a valid ELAP certificate at the time the monitoring program is initiated and the samples are analyzed. The QA objectives for chemical analysis to be followed by the participating analytical laboratories are detailed in their laboratory QA manuals and the QAPP. The objectives for accuracy and precision involve all aspects of the testing process, including the following:

- Methods and SOPs
- Calibration methods and frequency
- Data analysis, validation, and reporting
- Internal QC
- Preventive maintenance
- Procedures to ensure data accuracy and completeness

Results of all laboratory QC analyses will be reported with the final data. Any QC samples that fail to meet the specified QC criteria in the methodology or QAPP will be identified and the corresponding data will be appropriately qualified in the final report. The final report will include a separate section that discusses any QA/QC issues encountered during the monitoring event, as well as the corrective actions taken to satisfactorily address any issues.

All QA/QC records of the various testing programs will be kept on file for review by regulatory agency personnel.

4.3 Chain-of-Custody Procedures

Proper chain of custody (COC) procedures will be used throughout the sample collection, transport, and analytical process. The principal documents used to identify samples and to document possession are COC records, field logbooks, checklists, and field tracking forms. The COC process is initiated during sample collection. A COC record will be provided with each sample or group of samples. Each employee who has custody of the samples will sign the form and ensure that the samples are not left unattended and are properly secured.

Documentation of sample handling and custody included the following:

- Client and project name

- Sample identifier
- Sample collection date and time
- Any special notations on sample characteristics or analysis
- Initials of the person collecting the sample
- Date the sample was sent to the analytical laboratory
- Shipping company and waybill information

Completed COC forms will be placed into a plastic envelope and kept inside the cooler containing the samples. If possible, field staff should physically courier the bay water samples from the dock at SIYB to the analytical laboratory on the same day as collection. This level of effort will provide an additional level of security to the chain of custody process as well as ensure that all holding times are met. Upon delivery to the analytical laboratory, the COC form will be signed by the person receiving the samples. Copies of the COC records will be included in the final reports prepared by the analytical laboratories.

4.3.1 Health and Safety

Because sampling will be conducted from a boat, dangerous situations can arise. Field personnel need to be aware of safety hazards and take appropriate precautions. A health and safety tailgate meeting will be held prior to any on-site activity. During this meeting, site-specific hazards will be discussed and addressed appropriately.

4.3.2 Use of Boats and Working over Water

Work will be conducted from a boat over and around SIYB; therefore, special considerations are required. All watercraft will be operated according to the applicable navigational rules and regulations. The boat will be operated by a certified captain with U.S. Coast Guard small vessel training. Personnel working on the boat will be trained according to internal SOPs. The hazards associated with the operation and use of boats include drowning, heat stress, and injuries from falling. An approved personal flotation device must be available for each person onboard. Wet conditions increase the chances of slipping; therefore, engineering controls such as guardrails will be used.

Sampling will be conducted in the summer, which increases the risk of heat stress. To reduce this risk, plenty of water will be made available to field staff and wearing short pants will be acceptable. A float plan will be prepared for each trip and submitted to the safety officer or project manager. At a minimum, it will include destination, expected time of return, personnel on board, and description of vessel. The float plan will be used if the field crew does not return or notify the shore contact at a specified time and a rescue is needed. A weather forecast will be reviewed prior to field sampling. High winds may pose potential hazardous conditions within the harbor.

5.0 DATA REVIEW AND MANAGEMENT

Field and laboratory data will be reviewed for completeness and accuracy prior to analysis and reporting, and are stored in a database, as described in the following sections.

5.1 Data Review

After each survey, field data sheets and checklists will be checked for completeness and accuracy by the field crew and the QA reviewers. In addition, all sample COCs will be checked against sample labels at the end of the day prior to samples being transported to the laboratories. In the laboratory, technicians will document sample receipt and sample preparation activities in laboratory logbooks or on bench sheets.

Data validation will include dated and signed entries by technicians on the data sheets and logbooks used for samples, the use of sample tracking and numbering systems to track the progress of samples through the laboratory, and the use of QC criteria to reject or accept specific data. Data for laboratory analyses will be entered directly onto data sheets. Data sheets will be filled out in ink and signed by the technician, who is responsible for checking the sheet to ensure completeness and accuracy. The technician who generated the data will have the prime responsibility for the accuracy and completeness of the data.

Each technician will review the data to ensure the following:

- Sample description information is correct and complete
- Analysis information is correct and complete
- Results are correct and complete
- Documentation is complete

All data will be reviewed and verified by participating team laboratories to determine whether data quality objectives have been met and that appropriate corrective actions have been taken, when necessary, as detailed in the QAPP.

5.2 Data Management

The chemistry and toxicity laboratories will supply analytical results in both hard copy and electronic formats. Laboratories will have the responsibility of ensuring that both forms are accurate. After completion of the data review by participating team laboratories, hard copy results will be placed in a project file; results in electronic format will be imported into a database system. Additional details regarding data management are provided in the project-specific QAPP.

5.3 Laboratory Quality Assurance and Quality Control

Analytical laboratories will provide a QA/QC narrative that describes the results of the standard QA/QC protocols that accompany analysis of field samples. All hard copies of results will be maintained in the project files. In addition, back-up copies of results generated by each laboratory will be maintained at their respective facilities. At a minimum, the laboratory reports will contain results of the laboratory analysis, QA/QC results, all protocols and any deviations from the project Monitoring Plan, and a case narrative of COC details.

6.0 REPORTING

Reporting under the SIYB TMDL will include annual monitoring and progress reports to be submitted to the Regional Board by the Port no later than March 31 of each year. The purpose of the report is to document the methods and results of annual vessel tracking surveys and water quality monitoring. Reports will detail the number of vessels converted to non-copper or lower copper paints within SIYB to calculate loading reductions. Additionally, annual progress reports will describe water quality conditions, specifically focused on the concentrations of dissolved copper within the basin and observed toxicity levels.

At a minimum, the following information will be included in annual monitoring and progress reports.

SIYB TMDL Implementation: An evaluation, interpretation, and tabulation of data and information on SIYB Dissolved Copper TMDL activities undertaken by the Named Parties.

1. *Vessel Conversions.* Assess vessel conversions from copper-based antifouling paints to non-copper and lower copper hull paints, including:
    a. Total number of slips or buoys in SIYB available to be occupied by vessels
    b. Number of unoccupied slips or buoys and length of time unoccupied during each year
    c. Number of vessels confirmed with copper-based hull paint and approximate length of time occupying a slip or buoy in SIYB during each year
    d. Number of vessels confirmed with alternative hull paints, by alternative hull paint type, and approximate length of time occupying a slip or buoy in SIYB during each year
    e. Number of vessels with aged-copper paint and approximate length of time occupying a slip or buoy in SIYB during each year
    f. Number of vessels with unconfirmed information about hull paint and approximate length of time occupying a slip or buoy in SIYB during each year;
    g. An estimate of the dissolved copper load reduction achieved, in terms of kilograms and percent, for the year
    h. Any other data or information relevant to annual tracking of vessels in SIYB occupying slips or buoys and conversions from copper-based hull paints to alternative (non-copper or lower copper) hull paints.

SIYB BMP Implementation. Describe BMPs or other actions that have been implemented by the Named Parties to reduce dissolved copper discharges from boat hulls into SIYB. BMPs and other actions implemented and required to be implemented by in-water hull cleaners are also described in the BMP section of the annual monitoring and progress report. In addition, any updates of the copper reduction BMP strategies outlined in the TMDL Implementation Plan will be included in an appendix to the annual monitoring and progress report.

San Diego Baywide BMP Implementation. Describe BMPs or other actions that can be, will be, or have been implemented by the Port to reduce dissolved copper discharges from boat hulls into harbors or marinas, other than SIYB, within San Diego Bay.

SIYB TMDL Monitoring. An evaluation, interpretation, and tabulation of water quality sampling and analysis data, including:

2. *Sampling Locations and Numbers*. The locations, type, and number of samples must be identified and shown on a site map.
3. *Sample Analyses*. The sample collection and laboratory analytical methods, QA/QC results, time and date of sample collection, and other pertinent information must be described.
4. *QA/QC Summary.* Discusses the adherence to project-specific QAPP requirements, QA/QC issues that needed to be addressed, and any necessary corrective actions.
5. *Water Quality Trends.* Interpretations and conclusions, as to whether the “trajectory” of the measured water quality values points toward attainment of the dissolved copper water quality objectives, must be provided.

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ATTACHMENT A

VESSEL TRACKING DATABASE TEMPLATE

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Attachment A
SIYB Dissolved Copper TMDL
Vessel Tracking Template Form

Facility (Marina or Yacht Club)	Slip/Mooring Reference Number	Percent of Time Occupied	Vessel Type (Power or Sail)	Vessel Length	Vessel Beam	Paint Type (Copper, Low, or Non, No Paint)	Paint Product Name	Product Number	Boatyard Name or Purchase Date	Painting Date Month (mm)	Painting Date Year (yyyy)	% Copper	USEPA Registration Number

ATTACHMENT B

CHAIN-OF-CUSTODY FORMS

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Weck Laboratories, Inc.
Analytical Laboratory Services - Since 1964

CHAIN OF CUSTODY RECORD

14859 East Clark Avenue : Industry : CA 91745
Tel 626-336-2139 ♦ Fax 626-336-2634 ♦ www.wecklabs.com

STANDARD

Page 1 Of 5

CLIENT NAME:

PROJECT: Port of San Diego - Shelter Island Yacht Basin

ADDRESS:

PHONE:

FAX:

EMAIL:

PROJECT MANAGER Rolf Schottle

SAMPLER

SPECIAL HANDLING

☐ Same Day Rush 150%
☐ 24 Hour Rush 100%
☐ 48-72 Hour Rush 75%
☐ 4 - 5 Day Rush 30%
☐ Rush Extractions 50%
☑ 10 Business Days
☑ QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment:

ANALYSES REQUESTED

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	**Total Copper** Method EPA 1640 MDL 0.004 µg/L, RL= 0.01 µg/L	**Dissolved Copper** [2] Method EPA 1640 MDL 0.004 µg/L, RL= 0.01 µg/L	**Total Zinc** Method EPA 1640 MDL 0.036 µg/L, RL= 0.20 µg/L	**Dissolved Zinc** [2] Method EPA 1640 MDL 0.036 µg/L, RL= 0.20 µg/L	**Total Organic Carbon (TOC)** Method USEPA 5310B MDL = 0.016 mg/L, RL = 0.10 mg/L	**Dissolved Organic Carbon (DOC)** [1] Method USEPA 5310B MDL = 0.016 mg/L, RL = 0.10 mg/L					COMMENTS

RELINQUISHED BY	DATE / TIME	RECEIVED BY
RELINQUISHED BY	DATE / TIME	RECEIVED BY
RELINQUISHED BY	DATE / TIME	RECEIVED BY

SAMPLE CONDITION:

Actual Temperature:

Received On Ice	Y / N
Preserved	Y / N
Evidence Seals Present	Y / N
Container Intact	Y / N
Preserved at Lab	Y / N

SAMPLE TYPE CODE:
AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

SPECIAL REQUIREMENTS / BILLING INFORMATION

1) DOC samples were field filtered through 0.45 um Teflon filters, 2) LAB ACTION UPON RECEIPT:FILTER/PRESERVE DISSOLVED Cu/Zn IMMEDIATELY- 24hr HT; 3) 10 working day TAT;
4) FB = Field Blank; 5) ER = Equipment Rinsate (Equipment Blank); 6) Organic carbon will be measured by Weck using High Temperature Combustion Method (SM 5310 B)
7) Please see attached CAR for metals analysis / acid washing filters. Preserve extra of each sample for total copper and zinc AND filter and preserve extra for dissolved metals to archive
8) WECK will contact AMEC PM within 24 hours if any sample anomalies are found. 9) SPIKE level at the following amounts = Copper = 10 ug/L; Zinc = 30 ug/L; TOC/DOC = 2.0 mg/L
10) Select pages from AMEC QAPP included for reference; 11) HDPE Metals Bottles were provided to AMEC with NO acid (HNO3) in bottle. WECK to add acid in-house at appropriate time.

Nautilus Environmental

4340 Vandever Ave. San Diego, CA 92120

Chain of Custody (electronic)

Date__________Page___of___

Sample Collection By: AMEC Environment & Infrastructure

	Report to:	Invoice to:
Company		
Address		
City/State/Zip		
Contact		
Phone		
Email		

ANALYSES REQUIRED

	SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	# OF CONTAINERS	COMMENTS	Topsmelt 96-hr Acute Survival	Mussel 48-hr Survival and Dev.							Receipt Temperature (°C)
1																
2																
3																
4																
5																
6																
7																
8																

PROJECT INFORMATION	SAMPLE RECEIPT	
Client:	**Total # Containers:**	
P.O. No.:	**Good Condition?**	
Shipped Via:	**Matches Test Schedule?**	

Comments:
Concurrent reference toxicant test for both species

Relinquished By:	Received By (courier):
Signature: Date	**Signature:** Date
Print Name: Time	**Print Name:** Time
Company:	**Company:**
Relinquished By (courier):	**Received By Lab:**
Signature: Date	**Signature:** Date
Print Name: Time	**Print Name:** Time
Company:	**Company:**

Additional costs may be required for sample disposal or storage. Net 30 unless otherwise contracted.

APPENDIX B

BEST MANAGEMENT PRACTICE PLANS

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SAN DIEGO UNIFIED PORT DISTRICT

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BMP PLAN IMPLEMENTATION

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Shelter Island Yacht Basin Total Maximum Daily Load BMP Workplan – San Diego Unified Port District
Summary of efforts completed /in progress during 2018 Reporting Period (Jan- Dec 2018)

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
Defined Projects for Stage 4 (2018-2022)							
Policy/ Regulation	***Copper Hull Paint Legislation AB 425 (Atkins): The Port was involved in the development of state legislation that required the Dept of Pesticide Regulation to adopt a leach rate that is protective of aquatic environments.***	***State-wide***	***This bill supports the Port's efforts to reduce copper pollution in San Diego Bay marinas by controlling copper loading throughout the state.***	***Completeness: Adoption of bill*** ***Load Reduction:*** ***(1) establish leach rate that is protective of aquatic environments.*** ***(2) Limit paints to only those meeting the leach rate.***		***Start Date: Feb 2013*** ***Completion Date:*** ***(1) Bill Complete – Oct 2013*** ***(2) Establish Leach Rate – Feb 2014*** ***(3) Leach Rate Use– July 1, 2018*** ***Status: Legislation Complete***	• ***AB425 was signed in October 2013.*** • ***The final DPR report was completed on January 30, 2014, and established the following:*** ○ ***Max Leach Rate of 9.5 µg/cm2/day for paints w/ monthly soft carpet.*** ○ ***Max Leach Rate of 13.4 µg/cm2/day for paints where cleaning is prohibited.*** ○ ***7 additional mitigation measures identified to be implemented.***
Policy/ Regulation	Implementation of the Dept of Pesticide Regulation maximum leach rate rule (DPR Rule)	State-wide	The implementation of the new regulation (DPR Rule) sets a maximum leach rate of 9.5 µg/cm2/day requirement for copper-based AFPs on recreational vessels under 65 ft. in length and is applied at the point-of-sale.	Completeness: Full Implementation of Regulation Load Reduction: (1) Will phase out the availability of higher copper AFPs by 2020, therefore reducing individual boaters load contributions to aquatic environments. (2) Limits available paints to only those meeting the leach rate.		Start Date: July 1, 2018 Completion Date: June 30, 2020 (when remaining stock of higher copper AFPs will no longer be available at point-of-sale.)	• The DPR Rule became effective July 1, 2018 (the result of AB425) • AFPs for recreational vessels under 65 ft. that do not meet this requirement are no longer available
Policy/ Regulation	In-water Hull Cleaning Regulations – New Permits Issued	Bay-wide	In-Water Hull Cleaning regulations are intended to reduce or eliminate copper pollution caused by hull cleaning activities in San Diego Bay.	Completeness: Issue Permits to 100% of In-Water Hull Cleaning businesses operating in San Diego Bay. Load reduction: All hull cleaning businesses operating on Port Tidelands have obtained permits & use BMPs.	# of permitted in-water hull cleaning businesses/ total in-water hull cleaning businesses known to operate.	Start Date: FY10 Status: Ongoing Annually	• 90 companies were issued permits since the onset of regulation. There are currently 47 active permits as of December 2018. • 7 new hull cleaning permits issued in 2018.

Shelter Island Yacht Basin Total Maximum Daily Load BMP Workplan – San Diego Unified Port District
Summary of efforts completed /in progress during 2018 Reporting Period (Jan- Dec 2018)

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
Policy/ Regulation	In-water Hull Cleaning- Permit Renewals	Bay-wide	In-Water Hull Cleaning Permit renewals are required every two years. A regular renewal process is intended to ensure divers stay up to date on education and training.	Completeness: Permit renewals issued Load reduction: All hull cleaning businesses operating on Port Tidelands possess valid permits & use BMPs.	# of permitted in-water hull cleaning businesses having permits expiring in 2018/ total # in-water hull cleaning businesses	Start Date: Jan 2013 Completion Date: Annually Status: Ongoing annually	• 5 Hull cleaning businesses renewed permits in 2018. • 9 permits expired in 2018. • Overall, 43 permits have expired since the onset of the regulation due to either companies going out of business or being sold to another already permitted in-water hull cleaning company.
Policy/ Regulation	In-water Hull Cleaning – Diver/Marina Inspections	Bay-wide	Inspections for IWHC activities and review of marina's check-in practices are intended to verify whether businesses are complying with permit requirements. In general, compliance with permit requirements is indicative of divers using BMPs and controlling their pollution to the MEP.	Completeness: compliance with regulations confirmed through visual inspections. Load reduction: All hull cleaning businesses operating on Port Tidelands have obtained permits & use BMPs.	# of inspections conducted/ # of citations/warnings issued	Start Date: FY10 Status: Ongoing Annually	• 2* Hull cleaning inspections in 2018. • 18 Marina Inspections *Due to a cyber security incident in September 2018, most hull cleaning inspection/citation data was not retrievable and thus not counted. The 2 included here represent records that still exist in District files.*
Policy/ Regulation	Correspondence with State & Federal Agencies	State-wide	Promote consistency in requirements being developed across the state; discuss strategies for implementation	Completeness: submittal of letters; response to request(s); public meeting comments	# of letters sent / # of requests satisfied/# of meetings present to comment on	Ongoing Annually 2017: • 1 comment letter • correspondence with 1 state agency	*Department of Pesticide Regulation (DPR):* • Port and DPR staff continued an on-going collaborative partnership by holding multiple conference calls to discuss copper related issues and outreach planning related to the new DPR Paint Rule (throughout 2018). *California Department of Boating and Waterways:* • Port staff provided two supporting presentations following a DPR presentation titled "Copper Paint from a Regulatory Perspective" at the California Boating and Waterways

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
			activities, lessons learned, and build upon successful activity models.				Commission Meeting in Sacramento, CA where SIYB was used as an example to support legislation and regulatory efforts that promote consistency statewide (May 10, 2018). *San Diego Regional Water Quality Control Board:* • Port staff presented the 2017 Annual Report findings and 5-year interim compliance achievements to San Diego Regional Water Quality Control Board staff (May 2018). • Port staff spoke during public comment at the October San Diego Regional Water Quality Control Board Meeting in support of the Executive Officer Report, which memorialized Regional Board acceptance of the interim compliance target for the SIYB TMDL being met (October 10, 2018).
Policy/Regulation	Support for DPR Paint Reformulation	State-wide	Establish timeline to phase-out high leach copper paint.	Completeness	Verification of Policy Notifications to Boatyards Removal of high leach products from the market	Started: 2018 Completion Expected: 2020	• The new DPR regulation which set a maximum leach rate rule of 9.5 µg/cm2/day for copper-based hull paints became effective July 1, 2018. • The new regulation is the result of efforts associated with AB425. • There is a grace period for all high copper paints that are currently in-stock are stores and boatyards. It is expected that after June 30,2020, no high copper paints will be available.
Policy/ Regulation	Coordination with other Regions on Copper TMDLs/impairments	Statewide	Promote consistency in requirements being developed across the state; discuss strategies for implementation activities, lessons learned, and build upon successful activity models.	Consistency in regulations	Assessment mechanism is dependent on information being considered.	As-needed coordination	• Per a request from LA County Beaches and Harbors, had conference call to discuss the Port's Copper Reduction Program and answer questions and offer guidance regarding lessons learned thus far with the SIYB Copper TMDL and Copper Reduction Program (September 4, 2018).
Testing and Research	Pilot projects for concepts to mitigate copper in San Diego Bay	SIYB	Utilize the Port's Blue Economy Incubator (BEI) to discover and test/implement potentially useful copper reduction technologies .	Successful trials and subsequent installations of demonstrated technologies.	Measured reduction in copper concentrations in the water column.	Start Date: FY16 Status: Ongoing 2017: • Two companies awarded agreements to conduct copper-related pilot projects through the BEI 2016: • RFP issued for	• In 2018, the Rentunder Boatwash Pilot Project commenced, demonstrating technology that offers an alternative to current in-slip hull cleaning practices. Using this technology, vessel hulls are cleaned in an enclosed basin: a gate is opened and allows for boats to enter prior to cleaning, the gate is then raised for the duration of cleaning and lowered again after cleaning to allow for the boat to exit. In addition, particulate matter resulting from the cleaning is captured in the basin floor and removed via vacuuming. • In 2018, the Red Lion Chem Tech Pilot Project submitted a Draft Work Plan to the BEI for review. The pilot project is scheduled to begin in 2019. The Red Lion Chem Tech Pilot Project is a copper remediation technology that aims to remove dissolved copper from the water column.

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
						innovative hull cleaning and remediation technology businesses to submit plans to the Port; 7 proposals submitted	
Hull Paint Transition	***Transition of Port Fleet to Non-copper Hull Paints***	***SIYB/Bay-wide***	***To facilitate the reduction of copper loading to SIYB in compliance with interim and final loading reduction targets.***	***Load reduction: 100% of fleet transitioned to non-copper hull paints Completeness: conversion of entire Port fleet***	***# converted/ total***	***Start Date: FY09*** ***Completion Date: FY11*** ***Status: Complete. 16 of 16 converted***	• ***All 17 Port boats remain copper-free, resulting in a 15.3 kg/yr load reduction.*** • ***Project completed ahead of schedule; ongoing implementation continues.***
Hull Paint Transition	***Vessel Tracking Templates***	***SIYB/Bay-wide***	***Excel-based data sheets for marinas and yacht clubs to use to track hull paint in a consistent manner for reporting purposes.***	***Completeness/Change in Behavior***	***# of facilities using templates and tracking hull paint information***	***Start Date: FY11*** ***Completion Date: FY13*** ***Status: complete***	• ***The Port and all 11 facilities continue to implement the use of a template to track hull paint.***
Education/ Outreach	Workshops/seminars to boating community & Stakeholders	SIYB/Bay-wide	Educate boat owners on environmental impacts of copper-based hull paints; Provide information on alternative hull paints; Inform boat owners of the Hull Paint Conversion Project; Inform stakeholders of programs or policies.	Change in Awareness/Change in Behavior	# of people attending; Results from public opinion/awareness surveys or pre/post-tests (as applicable)	Start Date: FY 09 Status: On-going Past Annual Totals: • 2017-- 7 events • 2016 – 6 events • 2015 – 5 events • 2014 – 6 events • 2013 – 1 event • 2012 – 3 events • 2011 – 2 events • 2010 – 1 event	• Workshop ○ July 24, 2018- Copper Paint Roundtable Discussion: Port staff organized and hosted a round table discussion with a representative from the DPR, boatyard representatives and paint company representatives and manufacturers. Port staff hosted this at a boatyard to make it accessible to those stakeholders. The TMDL was reviewed and the DPR spoke to clarify questions on the new paint rule. A question and answer session was held. 27 stakeholders attended. • Conferences: ○ January 18-19, 2018: California Marine Affairs and Navigation Conference (CMANC), Los Angeles, CA. Port staff attended the CMANC conference where various topics pertaining to sediment and water quality and regulatory perspectives were covered. Approximately 75 people attended conference. ○ March 2018: CMANC Washington Week had Port staff attend meetings in Washington DC allowing the opportunity to bring high level port-specific issues to elected officials. A key meeting with the USEPA focused on the future of TMDLs across the nation. ○ April 12-13, 2018: Southern California Society of Toxicology and Environmental Chemistry (SoCal SETAC), Los Angeles, CA. Port staff attended where topics covered water and sediment quality in southern California with both scientific and regulatory focuses. Port staff presented on a non-TMDL related topic ("Talking Trash: Management Strategies for Preventing and Removing Trash from Receiving

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
							Waters”). Approximately 200 people attended conference. ○ September 11-12, 2018: American Association of Port Authorities Energy and Environment Seminar (AAPA) Jersey City, NJ. Port staff attended where topics covered included platforms discussing coastal resiliency and regulatory framework affecting ports and harbors. The Port of San Diego received three of the four Environmental Improvement Awards for Stakeholder Education, Awareness and Involvement; Environmental Enhancement; and Mitigation. Approximately 100 people attended the conference. • Guest Speaker Invitations: ○ California Marine Affairs and Navigation Conference, Los Angeles, CA. Port staff presented “Navigating TMDLs: A Perspective on Science and Management” where the SIYB Dissolved Copper TMDL progress was discussed in-depth. Approximately 75 people attended the conference (January 18, 2018). ○ San Diego Environmental Professionals July Luncheon- Port staff presented the SIYB TMDL and efforts thus far to a diverse group of local environmental professionals (July 10, 2018). Approximately 50 people attended. ○ Dockmasters Meeting- Port staff were invited to present on the SIYB TMDL efforts to date. The Dockmasters group is comprised of yacht club and marina managers from San Diego County, with many directly involved with SIYB (August 15, 2018). Approximately 35 people attended. ○ AAPA Energy and Environment Seminar- Port staff was asked to present and sit on a panel titled “Incorporating Resiliency into Port Planning and Environmental Projects”. Approximately 100 people attended the platform and conference. ○ IACC Presentation- Port staff presented an update on the Shelter Island Yacht Basin TMDL at the Fall IACC meeting (October 16, 2018). Approximately 100 people remotely attended. ○ Shelter Island Master Leaseholders Group Monthly Meeting- Port staff spoke about the new DPR rule, how it effects vessel tracking and reporting, and discussed the upcoming reporting schedule with the SIMLG (November 14, 2018). Approximately 12 people attended. • Port Board Memorandums ○ 3 Board Memorandums ▪ Submittal of the 2017 Shelter Island Yacht Basin Dissolved Copper TMDL Annual Monitoring and Progress Report (April 19, 2018). ▪ Notification of Upcoming Bay Monitoring Events (July 12, 2018). ▪ DPR Visit Summary (August 2, 2018). • Port Board Meeting Agendas ○ 2 Board Agendas ▪ Blue Economy Incubator Update on Associated Pilot Projects from Rounds One and Two (January 9, 2018). ▪ Presentation on the 2017 Copper Load Reduction Efforts Related to the Shelter Island Yacht Basin Total Maximum Daily Load (TMDL) (June 12, 2018).
Education/	Booths at Outreach	SIYB/Bay-	The Port makes	Change in	# of attendees; # of	Start Date: FY 09	• California Port’s Day in Sacramento, CA- At this inaugural event, staff hosted a booth

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
Outreach	Events:	wide	efforts to host a booth at various boating relating events. The purpose is to educate the boating community on environmental impacts of copper-based hull paints; Provide information on alternative hull paints; Inform boat owners of the Hull Paint Conversion Project (2013-2015).	Awareness/Change in Behavior	posted advertisements or pamphlets distributed Results from public opinion/awareness surveys (as applicable)	Status: On-going Past Annual Totals: • 2017- 0 events • 2016 – 6 events • 2015 – 6 events • 2014 – 5 events • 2013 – 5 events • 2012 – 4 events • 2011 – 4 events • 2010 – 1 event • 2009 – 1 event	which highlighted environmental initiatives on the Capitol lawn. This event was attended by state legislators, staff and the general public. This platform allowed for messaging the need for continuity in environmental regulations at the state level. An estimated 500 people were reached at this event. (February 21, 2018).
Education/ Outreach	Develop Partnerships/ Collaboration	SIYB/Bay-wide	Identify opportunities to collaborate with tenants, academia, and other agencies to develop and provide outreach, testing opportunities, funding opportunities, and policies.	Change in Awareness/Change in Behavior	# of new partnerships developed/# of continued partnerships	Start Date: FY 09 Completion Date: On-going Status: In progress	*New Partnerships* • Marina and Yacht Club "1 on 1 Meetings" ○ District staff met individually with 8 marina and yacht club managers to review the TMDL and discuss ways to achieve compliance success by 2022 (July 2018). ○ Follow up meetings were conducted to assist in vessel tracking reporting as well as continue dialogue for copper reduction initiatives at individual marinas and yacht clubs. *Continued Partnerships* • Coordination with hull cleaners on In-Water Hull-Cleaning Regulations. • Coordination with SIMLG, marinas and yacht clubs on SIYB TMDL annual report. • Regular participation in state-led Interagency Coordinating Committee (IACC) meetings for antifouling and marina-related topics. • Regular meetings with SIMLG to discuss reports and TMDL status.
Education/ Outreach	Website Development	SIYB/Bay-wide	Be an information source for staying up-to-date with boating trends, news, events and environmental issues. Provide tenants, stakeholders, and	Change in Awareness/Change in Behavior	Web pages created and posted. Periodic updates to webpages (as necessary)	Start Date: FY 10 Status: - On-going Past Annual Website Updates: • 2017- 36 updates • 2016 – 2	• The website was routinely checked to ensure content was available to the public and that information remained current and easy to find. The Port unveiled a new website on 4/30/18 and to date the Copper Reduction Program Website has had 713 views. • Approximately* 40 Updates to In-Water Hull Cleaning permitted divers list (the list is updated and distributed to marinas and yacht clubs weekly, unless there are not changes to the list from the previous week).

Shelter Island Yacht Basin Total Maximum Daily Load BMP Workplan – San Diego Unified Port District
Summary of efforts completed /in progress during 2018 Reporting Period (Jan- Dec 2018)

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
			public information on copper hull paint related projects, policies and other items.			updates • 2015 -2 updates • 2014 – 1 update • 2013 - 2 updates • 2012 – 2 updates • 2011 – 1 update	**Due to a cyber security incident in September 2018, four weeks of data was not retrievable.*
Education/ Outreach	Literature Development: (brochures, handouts, print materials)	Bay-wide	Development and distribution of brochures and other educational materials for the public addressing the bay's copper problems and providing information on non-copper hull paint alternative hull paints.	Change in awareness	# of brochures or pamphlets created	Start Date: FY 10 Past Annual Totals: • 2017- 0 items • 2016 – 1 item • 2015 - 1 item • 2014 – 2 items • 2013 - 4 items • 2012 – 1 item • 2011 – 2 items	• Port staff worked collaboratively with staff from the DPR, Department of Boating and Waterways, and LA County Beaches and Harbors to update the Boater's Guide to Hull Paints in California to better reflect the new DPR Copper Paint Rule. A draft was completed in December 2018 and is expected to be finalized in the first quarter of 2019.
Education/ Outreach	Media Development: (Videos, Web tools, Testimonials, Press releases)	SIYB/Bay-wide	Development and distribution of information for the public addressing the bay's copper problems, non-copper hull paints, policies, and testimonials from boaters/tenants using non-copper hull paints.	Change in awareness	# of press releases or videos created	Start Date: FY 09 Status: On-going Past Annual Totals: 2017: • 1 press release; 1 item completed 2016: • 1 press release; 3 items completed 2015: • 1 press release; 2 items completed 2014 : • 7 press	• The Log Newspaper article ○ Article discussing the Port's progress towards TMDL compliance titled "Port of San Diego continues to tout copper reduction program" (June 29, 2018). http://www.thelog.com/local/port-of-san-diego-continues-to-tout-copper-reduction-program/

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
						releases; 1 item completed 2013: • 5 press releases, 3 items completed; 2012: • 9 press releases; 1 video, 2 posters 2011: • 7 press releases 2010: • 5 press releases 2009: • 2 press releases	
Agency Wide Activities	Construction Site Inspections	Bay-wide	Construction inspections ensure that sites undergoing (re-)development control pollution and prevent discharges. For construction sites and facilities that do not comply, the Port will take enforcement action.	Change in Behavior	Total # sites, # Inspections; # of violations Overall BMP rate	Status: On-going	• 30 construction projects. • 289 inspections and 20 violations. • 93.1% BMP implementation rate overall.
Agency Wide Activities	Commercial Business Inspections Program	Bay-wide	The Port inspects commercial facilities per the Municipal Permit in the SIYB and bay-wide. One particular component, the Port's marina inspection program, has been an effort to	Change in Behavior	Total # Inspections; # of follow up inspections	Status: On-going Past Annual Totals: 2017: • 77 inspections bay-wide, 38 follow-ups required. 2015: • 57 inspection bay-wide, 16 follow-ups	*Bay-wide* • 67 inspections and 57 follow-up inspections bay-wide in 2018. • 26 administrative citations and 72 written warnings were issued to facilities to resolve deficiencies. *Shelter Island Yacht Basin* • Two SIYB administrative citations were issued: one for trash cans lacking lids and one for

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
			educate boat owners about pollution prevention, focusing on visual observations designed to identify sources of pollution and the pollution prevention practices being implemented at the marinas.			required. 2014: • 45 inspections bay-wide; 18 follow-ups required. 2013 • 26 inspections bay-wide; 4 follow-ups required. 2012 • 9 inspections bay-wide, 0 follow-ups required.	accumulation of trash in waste disposal areas near the marina. • 8 of the 8 facilities inspected received written warnings for a total of 14 deficiencies. ○ 6 of the 8 facilities lacked proper material storage. ○ 5 of the 8 facilities lacked BMP training logs. ○ 1 of the 8 facilities had observed sediment accumulation. ○ 1 of the 8 facilities did not utilize BMPs for overwater activities. ○ 1 of the 8 facilities did not properly capture wash water. *Commercial Business Inspections Program data gathered from the Jurisdictional Runoff Management Program (JRMP), which has a permit-required data collection period of July 1, 2017—June 30, 2018. To stay consistent with previous SIYB BMP workplan reporting, these dates were used for this report.*
Structural and Mechanical BMP Implementation	SUSMP and Development Regulations	Bay-wide	The Port incorporates SUSMP requirements on applicable development and redevelopment projects bay-wide. Depending on the type and size of the projects, SUSMP requirements could include site design, source controls, and treatment controls such as LID.	Change in Behavior: Compliance	# of projects having metals as priority pollutant / # of completed SUSMP BMPs / # acres (sq. ft)	Status: On-going	• No new projects occurred in SIYB in 2018 having metals as priority pollutant.

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
Monitoring/ Reporting	*SIYB Special Study – Time Series Special Study*	*SIYB*	*1) Gain a better understanding on the effects tidal variations may have on concentrations of dissolved copper in surface waters at SIYB*	*Change in SIYB water quality concentrations during different stages of a full mixed semidiurnal tidal cycle.*	*Completeness: Assess water quality monitoring data and compare to previous water quality and modeling efforts.*	*Status: Completed*	• *3 Special Study sites were located throughout SIYB and sampled every 2 hours for an entire mixed semidiurnal tidal cycle (26 hours).* • *Samples collected in January 2018 at mouth, mid-basin and back-basin.* • *Findings submitted as part of the 2017 Annual SIYB TMDL Report (March 2018)*
Monitoring/ Reporting	*Conduct annual SIYB TMDL Water Quality Monitoring*	*SIYB*	*Assess water quality in SIYB basin; determine when vessel conversion starts to show water quality improvements*	*Completeness*	*Completed Report*	*Status: Monitoring Complete*	• *For 2018: Basin average for dissolved copper was 6.7 µg/L, a decrease of 19.3% from the 2005-2008 baseline basin average of 8.3 µg/L.*
Monitoring/ Reporting	Revisions to QAPP & Monitoring Plan	SIYB	Develop a water sampling and vessel tracking program to 1) use annually to assess conditions in SIYB, and 2) determine compliance with the TMDL.	Completeness	Submittal of plan updates	-Start Date: July 2018 Completion Date: November 2018 Status: Revisions Complete	• Annual revisions included various QA updates.
Monitoring/ Reporting	Regional Harbor Monitoring Program (RHMP): 2018 Core Monitoring Program	Bay-wide	Assesses conditions found in San Diego Bay based on comparisons to historical data and comparisons to contaminant concentrations to known surface water and	Completeness	Water, sediment, & fish sampling in bay Report on findings of the study	Start Date: FY17 Completion Date: FY22 Status: Ongoing	• Core monitoring was conducted throughout San Diego Bay for the 2018 RHMP. A total of 58 sites in San Diego Bay (10 in marina strata) were sampled for water quality, sediment quality, and benthic community health (July-September 2018). Data analysis is currently underway and will be summarized when the final report is available, estimated in early 2021.

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
			sediment thresholds.				
Potential Projects/Initiatives for Stage 4 (2019-2022)							
Policy/ Regulation	Policy Efforts as deemed applicable and appropriate	SIYB/Bay-wide	Evaluate potential policy efforts locally and statewide, as deemed appropriate.	Completeness: Adoption of policy Load Reduction: TBD dependent on policy content	Measured reduction of copper concentrations in the water column Calculated load reductions of copper into the water		• Will be developed as deemed appropriate.
Testing and Research	Blue Economy Incubator Pilot Studies	SIYB	Further utilize the Port's Blue Economy Incubator to discover and test potentially useful copper reduction technologies.	Further development of technologies exhibiting successful trials.	Measured reduction in copper concentrations in the water column.	Status: Ongoing	• Continue to develop potential partnerships between the Port and companies proposing technologies through the Blue Economy Incubator.
Testing and Research	Long-term Hull Paint Testing Program Development: Development of a testing program to evaluate new and emerging coatings	SIYB	The objective of the project is to identify effective non-copper antifouling paints through panel testing.	Completeness/Change in Awareness	A standardized protocol for testing the effectiveness of new coatings has been developed.	Start Date: FY09 Completion Date: On-going	• Testing will occur as budget allows.
Testing and Research	DPR Paint Study	SIYB	Evaluate the effectiveness of the 2018 DPR Rule implementation.	Water quality that is protective of aquatic life	Change in Water Quality	Start Date: FY19	• Statewide DPR study

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
Education/ Outreach	Presentations to Stakeholder Groups	SIYB/Bay-wide	Educate boating community on environmental impacts of copper-based hull paints; Provide information on alternative hull paints; Inform stakeholders of programs or policies.	Change in Awareness/Change in Behavior	# of attendees and/or pamphlets distributed	Status: Ongoing	• Will be provided as needed. • Annual reports will identify efforts conducted during the reporting period.
Education/ Outreach	Booths at Outreach Events: The Port annually sponsors booths at various boating relating events.	SIYB/Bay-wide	Educate boating community on environmental impacts of copper-based hull paints; Provide information on alternative hull paints; Inform boat owners of the Hull Paint Conversion Project.	Change in Awareness/Change in Behavior	# of posted advertisements or pamphlets distributed; # of attendees Results from public opinion/awareness surveys (as applicable)	Status: Ongoing	• Will be provided as needed. • Annual reports will identify efforts conducted during the reporting period.
Education/ Outreach	Literature Development: (brochures, handouts, print materials)	SIYB/Bay-wide	Development and distribution of brochures and other educational materials for the public addressing the bay's copper problems and providing information on non-copper hull paint alternative hull paints.	Change in awareness	# of brochures or pamphlets created & # distributed	Status: Ongoing	• Proposed collateral: TBD. • Annual reports will identify efforts conducted during the reporting period.
Education/ Outreach	Media Development: (Videos, Testimonials, Press releases) – Ongoing task	SIYB/Bay-wide	Development and distribution of information for the public addressing the bay's copper problems, non-copper hull paints,	Change in Awareness/Change in Behavior	# of press releases or videos created	Status: Ongoing	

Shelter Island Yacht Basin Total Maximum Daily Load BMP Workplan – San Diego Unified Port District
Summary of efforts completed /in progress during 2018 Reporting Period (Jan- Dec 2018)

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
			policies, and testimonials from boaters/tenants using non-copper hull paints.				
Monitoring/ Reporting	Conduct annual SIYB TMDL Water Quality Monitoring	SIYB	Assess water quality in SIYB basin; determine when vessel conversion starts to show water quality improvement.	Completeness	Completed Report	Status: Annually	
Monitoring/ Reporting	Regional Harbor Monitoring Program (RHMP): Core Monitoring Program	Bay-wide		Completeness	Report on findings of the study results completed by Weston for RHMP	Start Date: FY17 Completion Date: FY22	• Project partners include City of San Diego, City of Oceanside, County of Orange.
Grant Funding/ Incentives	Explore grant opportunities for construction of a culvert between SIYB and America's Cup Harbor	SIYB	Increase water movement within the SIYB	Grant award	Completion of grant agreement	Start Date: TBD pending potential grants	

Ongoing Partnerships & Cooperative Efforts							
Policy/	Coordination with	Statewide	Promote	Consistency in	Assessment	As-needed	• TBD

Shelter Island Yacht Basin Total Maximum Daily Load BMP Workplan – San Diego Unified Port District
Summary of efforts completed /in progress during 2018 Reporting Period (Jan- Dec 2018)

BMP TYPE	PROJECT NAME / DESCRIPTION	LOCATION	PURPOSE(S)	TARGETED OUTCOME(S)	ASSESSMENT MECHANISM	SCHEDULE / STATUS	FINDINGS / ACCOMPLISHMENTS
Regulation	other Regions on Copper TMDLs/impairments		consistency in requirements being developed across the state; discuss strategies for implementation activities, lessons learned, and build upon successful activity models.	regulations	mechanism is dependent on information being considered.	coordination	
Vessel Tracking Program	Track vessel conversion from copper to non-copper and low-copper hull paints to determine annual loading reductions	SIYB	Monitor implementation progress and assess progress towards interim and final loading targets	Interim and final loading reduction targets	Annual basin-wide vessel tracking assessments and loading reduction calculations	Annually beginning in 2011; reporting to Regional Board March 31 annually	• All Named Parties.
Water Quality Monitoring	Monitor water quality basin wide to assess long term trends in dissolved copper levels and attainment of WQOs	SIYB	Monitor implementation progress and assess progress towards attaining dissolved copper concentrations protective of SIYB beneficial uses	Water quality conditions protective of beneficial uses	Annual basin-wide chemistry and toxicity assessments	Annually beginning August 2011; reporting to Regional Board March 31 annually	• All Named Parties.
Education/ Outreach	IACC Meetings	Statewide	Promote consistency in requirements being developed across the state; discuss strategies for implementation activities, lessons learned, and build upon successful activity models.	Information transfer; consistency in messaging	Assessment mechanism is dependent on information being considered.	As-needed coordination	• TBD

* This list is subject to modification based on the availability of resources and results from other projects.

**Projects in bold italics denote projects completed during or prior to this reporting period

SHELTER ISLAND MASTER LEASEHOLDERS TMDL GROUP

BMP PLAN IMPLEMENTATION

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2018

BEST MANAGEMENT PRACTICES AND RECOMMENDED ACTIONS FOR SHELTER ISLAND MARINAS AND YACHT CLUBS

Prepared by:
Shelter Island Master Leaseholder TMDL Group
For the Marinas and Yacht Clubs in Shelter Island Yacht Basin

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This document is prepared solely for exclusive use by participating members of the Shelter Island Master Leaseholders TMDL Group

MISSION STATEMENT

Our goal is to apply Best Management Practices to marinas and yacht clubs to help reduce non-point sources of copper.

DEFINITIONS

- **SIYB -** The following entities make up the leaseholders in Shelter Island Yacht Basin (SIYB): Kona Kai Marina, Shelter Island Marina, Silver Gate Yacht Club, Bay Club Hotel and Marina, Humphrey's Half Moon Inn, Gold Coast Marina, Tonga Landing, Crow's Nest, San Diego Yacht Club, Southwestern Yacht Club, and La Playa Yacht Club.

- **SIMLG-** In an effort to comply with the TMDL, the Shelter Island Master Leaseholders TMDL Group (SIMLG) was formed in 2007. This group, which has proven to be an extremely important tool for compliance, unifies numerous individual efforts so that a single entity does not fail to comply. While participation in the group is voluntary, all Marina Operators (MO's) working in the SIYB are strongly urged to participate as much as possible. The following entities make up the SIMLG: Kona Kai Marina, Shelter Island Marina, Silver Gate Yacht Club, Bay Club Hotel and Marina, Humphrey's Half Moon Inn, Gold Coast Marina, Tonga Landing, Crow's Nest, San Diego Yacht Club, Southwestern Yacht Club, and La Playa Yacht Club.

- **BMP's** – Best Management Practices.

  BMPs are practices or procedures. They include methods to lessen or prevent identified substances from reaching receiving waters. A BMP plan organizes these actions, identifies goals, documents implementation, and evaluates progress and thereby assures effective use.

  BMPs are qualitative.
  They are designed to address a particular goal and the identification of that goal is a crucial part of the guidance plan.

  BMPs are flexible.
  Similar environmentally protective results can be achieved by multiple differing different practices. Marinas may elect to either use BMPs recommended by this guidance or selected by the marina.

  BMPs fill an unfilled role.
  Copper antifouling paints are legally sold for use in California. The use of these coatings however has been identified as a source of water quality impairment. Marinas have been identified as a responsible party in this impairment. Communicating this possible impairment seems to have been placed upon the shoulders of marina operators.

Background

Impairment of water quality due to dissolved copper, SIYB TMDL Resolution No. R9-2005-0019 amended the Water Quality Control Plan for the San Diego Basin (Basin Plan) to incorporate the SIYB TMDL, on February 9, 2005. The purpose of the TMDL is to identify and implement actions to reduce dissolved copper loads discharging into the SIYB to attain numeric water quality objectives for dissolved copper in San Diego Bay, which are equal to the California Toxics Rule (CTR) water quality values for dissolved copper in sea water. Chronic exposure concentrations must not exceed 3.1 micrograms per liter (µg/L) over a 4-day average, and acute exposure concentrations must not exceed 4.8 µg/L over a 1-hour average.

The SIYB TMDL requires that loading of dissolved copper into the water column be reduced by 76 percent to 567 kg/yr over a 17-year period (Regional Board, 2005). A 10 percent reduction in dissolved copper loading is required within seven years (December 2012); a 40 percent reduction in loading is required within 12 years, and a 76 percent reduction within 17 years (December 2022).

BMPs and the Investigative Order

Investigative Order, No. R9-2011-0036, issued to the Port on March 11, 2011, requires that the Port prepare and submit designated plans and annual technical reports on the progress of the SIYB TMDL implementation.

- The order states that data on the number of boat hulls converted from copper to alternative hull paints are needed to monitor the progress of implementing the SIYB Dissolved Copper TMDL and achieving the required dissolved copper load reductions.
- Water quality monitoring data are needed to quantify the dissolved copper concentrations in the water column in SIYB to determine when the water quality objectives are attained and beneficial uses restored.
- “Annual monitoring and progress reports must include a discussion of any BMPs or other actions that have been implemented by the Dischargers to reduce dissolved copper discharges from boat hulls into SIYB.”

BMPs selection and use under Section 319

Amendments to the Clean Water Act (CWA) established the Section 319 Nonpoint Source Management Program. Under this program, parties must identify best management practices and measures for impaired non-point sources, along with an implementation plan.

GUIDELINES

BMP 1-Marina Operators: TMDL Introduction, Compliance, Shelter Island Master Leaseholders Group (SIMLG), and Key Reference Articles

- **OVERVIEW-**The Total Maximum Daily Load (TMDL) for copper in Shelter Island Yacht Basin (SIYB) was adopted by the California Regional Water Quality Control Board (CRWQCB) in 2005, and over the years its implications have grown in complexity. The document adopting the CRWQCB's efforts is known as Resolution R9-2005-0019. Among many other important issues, the Resolution named Marina Operators (MO's), marina owners, boat owners, the Unified Port of San Diego (Port), and underwater hull cleaners (Divers) as "Dischargers."

- **VESSEL TRACKING-** Each MO is ultimately responsible for reporting the composition of hulls painted using copper, non-copper, and low-copper paint to the Port. The SIMLG offers a great deal of help on this submission, mainly through the hiring of a consultant, John Adriany, who is the Principal Scientist at ChemMetrics. The importance of complying with this aspect of the TMDL cannot be overstated. Completion and submission of an accurate report to the Port is mandatory for all MO's. Each year, our report is due by approximately January 15th. At this time, our report of BMP's is also submitted. A sheet of Guidelines can be found in the Appendix.

- **COLLECTING SURVEYS-** Each MO must determine the most effective way to ensure the Vessel Tracking report discussed above is as complete and accurate as possible. Therefore, it is imperative to make every effort to reach out to your boaters. From time to time a boater may completely ignore the request(s) to fill out the survey. Therefore, MO's are encouraged to record the number and types of (e.g. phone, email, etc.) of attempts made. It is acceptable to shift focus to other boaters more likely to submit a survey after three unsuccessful attempts. If three unsuccessful attempts are made, a MO should record those attempts and retain that record for seven years.

- **COMPLIANCE -**As "dischargers accountable for copper load and wasteload reductions" (R9-2005-0019 Technical Report), it is imperative that all MO's in Shelter Island Yacht Basin understand specific components of the TMDL. Examples of these components include surveying boaters, meeting copper loading reduction timelines, and the utilization of Best Management Practices (BMP's) in an effort to voluntarily comply with the TMDL.

- **TIMELINE-** As of the date of this document, the TMDL is in stage three, of four (Port Presentation, 2007). Stage three entails meeting a benchmark of a 40% reduction of the number of hulls in our marina with copper paint by the end of 2017. The next and final stage involves a 76% reduction in the number of hulls, *and* a measurement of 3.1 parts per billion (ppb), or less, of copper in the water column. Stage four ends in 2022.

BMP 2-Port of San Diego: Port's Role, Grant, Expectations, and Diver Regulations

- **OVERVIEW-**SIYB, which consists of 153 acres, was placed onto the 303(d) Impaired Water Bodies List in 1996. This List currently categorizes our TMDL as a "high" priority.

- **TECHNICAL REPORT-** The 2005 Technical Report directed the Port to develop an Implementation Plan. A draft of this Plan was developed in 2009, and a final draft was submitted in May, 2011. This Plan pointed to BMP's to facilitate the conversion of boat hulls with copper anti-fouling paints (AFP) to AFP's with little or no copper.

- **INVESTIGATIVE ORDER** - On March 11, 2011, an Investigative Order (R9-2011-0036) was issued by the Water Board to the Port. This Order dictates that the Port reports to the Board measurements toward successful compliance by monitoring and tracking data on the number of hulls that have converted from copper to a non-copper or low-copper alternative, and monitoring the concentrations of dissolved copper and levels of toxicity in the water. This Order also requires the Port to submit BMP's as part of their report. Accordingly, this document will be updated as necessary and submitted to the Port each year.

- **IMPLEMENTATION PLAN-** In May, 2011 the Port submitted their Implementation Plan to the Water Board. This document contains the quality assurance plan lays the groundwork for the efforts made to achieve appropriate reductions of copper in SIYB (Shelter Island Yacht Basin Dissolved Copper TMDL Implementation Plan, May, 2011).

- **MONITORING PLAN-** The Monitoring plan, which includes a quality assurance plan described below, and a Conceptual Model, details the annual water quality testing conducted by the Port.

- **QAPP-** The Quality Assurance Project Plan (QAPP), which is part of the Implementation Plan, provides details for the methods used to assess reductions of dissolved copper by tracking the number of hulls converted from copper to non-copper paint. In addition, this document details the project's objectives and quality assurance (QAPP, 2017).

- **DISCHARGERS-** The 2005 Technical Report within Resolution R9-2005-19 named the Port of San Diego (Port) a Discharger. Due to the Port's role in managing the tidelands around San Diego Bay, the Water Board recognized their ability to regulate the environmental impact of copper. The Board points to the Port to manage the TMDL in SIYB, and reiterates their authority to hold MO's, owners, divers, and boat owners accountable for reducing copper loading.

- **REGULATIONS-** According to the Port's 2007 presentation of a plan to reduce copper in Shelter Island Yacht Basin (SIYB), regulatory mechanisms may be put in place to ensure compliance of the aforementioned benchmark. It is our intention to avoid such measures by voluntarily complying; and creating, following, and submitting BMP's is necessary to comply.

- **GRANT-** In an effort to increase the number of hulls converted to non-copper, the Port applied for and won grant monies ($600,000) to offset the cost of such conversion for boaters. With the help of the grant, 41 hulls were converted from 2012 through 2015.

- **DIVER ORDINANCE-** Port Ordinance 2681 originated in July, 2011, and became enforceable following a 90-day grace period that ended in November of the same year. This ordinance mandates Divers obtain a permit from the Port in order to clean hulls. In order to obtain a permit, Divers must display working knowledge of BMP's related to cleaning hulls in the SIYB. One example of these BMP's is Divers are supposed to use the least abrasive cleaning method possible to accomplish the job of cleaning the hull. The Port sends a list of Divers who are permitted to each MO in the SIYB. It is incumbent upon the MO's to disallow any Diver without a valid permit to work in their marina. Once permitted, a Diver will receive from the Port a card, which has green trim and a photo of the Diver. This card shall be displayed in a place where it can be observed by an MO or the Port.

BMP 3-Staff: Training Staff on Basic TMDL Fundamentals, Essential Information, and BMP's

- **OVERVIEW-** In general, compliance efforts have proven to be demanding. And if your office has the ability to dedicate a staff person(s) to assist with the efforts, it is suggested that they undergo thorough and ongoing training, and receive updates regarding the TMDL and BMP's.Marina staff should be made available and become familiarized with this BMP document, Port deadlines, and have input on expanding BMP's.

- **DISSEMINATING GENERAL INFORMATION-** Having a staff that is informed about the TMDL can be very helpful. A MO may or may not be the first person a boater reaches out to about their questions regarding the TMDL and their bottom paint. And it is important that the correct information is disseminated, whether a tenant or member reaches the MO or someone else on their staff.

- **DISSEMINATING PORT INFORMATION-** Staff should be encouraged to assist, whenever possible, efforts made by the Port to educate boaters on the TMDL. From "literature and print media" to "booths at local events," and "internal education" to an "Eco-friendly hull paint expo," the Port has made a concerted effort to inform and assist boaters who are moored in the SIYB switch to non-copper paint (Shelter Island Yacht Basin Hull Paint Conversion Project, 2015). These efforts, which began in 2011, should be clearly, routinely and effectively communicated to boaters in our marinas. Staff in a marina office should remain current with knowledge related to such efforts, so they can refer boaters to the appropriate materials.

BMP 4- Divers: Check-In/Check-Out Procedures, Permits, and Monitoring

- **WARNING**- It is ultimately the job of the MO to ensure no work takes place in our marinas by unpermitted Divers. If work is taking place by an unpermitted Diver, and said Diver is noticed by the Port during an inspection, adverse action against your marina by the Port could take place. If a MO or their staff knew that the Diver did not have their permit, you can count on action being taken against your marina.

- **DIVER BMP'S:** The BMP's that each diver uses should be known. Each MO must ensure that every diver is performing cleanings in line with the California Professional Divers Association (CPDA), or using BMP's that are more stringent.

- **SIGNAGE-** It is helpful to convey messages to divers in English and Spanish. And signage can help facilitate the exchange with a Diver. This is especially true if you are unable to allow a Diver to work on a particular day because they do not have their card from the Port, discussed in BMP 2 above. You may be able to curtail any above occurrences by placing signage at the desk where Divers sign in. There are at least three reasons for having signs notifying Divers of the fact that they cannot work without a permit. First, signs offer a clear statement to Divers about your office's policy. Second, if anyone on your staff is uncomfortable disallowing a Diver to work, they can more easily adhere to your office's policy if it is in writing, in front of both them and the Diver. Finally, if the Port were to reach an unpermitted Diver working, having a sign that the Diver must've passed when signing in could go a long way in convincing the Port that your office genuinely tries to manage this practice.

- **SIGN IN SHEETS-**Sign in sheets should be used in order to track Diver activity. For reasons beyond the TMDL, MO's should know who is in their marina working on boats or conducting business. Regarding the TMDL, the sign-in process is a great time to verify the Diver has their valid permit with them.

- **SIGN IN WHEN ARRIVE BY WATER-** All divers, whether arriving by water or land, must check in with the marina office. Each MO must determine and make known to divers the process by which sign in occurs when they arrive by boat.

- **DOCK WALKS-** While on dock walks it is important to check for permits. We recognize that the sign-in process can be skirted when vendors walk through our entrance gates behind boaters, etc. And this is especially true of Divers who arrive by water. Just because a Diver arrives by water does not mean they are skirting the sign-in process; they may not know a policy is in place. By walking the docks, you can inspect permits for yourself, and direct any Diver arriving by water to visit your office.

BMP 5- Boaters: Communicating TMDL Basics to Boaters and Slip Holders.

- **OVERVIEW-** One BMP that is imperative to accomplish is communicating the latest news and information concerning the TMDL to your marina tenants or yacht club members. Choosing the medium for accomplishing this rests on the individual MO's, however it is very important that communication occurs. It is important to remember that, while MO's and long-time tenants/members may be familiar with this topic, it is likely to be a foreign topic to new boaters. And new boaters may be just as likely to convert their paint to non-copper; painting their bottom is sometimes one of the first moderately large maintenance tasks taken on.

- **NEWSLETTERS-** In general, newsletters are a great way to communicate with your boaters. Most marinas send them via email on a monthly basis. The SIMLG suggests mentioning the latest news concerning TMDL monthly. It can also be done via emails, events aimed at boater education, wharfage agreements, personal conversations, etc.

- **EMAILS-** Dedicated emails are effective because sending an email blast to tenants/members is usually a relatively easy task nowadays. News and updates are easily conveyed in emails dedicated to the TMDL.

- **EVENTS-** Hosting tenant events, such as potlucks, tenant appreciation parties, and picnics is a good idea. You may benefit from grabbing some of your tenants' attention at such events to discuss the TMDL.

- **SIGNAGE-** Wharfage contracts or Slip agreements set forth the arrangement you have with your tenants or members. As such, they may be an effective source for requiring bottom paint that is non-copper or low-copper. Or incentives, such as wait list priority or discounts, can be outlined in the slip agreement. At a minimum, each tenant should sign an agreement, whether it is in their contract or a supplemental contract, stating they will supply the TMDL Survey prior to November 1st each year.

DATE	TOPIC/SUBJECT	EMPLOYEE NAME	SIGNATURE

RECORD KEEPING

BMP 1- Sign-In Sheets

- **DIVER INFO-** All divers must sign in with their business name, diver name, date, time, slip locations. They should also sign out when done. The sign in sheet should include basic diver BMP info, such as no hard scrapers, no abrasives, no plumes, etc. Some marinas and yacht clubs will also require independent contractors, such as divers, to sign other documents and waivers, as needed. A copy of a sign in sheet can be found in the appendix. A web link to the Port of San Diego's In Water Hull Cleaning Permit program can be found in the Appendix on page 18.

- **PAPERWORK-** All paperwork such as sign in sheets and other paperwork should be kept in file for a minimum of 7 years.

- **SIGN IN SHEET-** Sign in sheets and other paperwork will help the Port of San Diego track divers permitted by the Port in addition to ensure they are following Port and diver established BMPs.

- **SIGN IN SHEETS FOR TRAINING-** Sign in sheets should be used in staff training, to help the employee understand the impact of diver activity at their marina/yacht club. Understanding which divers are on property, for which company they are working and if they have a Port issued diver ID card.

- **SIGN IN SHEETS FOR TMDL COMPLIANCE-** Sign in sheets help individual marinas and yacht clubs establish TMDL compliance as it relates to tracking the divers, who they work for, which boats they are working on and how often. This info should be used with dock walks and other interactions with divers and tenants.

BMP 2- Staff Training

- **DOCUMENT BMP TRAINING-** All marinas and yacht clubs should be documenting BMP training of their staff. This can be done by using this document as a guideline for individual training records as well as TMDL compliance. At the bottom of each page of this document, as an example, is a place for each employee to sign off they have reviewed the page and understand the contents. A copy of training records can be found in the appendix.

- **DOCUMENT DIVER POLICY/INTERACTIONS-** It is also important to document diver policy education and interactions. This includes the sign in sheets, independent contractor rules and policies, property waivers, other documentation given to divers. Other training can involve dock walks, diver interactions at the slips, other handouts and brochures given to divers, etc. Dates, times, locations and the diver info should all be kept in written form and on file in the marina manager/dockmaster office.

- **VESSEL TRACKING SURVEYS-** Another source of staff training can include boater/tenant vessel hull paint tracking surveys (used to collect hull paint data and diver information). Surveys can include items like type of bottom paint used, last date applied, boatyard who applied paint, dive company used and many other sources of data. The annual vessel tracking survey should be used as a training tool as well, as it can give a great overview of how the bottom paint and diver activity at your location is impacting the water. A copy of the vessel tracking survey is in the appendix.

BMP 3- Boater Education

- **EMAIL-** There are many ways to document how you educate and inform your tenants of the ever changing hull paint choices and their impacts on the water and your marina/yacht club. All emails sent to your tenants/members should be kept on file in their individual folders. Emails may contain info about the various hull paint options, current strategies to minimize copper loading of our waterways, upcoming events in the area focusing on hull paint applications and diver information, such as BMPs and your marina's/yacht club's approach to tracking and educating divers.

- **MARINA/YC EVENTS-** Another great option is to document tenant events at your location. These can be during other events, such as seasonal parties, clean up days, national marina day or other events. You can have local yard representatives on hand to help answer boater questions re bottom paint choices and cost estimates. If you have never had a tenant event , reach out to your marina/YC manager/dockmaster as many have done them in the past and may be able to give some ideas. Dates, times, who spoke at the event and who attended needs to be recorded.

- **HANDOUTS-** Tenant handouts can provide simple, relevant information about hull paint options and costs as well as who to contact for more information. Handouts are available from the Port of SD, hull paint manufacturers and boatyards. Keeping track of what is being handed out and how often can help show you are educating boaters on a regular basis.

- **MARKETING-** Keeping records of marketing done by the marina to your tenants/members helps to show a continual effort to educate. Keeping copies of the marketing materials and who received them is a good idea. Marketing could include discounts at local boatyards, slip fee reductions, wait list priorities for slip applicants, etc.

BMP 4- Meetings

- **INTERNAL/STAFF MEETINGS-** Internal organizational meetings should be documented with topics, date, time, who attended and any goals set.
- **EXTERNAL/PORT/CITY MEETINGS-** Document other meetings times, locations and items discussed. These could be local group meetings, dockmaster group meetings and other meetings with local boatyards, etc.

DATE	TOPIC/SUBJECT	EMPLOYEE NAME	SIGNATURE

STAFF TRAINING/BOATER EDUCATION

BMP 1- Staff Training

- **OVERVIEW-** Staff training should include a review of office procedures, marina/YC policies/bylaws, and policies for allowing independent contractors/divers on property and associated documents.

- **RECORDING INFORMATION-** All employees should be shown how to properly record important information and where that information is kept. Training should include reviewing past training efforts to other staff.

- **ROLES-** Part of the employee training should include their role in the TMDL process. Information should include TMDL history, impacts to local waterways, impacts to the tenants and marina/YC, efforts to comply with the TMDL as well as future regulations/fines if TMDL compliance is not met.

- **BOATERS AND DIVERS-** TMDL regulations have changed how boaters interact with their divers and the boatyards as well as the myriad of new hull paints being brought to market. This impacts the boaters not only from a time stand point (more time devoted to speaking with their hull cleaners, the boat yards and possibly local stores selling hull paints), but also the economics of annual boating costs. These additional expenses may play into where a boater decides to moor their boats, which impacts every marina. Divers are impacted as they are regulated by the Port of SD and must show they are using BMPs in their daily operations and to minimize copper loading from their in-water activities. Staff training should take this into account.

BMP 2 – Boater Education

- **EMAILS-** Email blasts are a great way to "get the word out" quickly and cheaply to your boaters. Email can be used as a marketing tool as well as an educational tool. These emails can be to the entire marina/YC, small groups of boaters or even to individual boaters. Email also allows quick interactions as well as Q&A with your boat owners.

- **MAILINGS-** Next step up from an email is a mailing. This obviously costs more and takes longer, but is also a great way to reach out. Sometimes sending a letter is taken as a more formal way to notify your tenants/members about important news or other education information. It lacks a quick way to get more immediate feedback, but may give a longer lasting impression of the information sent.

- **MEETINGS-** Sometimes face to face meetings with your boaters is the best way to communicate news and educate them on topics such as hull paints, local water quality studies and other pertinent information. It allows for immediate Q&A as well as an avenue to hand out new marketing/educational materials. Having speakers from the local boatyards and chandleries may help boat owners a more personal educational experience. Port of SD hull paint expos and marina events are great ways to gather your boaters together.

- **MARKETING-** Internal and external marketing is another way to reach out to your boaters and educate them on issues impacting the boating community. Marketing could include bottom paints, boat yard discounts, marina/YC incentives, etc.

- **ONE ON ONE-** Day to day conversations with tenants allows a more "one on one" experience. This allows the boat owner to ask specific questions and take the time needed to help them understand their bottom paint choices and maybe even make recommendations, such as category 1 hull paints (non-copper, biocide free and low leach copper bottom paints). A web link to the Port’s list of alternative hull paint can be found in the Appendix on page 18. Also, a link to the Port’s Alternative Hull Paint website can be found on the same page.

DATE	TOPIC/SUBJECT	EMPLOYEE NAME	SIGNATURE

APPENDIX

SIYB Master Leaseholders

TMDL Group

YC/Marina Logo

BOTTOM PAINT SURVEY FORM

The California Regional Water Quality Control Board has stipulated that the Marinas and Yacht Clubs of Shelter Island Yacht Basin are legally required to reduce copper concentrations in our basin. Please help us complete our annual report, in order to fulfill our legal obligation, for the Port of San Diego by completing this questionnaire ASAP and returning it to your Marina or Club office by (date).

Today's Date: ________________ Slip #: _________________

SECTION A

Percentage of Time Slip is occupied: _____________________

Vessel Type (circle one): Power Sail Multi-hull

Registered Vessel Length: ___________ Vessel Beam: _____________

Paint Type: (circle one) Copper Low Copper (<36%) Non-Copper

Paint Product Name ___________________Product Number: _______________Color: _____________

Bottom paint last applied: Month ______________ Year________

Boatyard name that applied paint: ____

If paint is unknown due to a recent purchase, please provide purchase date: Month_______ Year____________

SECTION B (all information below will remain confidential and is not submitted in our report)

Owner Name: ____

Vessel Doc./Reg. #: ________________Boat Name ____________________ Make _________________

Signature: ____ Date: _______________________

Thank you for your cooperation completing and returning this required survey. Please contact the marina office if you have any questions…619-999-9999 or email@yourmarina.com.

Attachment I
SIYB Dissolved Copper TMDL
Hull Tracking Template Form

Facility	Slip/Mooring Reference Number	Percent of Time Occupied	Vessel Type (Power or Sail)	Vessel Length	Vessel Beam	Paint Type Copper, Low or Non	Paint Product Name	Product Number	Boatyard Name or Purchase Date	Painting Date Month (mm)	Painting Date Year (yyyy)	% Copper

All hulls with paint greater than 40% copper are counted as high-copper

All hulls equal to zero are counted as non-copper

All hulls between 1 and 39.9% copper are counted as low-copper

Non and low-copper paint types are considered "confirmed" if the paint brand and product number is listed and can be cross checked with the SIML TMDL Group and/or Port paint list

Hulls with aged-copper paint are considered low-copper

Guidelines to Port's Vessel Tracking Template

COMPLETENESS. ACCUARACY. CONSISTENCY.

DO NOT FORMAT ANY CELLS. TO ENABLE US TO MERGE ALL DOCUMENTS SUCCESSFULLY FOR FINAL SUBMISSION, PLEASE FOLLOW THESE GUIDELINES-

1) **FACILITY** – Your marina or yacht club name or abbreviation

2) **SLIP/MOORING REFERENCE NUMBER** – Use the correct slip number according your slip assignments. We will assign reference numbers for privacy reasons before we submit merged data.

3) **PERCENTAGE OF TIME OCCUPIED** – Do not format cell. Example – For 98% occupied, use 98, if left blank, the Port will default it to 100 percent occupied. Make sure you calculate in vacant slips here.

4) **VESSEL TYPE (POWER OR SAIL)** – Use a P or S

5) **VESSEL LENGTH** – Use what you have

6) **VESSEL BEAM** - Use what you have

7) **PAINT TYPE: COPPER, LOW OR NON**

- All hulls with paint greater than 40% copper are reported as **Copper**
- All hulls equal to zero are counted as non-copper and reported as **Non**
- All hulls between 1 and 39.9% copper are counted as low-copper and reported as **Low**
- No-copper and low-copper paint types are considered "confirmed" if the paint brand and product number is listed and can be cross-checked with Port paint lists
- Aged paints are calculated by painting date Month and Year and must have the Boatyard name to qualify. Do not write LOW for aged paints. You must include the painting date with the month, year and name of boat yard or purchase date to qualify the data.

8) **PAINT PRODUCT NAME** – Please spell out the word, do not abbreviate.

9) **PRODUCT NUMBER** – To qualify for non-copper or low-copper, you must record this information.

10) **BOATYARD NAME or PURCHASE DATE** – Necessary to qualify aged paints. Use "self" if the boater self-applied the paint.

11) **PAINTING DATE MONTH MM** – Use 2 digits such as 01 for January or 02 for February, etc.

12) **PAINTING YEAR YYYY** – Use 4 digits such as 2005.

13) **PERCENTAGE OF COPPER** – Do not format cells. If you have the paint product information record the % associated with that product. If the product is unknown leave the space blank.

14) **NO RESPONSE-** If a boater does not complete a particular question, leave corresponding cell in spreadsheet blank.

Important Links

Port Alternative Hull Paint Website:

http://www.sandiegobaycopperreduction.org/

February 2005 Technical Report

https://www.portofsandiego.org/document/environment/alternative-hull-paint/3061-total-maximum-daily-load-for-dissolved-copper-in-shelter-island-yacht-basin-technical-report/file.html

March 2013 Annual Monitoring Report

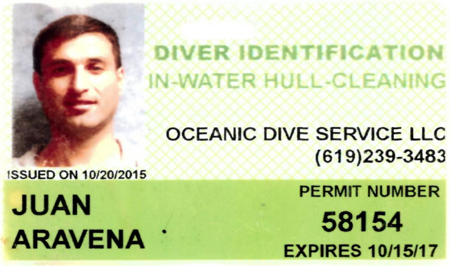
https://www.portofsandiego.org/environmental/copper-reduction-program/monitoring-and-data-assessment/shelter-island-yacht-basin-tmdl-annual-reports/7283-shelter-island-yacht-basin-tmdl-annual-report-2012/file.html

Port Alternative Hull Paint Partial List

https://www.portofsandiego.org/environment/environmental-downloads/copper-reduction-program/3530-how-to-select-an-alternative-hull-paint/file.html

Port of San Diego Issued Diver Permit Card*

Front



DIVER IDENTIFICATION
IN-WATER HULL-CLEANING

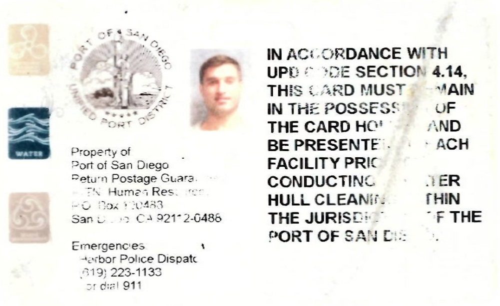
OCEANIC DIVE SERVICE LLC
(619)239-3483

ISSUED ON 10/20/2015

JUAN
ARAVENA

PERMIT NUMBER
58154
EXPIRES 10/15/17

Back



Property of
Port of San Diego
Return Postage Guara[illegible]
ATTN: Human Res[illegible]
P.O. Box 120483
San Diego, CA 92112-0486

Emergencies:
Harbor Police Dispatc
(619) 223-1133
or dial 911

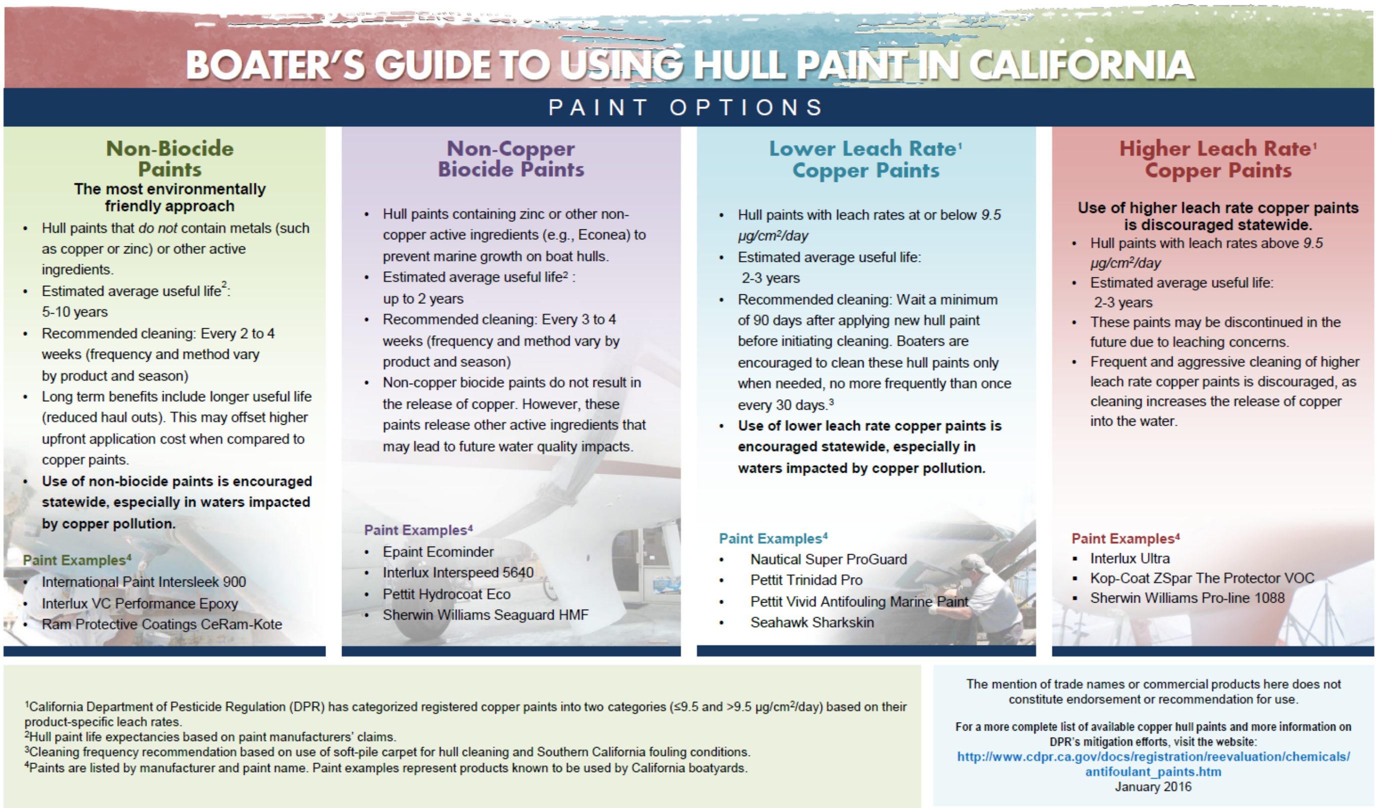
IN ACCORDANCE WITH
UPD CODE SECTION 4.14,
THIS CARD MUST [illegible]MAIN
IN THE POSSESS[illegible] OF
THE CARD HO[illegible] AND
BE PRESENTE[illegible] [illegible]ACH
FACILITY PRI[illegible]
CONDUCTING [illegible]TER
HULL CLEANI[illegible] [illegible]THIN
THE JURISD[illegible] [illegible]F THE
PORT OF SAN DI[illegible].

*Note: Diver, Juan Aravena furnished Joe Ravitch, of Shelter Island Marina permission to use his Diver card as an example on Friday, January 13, 2017.

BMP Tracking and Self-Certification

BMP Type	Project Name Description	Purpose	Participant	Manager	Start Date	Assessment Mechanism	Results	Modifications	End Date
Education	communicate the availability of low leach copper paints	Reduce copper load							

Port of San Diego Alternative Hull Paint Options Brochure



BOATER'S GUIDE TO USING HULL PAINT IN CALIFORNIA

PAINT OPTIONS

Non-Biocide Paints

The most environmentally friendly approach

- Hull paints that *do not* contain metals (such as copper or zinc) or other active ingredients.
- Estimated average useful life[2]: 5-10 years
- Recommended cleaning: Every 2 to 4 weeks (frequency and method vary by product and season)
- Long term benefits include longer useful life (reduced haul outs). This may offset higher upfront application cost when compared to copper paints.
- **Use of non-biocide paints is encouraged statewide, especially in waters impacted by copper pollution.**

Paint Examples[4]

- International Paint Intersleek 900
- Interlux VC Performance Epoxy
- Ram Protective Coatings CeRam-Kote

Non-Copper Biocide Paints

- Hull paints containing zinc or other non-copper active ingredients (e.g., Econea) to prevent marine growth on boat hulls.
- Estimated average useful life[2] : up to 2 years
- Recommended cleaning: Every 3 to 4 weeks (frequency and method vary by product and season)
- Non-copper biocide paints do not result in the release of copper. However, these paints release other active ingredients that may lead to future water quality impacts.

Paint Examples[4]

- Epaint Ecominder
- Interlux Interspeed 5640
- Pettit Hydrocoat Eco
- Sherwin Williams Seaguard HMF

Lower Leach Rate[1] Copper Paints

- Hull paints with leach rates at or below *9.5 $\mu g/cm^2/day$*
- Estimated average useful life: 2-3 years
- Recommended cleaning: Wait a minimum of 90 days after applying new hull paint before initiating cleaning. Boaters are encouraged to clean these hull paints only when needed, no more frequently than once every 30 days.[3]
- **Use of lower leach rate copper paints is encouraged statewide, especially in waters impacted by copper pollution.**

Paint Examples[4]

- Nautical Super ProGuard
- Pettit Trinidad Pro
- Pettit Vivid Antifouling Marine Paint
- Seahawk Sharkskin

Higher Leach Rate[1] Copper Paints

Use of higher leach rate copper paints is discouraged statewide.

- Hull paints with leach rates above *9.5 $\mu g/cm^2/day$*
- Estimated average useful life: 2-3 years
- These paints may be discontinued in the future due to leaching concerns.
- Frequent and aggressive cleaning of higher leach rate copper paints is discouraged, as cleaning increases the release of copper into the water.

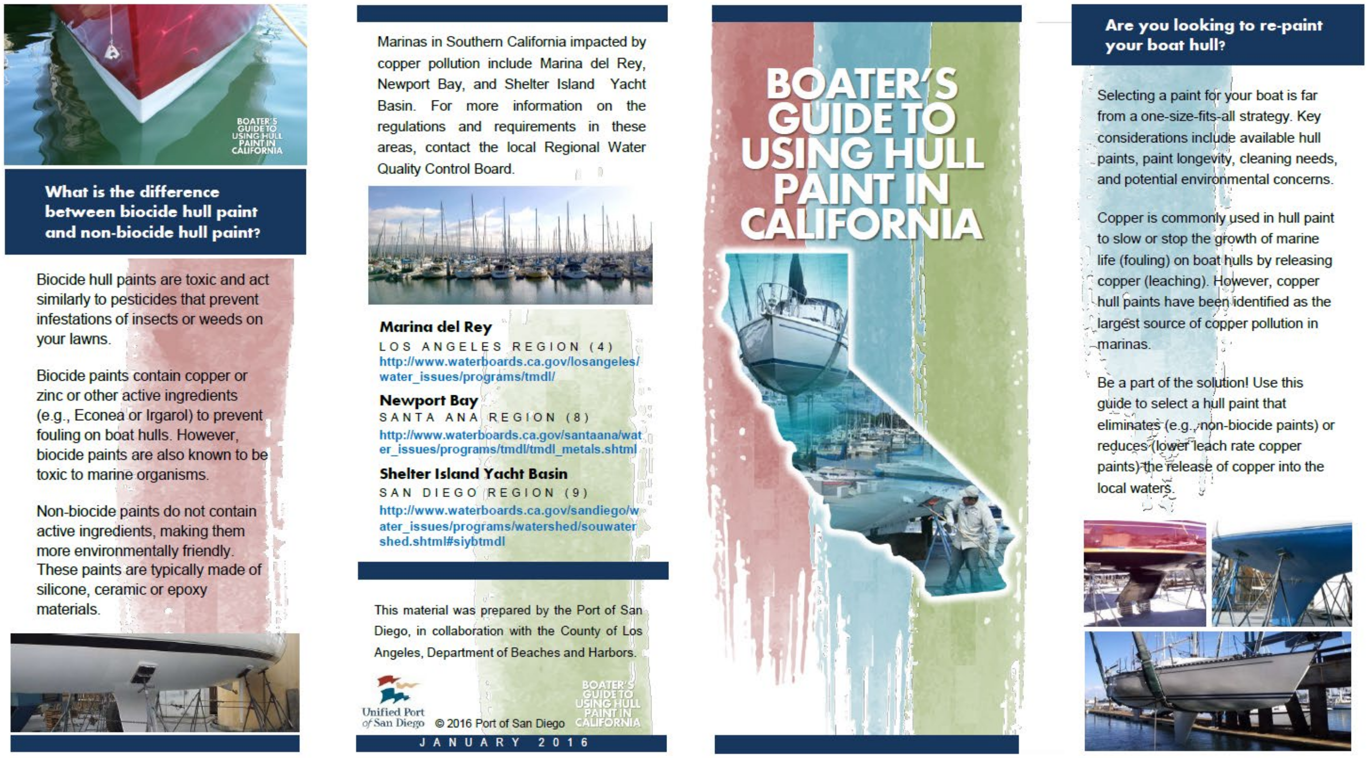
Paint Examples[4]

- Interlux Ultra
- Kop-Coat ZSpar The Protector VOC
- Sherwin Williams Pro-line 1088

[1] California Department of Pesticide Regulation (DPR) has categorized registered copper paints into two categories ($\leq$9.5 and >9.5 $\mu g/cm^2/day$) based on their product-specific leach rates.
[2] Hull paint life expectancies based on paint manufacturers' claims.
[3] Cleaning frequency recommendation based on use of soft-pile carpet for hull cleaning and Southern California fouling conditions.
[4] Paints are listed by manufacturer and paint name. Paint examples represent products known to be used by California boatyards.

The mention of trade names or commercial products here does not constitute endorsement or recommendation for use.

For a more complete list of available copper hull paints and more information on DPR's mitigation efforts, visit the website:
http://www.cdpr.ca.gov/docs/registration/reevaluation/chemicals/antifoulant_paints.htm
January 2016



What is the difference between biocide hull paint and non-biocide hull paint?

Biocide hull paints are toxic and act similarly to pesticides that prevent infestations of insects or weeds on your lawns.

Biocide paints contain copper or zinc or other active ingredients (e.g., Econea or Irgarol) to prevent fouling on boat hulls. However, biocide paints are also known to be toxic to marine organisms.

Non-biocide paints do not contain active ingredients, making them more environmentally friendly. These paints are typically made of silicone, ceramic or epoxy materials.

Marinas in Southern California impacted by copper pollution include Marina del Rey, Newport Bay, and Shelter Island Yacht Basin. For more information on the regulations and requirements in these areas, contact the local Regional Water Quality Control Board.

Marina del Rey
LOS ANGELES REGION (4)
http://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/

Newport Bay
SANTA ANA REGION (8)
http://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/tmdl_metals.shtml

Shelter Island Yacht Basin
SAN DIEGO REGION (9)
http://www.waterboards.ca.gov/sandiego/water_issues/programs/watershed/souwatershed.shtml#siybtmdl

This material was prepared by the Port of San Diego, in collaboration with the County of Los Angeles, Department of Beaches and Harbors.

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JANUARY 2016

BOATER'S GUIDE TO USING HULL PAINT IN CALIFORNIA

Are you looking to re-paint your boat hull?

Selecting a paint for your boat is far from a one-size-fits-all strategy. Key considerations include available hull paints, paint longevity, cleaning needs, and potential environmental concerns.

Copper is commonly used in hull paint to slow or stop the growth of marine life (fouling) on boat hulls by releasing copper (leaching). However, copper hull paints have been identified as the largest source of copper pollution in marinas.

Be a part of the solution! Use this guide to select a hull paint that eliminates (e.g., non-biocide paints) or reduces (lower leach rate copper paints) the release of copper into the local waters.

Port of San Diego Diver BMP Notice for Marina Offices

MARINA
RECREATION
ASSOCIATION

SAN DIEGO PORT TENANTS ASSOCIATION

CLEAN
MARINA

ATTENTION

DIVERS & BOAT OWNERS

Please help reduce pollution from bottom paints containing copper, zinc, biocides or any other toxic substance by following these basic best management practices when cleaning bottom paint.

This marina and the other California marinas have established the following
Rules for In-Water Hull Cleaning
For Bottom Paints Containing Copper, Zinc, Biocides, or any other toxic substance:

- **All in-water hull cleaning must be done by hand only - no power equipment allowed.**
- **The Marina shall prohibit in-the-water hull scraping or any process that occurs under water which results in the removal of paint from boat hulls. This does not apply to bare metal parts.**

Remember:

- **NO Scrapers (metal/plastic/wood)**
- **NO Abrasives (sandpaper/cleanser/soft scrub)**
- **NO Scotchbrite®/3M® pads except the White pad**
- **NO Powered Rotary Brushes**
- **USE soft cloth or fleece mitt only**

According to paint manufacturers, properly functioning antifouling paint will repel all hard growth and requires only occasional light wiping with a soft cloth to remove slime. Use only soft rags or a sponge or fleece mitt when light wiping is required.

Thank you for your cooperation.

Marina Office Sign In Sheet Example

✍ **Diver Sign in Sheet**

By signing below I agree to assume all risk of working on marine property, including, but not limited to work in the water, and I agree, in the absence of gross negligence or willful misconduct by the marina, to indemnify, protect, defend, and hold the marina harmless from and against all actual or potential liability for personal injury, death or property damage, suffered by me or any other person.

DATE	PRINT NAME	SIGNATURE	COMPANY	SLIP #	TIME	
					IN	OUT

PLEASE PRINT CLEARLY

☞ Divers: You must be on file with us to work in our marina! We require:

*Valid/current Port of San Diego Diver ID Card

*Proof of Ship Repairers Legal Liability insurance with $500,000 minimum. Marina must be listed as additional insured)

*A signed copy of our vendor policy

*A copy of your current business license tax

*Proof of workman's comp insurance and a list of your employees

If you're not sure, please ask an office staff member. Thank You!

APPENDIX C

VESSEL TRACKING DATA

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DATA FOR PORT-OPERATED VESSELS AND DOCKS

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Port Fleet Hull Paint Information

Date	Facility	Slip / Mooring Number	Percent of Time Occupied	Vessel Document # or Registration #	Vessel Type	Vessel Length	Vessel Beam	Paint Type	Paint Name	Product Number	Boatyard	Painting Date	% Copper
01/08/19	HPD		100	Marine 1 (# 9157)	P - Fire Boat	39.1'	13'	Org	Interspeed 5640	BZA646	Driscoll	2018	N/A
01/08/19	HPD		100	Marine 2 (#9162)	P - Fire Boat	39.1'	13'	Org	Interspeed 5640	BZA646	Driscoll	2018	N/A
01/08/19	HPD		100	Marine 3 (# 9139)	P - Fire Boat	39.1'	13'	Org	Interspeed 5640	BZA646	Driscoll	2018	N/A
01/08/19	HPD		100	Marine 4 (# 9138)	P - Fire Boat	39.1'	13'	Org	Interspeed 5640	BZA646	Driscoll	2018	N/A
01/08/19	HPD		100	Marine 5 (#9163)	P - Fire Boat	39.1'	13'	Org	Interspeed 5640	BZA646	Driscoll	2018	N/A
01/08/19	HPD		100	Marine 6 (# 7762)	P - Patrol Boat	31'	10'	Org	Interspeed 5640	BZA646	Driscoll	2018	N/A
01/08/19	HPD		100	Marine 7 (# 7763)	P - Patrol Boat	31'	10'	Org	Interspeed 5640	BZA646	Driscoll	2018	N/A
01/08/19	HPD		100	Marine 8 (# 9066)	P - Patrol Boat	36'	10'	Org	Interspeed 5640	BZA646	Driscoll	2018	N/A
01/08/19	HPD	23	100	Phoenix (# 7730)	P - GS Dive Boat	34'	8'	Org	Interspeed 5640	BZA646	Driscoll	2017	N/A
01/08/19	HPD	24	100	Coral Reef (# 7708)	P - GS Work Boat	40'	14'	Org	Interspeed 5640	BZA646	Driscoll	2017	N/A
01/08/19	HPD		100	Bay Shore 1 (7712)	P - GS Work Boat	17'	12'	Non	Interspeed 5640	BZA646	Driscoll	2018	N/A
01/08/19	HPD		on trailer	Marine 10 (9079)	P - Patrol Boat	22		Non	No bottom paint	N/A	N/A	N/A	N/A
01/08/19	GST		100	Enviro (# 7720)	P - Work Boat	20'	7'	Non	Interspeed 5640	BZA646	Driscoll	2018	N/A
01/08/19	GST		100	Tsunamii II (# 9144)	P - GS Boat	20'	6'	Non	Interspeed 5640	BZA646	Driscoll	2018	N/A
01/08/19	GST		on trailer	Surveyors boat (7702)	P - GS Boat	12		Non	No bottom paint	N/A	N/A	N/A	N/A
01/08/19	HPD		100	Marine 9 (#9229)	P - Patrol Boat	39'	11'	Org	Interspeed 5640	BZA646	Driscoll	2017	N/A
01/08/19	HPD		100	Tuff Boat (# 9274)	P - GS Work Boat	16'		Org	Interspeed 5640	BZA646	Driscoll	2018	N/A

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	8/27/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	35'	3
A1 La Playa Cove	A1 Anchorage	11/21/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	34'	3
A1 La Playa Cove	A1 Anchorage	12/16/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	60'	3
A1 La Playa Cove	A1 Anchorage	11/15/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	37'	3
A1 La Playa Cove	A1 Anchorage	12/27/2018	Moorings	Confirmed	12/28/2018	12/31/2018	48'	3
A1 La Playa Cove	A1 Anchorage	12/26/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	59'	3
A1 La Playa Cove	A1 Anchorage	12/17/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	25'	3
A1 La Playa Cove	A1 Anchorage	12/25/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	43'	3
A1 La Playa Cove	A1 Anchorage	8/3/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/6/2018	Moorings	Confirmed	12/28/2018	12/31/2018	45'	3
A1 La Playa Cove	A1 Anchorage	12/17/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	32'	3
A1 La Playa Cove	A1 Anchorage	12/24/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	31'	3
A1 La Playa Cove	A1 Anchorage	12/2/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	28'	3
A1 La Playa Cove	A1 Anchorage	12/19/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	45'	3
A1 La Playa Cove	A1 Anchorage	12/7/2018	Moorings	Confirmed	12/28/2018	12/31/2018	36'	3
A1 La Playa Cove	A1 Anchorage	12/21/2018	Moorings	Confirmed	12/28/2018	12/31/2018	45'	3
A1 La Playa Cove	A1 Anchorage	12/4/2018	Moorings	Confirmed	12/28/2018	12/31/2018	32'	3
A1 La Playa Cove	A1 Anchorage	12/27/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	34'	3
A1 La Playa Cove	A1 Anchorage	11/30/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	38'	3
A1 La Playa Cove	A1 Anchorage	12/23/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	41'	3
A1 La Playa Cove	A1 Anchorage	12/10/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	30'	3
A1 La Playa Cove	A1 Anchorage	11/21/2018	Moorings	Confirmed	12/28/2018	12/31/2018	34'	3
A1 La Playa Cove	A1 Anchorage	12/1/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	38'	3
A1 La Playa Cove	A1 Anchorage	12/20/2018	Moorings	Confirmed	12/28/2018	12/31/2018	40'	3
A1 La Playa Cove	A1 Anchorage	12/17/2018	Moorings	Confirmed	12/28/2018	12/31/2018	35'	3
A1 La Playa Cove	A1 Anchorage	12/6/2018	Moorings	Confirmed	12/28/2018	12/31/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/18/2018	Moorings	Confirmed	12/28/2018	12/31/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/27/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	42'	3
A1 La Playa Cove	A1 Anchorage	12/26/2018	Moorings	Confirmed	12/28/2018	12/31/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/26/2018	Moorings	Confirmed	12/28/2018	12/31/2018	25'	3
A1 La Playa Cove	A1 Anchorage	12/27/2018	Moorings	Confirmed	12/28/2018	12/31/2018	36'	3
A1 La Playa Cove	A1 Anchorage	12/27/2018	WEBSITE	Confirmed	12/28/2018	12/31/2018	35'	3
A1 La Playa Cove	A1 Anchorage	12/19/2018	Moorings	Confirmed	12/21/2018	12/24/2018	35'	3
A1 La Playa Cove	A1 Anchorage	12/20/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	42'	3
A1 La Playa Cove	A1 Anchorage	12/20/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	40'	3
A1 La Playa Cove	A1 Anchorage	12/18/2018	Moorings	Confirmed	12/21/2018	12/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/6/2018	Moorings	Confirmed	12/21/2018	12/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/20/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	24'	3
A1 La Playa Cove	A1 Anchorage	12/12/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	37'	3
A1 La Playa Cove	A1 Anchorage	12/10/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	43'	3
A1 La Playa Cove	A1 Anchorage	12/17/2018	Moorings	Confirmed	12/21/2018	12/24/2018	35'	3
A1 La Playa Cove	A1 Anchorage	12/20/2018	Moorings	Confirmed	12/21/2018	12/24/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/29/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	28'	3
A1 La Playa Cove	A1 Anchorage	11/21/2018	Moorings	Confirmed	12/21/2018	12/24/2018	34'	3
A1 La Playa Cove	A1 Anchorage	12/17/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	11/13/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/15/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	43'	3
A1 La Playa Cove	A1 Anchorage	12/4/2018	Moorings	Confirmed	12/21/2018	12/24/2018	32'	3
A1 La Playa Cove	A1 Anchorage	12/2/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	45'	3
A1 La Playa Cove	A1 Anchorage	12/20/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	15'	3
A1 La Playa Cove	A1 Anchorage	12/7/2018	Moorings	Confirmed	12/21/2018	12/24/2018	36'	3
A1 La Playa Cove	A1 Anchorage	12/9/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	25'	3
A1 La Playa Cove	A1 Anchorage	12/19/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	45'	3
A1 La Playa Cove	A1 Anchorage	12/17/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	35'	3
A1 La Playa Cove	A1 Anchorage	11/14/2018	Moorings	Confirmed	12/21/2018	12/24/2018	28'	3

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	3	1/1/2018	1/4/2018	23'	3
Guest Dock	14	1/2/2018	1/5/2018	27'	3
Guest Dock	11	1/2/2018	1/5/2018	32'	3
Guest Dock	26	1/2/2018	1/3/2018	35'	1
Guest Dock	5	1/2/2018	1/5/2018	34'	3
Guest Dock	19	1/2/2018	1/3/2018	57'	1
Guest Dock	7	1/2/2018	1/5/2018	37'	3
Guest Dock	12	1/3/2018	1/4/2018	41'	1
Guest Dock	13	1/3/2018	1/4/2018	28'	1
Guest Dock	19	1/3/2018	1/4/2018	57'	1
Guest Dock	26	1/3/2018	1/4/2018	35'	1
Guest Dock	13	1/4/2018	1/5/2018	28'	1
Guest Dock	19	1/4/2018	1/5/2018	57'	1
Guest Dock	21	1/4/2018	1/5/2018	46'	1
Guest Dock	5	1/5/2018	1/6/2018	32'	1
Guest Dock	5	1/6/2018	1/8/2018	35'	2
Guest Dock	9	1/6/2018	1/11/2018	42'	5
Guest Dock	26	1/6/2018	1/8/2018	37'	2
Guest Dock	4	1/6/2018	1/7/2018	24'	1
Guest Dock	21	1/6/2018	1/7/2018	50'	1
Guest Dock	15	1/7/2018	1/9/2018	25'	2
Guest Dock	8	1/7/2018	1/10/2018	27'	3
Guest Dock	4	1/7/2018	1/11/2018	38'	4
Guest Dock	3	1/7/2018	1/9/2018	38'	2
Guest Dock	6	1/8/2018	1/10/2018	39'	2
Guest Dock	12	1/8/2018	1/14/2018	40'	6
Guest Dock	19	1/8/2018	1/13/2018	45'	5
Guest Dock	7	1/8/2018	1/11/2018	35'	3
Guest Dock	26	1/8/2018	1/10/2018	37'	2
Guest Dock	5	1/8/2018	1/10/2018	36'	2
Guest Dock	13	1/8/2018	1/17/2018	27'	9
Guest Dock	3	1/9/2018	1/11/2018	46'	2
Guest Dock	20	1/9/2018	1/12/2018	63'	3
Guest Dock	15	1/9/2018	1/10/2018	25'	1
Guest Dock	10	1/10/2018	1/12/2018	32'	2
Guest Dock	15	1/10/2018	1/11/2018	25'	1
Guest Dock	6	1/10/2018	1/11/2018	30'	1
Guest Dock	8	1/10/2018	1/11/2018	25'	1
Guest Dock	5	1/10/2018	1/11/2018	36'	1
Guest Dock	26	1/11/2018	1/12/2018	35'	1
Guest Dock	3	1/11/2018	1/12/2018	41'	1
Guest Dock	7	1/11/2018	1/13/2018	35'	2
Guest Dock	22	1/11/2018	1/14/2018	46'	3
Guest Dock	21	1/11/2018	1/12/2018	42'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	9	1/11/2018	1/12/2018	34'	1
Guest Dock	4	1/11/2018	1/12/2018	35'	1
Guest Dock	11	1/11/2018	1/12/2018	34'	1
Guest Dock	18	1/11/2018	1/13/2018	0'	2
Guest Dock	28	1/11/2018	1/12/2018	30'	1
Guest Dock	6	1/11/2018	1/12/2018	30'	1
Guest Dock	15	1/11/2018	1/12/2018	25'	1
Guest Dock	2	1/11/2018	1/12/2018	37'	1
Guest Dock	21	1/12/2018	1/13/2018	63'	1
Guest Dock	15	1/12/2018	1/13/2018	25'	1
Guest Dock	14	1/12/2018	1/14/2018	25'	2
Guest Dock	9	1/12/2018	1/17/2018	42'	5
Guest Dock	5	1/13/2018	1/14/2018	10'	1
Guest Dock	21	1/13/2018	1/16/2018	63'	3
Guest Dock	19	1/13/2018	1/14/2018	45'	1
Guest Dock	7	1/13/2018	1/14/2018	24'	1
Guest Dock	20	1/14/2018	1/18/2018	46'	4
Guest Dock	12	1/14/2018	1/16/2018	40'	2
Guest Dock	15	1/14/2018	1/17/2018	39'	3
Guest Dock	19	1/15/2018	1/18/2018	35'	3
Guest Dock	16	1/15/2018	1/24/2018	26'	9
Guest Dock	6	1/16/2018	1/19/2018	34'	3
Guest Dock	5	1/16/2018	1/17/2018	30'	1
Guest Dock	8	1/16/2018	1/17/2018	32'	1
Guest Dock	28	1/16/2018	1/17/2018	30'	1
Guest Dock	14	1/16/2018	1/17/2018	28'	1
Guest Dock	27	1/16/2018	1/18/2018	26'	2
Guest Dock	7	1/16/2018	1/19/2018	32'	3
Guest Dock	2	1/16/2018	1/19/2018	44'	3
Guest Dock	18	1/16/2018	1/17/2018	61'	1
Guest Dock	21	1/16/2018	1/20/2018	38'	4
Guest Dock	26	1/16/2018	1/18/2018	35'	2
Guest Dock	22	1/16/2018	1/17/2018	41'	1
Guest Dock	4	1/16/2018	1/18/2018	34'	2
Guest Dock	11	1/16/2018	1/18/2018	30'	2
Guest Dock	12	1/16/2018	1/18/2018	35'	2
Guest Dock	10	1/17/2018	1/18/2018	41'	1
Guest Dock	15	1/17/2018	1/22/2018	25'	5
Guest Dock	18	1/17/2018	1/18/2018	61'	1
Guest Dock	14	1/17/2018	1/18/2018	28'	1
Guest Dock	8	1/17/2018	1/18/2018	32'	1
Guest Dock	28	1/17/2018	1/19/2018	30'	2
Guest Dock	3	1/17/2018	1/18/2018	50'	1
Guest Dock	13	1/17/2018	1/18/2018	27'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	27	1/18/2018	1/20/2018	32'	2
Guest Dock	9	1/18/2018	1/23/2018	44'	5
Guest Dock	19	1/18/2018	1/21/2018	35'	3
Guest Dock	8	1/18/2018	1/19/2018	32'	1
Guest Dock	5	1/18/2018	1/19/2018	42'	1
Guest Dock	26	1/18/2018	1/20/2018	46'	2
Guest Dock	20	1/18/2018	1/21/2018	63'	3
Guest Dock	10	1/18/2018	2/2/2018	42'	15
Guest Dock	14	1/19/2018	1/20/2018	42'	1
Guest Dock	6	1/19/2018	1/21/2018	30'	2
Guest Dock	5	1/19/2018	1/20/2018	42'	1
Guest Dock	4	1/19/2018	1/22/2018	42'	3
Guest Dock	5	1/20/2018	1/21/2018	42'	1
Guest Dock	26	1/20/2018	1/21/2018	46'	1
Guest Dock	27	1/20/2018	1/21/2018	38'	1
Guest Dock	14	1/20/2018	1/22/2018	42'	2
Guest Dock	13	1/21/2018	1/24/2018	38'	3
Guest Dock	18	1/21/2018	1/22/2018	63'	1
Guest Dock	26	1/21/2018	1/22/2018	33'	1
Guest Dock	22	1/21/2018	1/23/2018	35'	2
Guest Dock	3	1/21/2018	2/5/2018	60'	15
Guest Dock	21	1/21/2018	1/22/2018	30'	1
Guest Dock	11	1/21/2018	1/22/2018	30'	1
Guest Dock	11	1/22/2018	1/26/2018	30'	4
Guest Dock	27	1/22/2018	1/23/2018	34'	1
Guest Dock	19	1/22/2018	1/27/2018	46'	5
Guest Dock	8	1/22/2018	2/6/2018	20'	15
Guest Dock	7	1/22/2018	1/23/2018	27'	1
Guest Dock	15	1/22/2018	1/23/2018	27'	1
Guest Dock	28	1/22/2018	1/23/2018	25'	1
Guest Dock	18	1/22/2018	1/23/2018	50'	1
Guest Dock	14	1/22/2018	1/23/2018	50'	1
Guest Dock	4	1/22/2018	1/26/2018	34'	4
Guest Dock	5	1/22/2018	1/26/2018	44'	4
Guest Dock	21	1/22/2018	1/23/2018	30'	1
Guest Dock	6	1/22/2018	1/23/2018	35'	1
Guest Dock	26	1/22/2018	1/24/2018	40'	2
Guest Dock	28	1/23/2018	1/24/2018	28'	1
Guest Dock	9	1/23/2018	1/24/2018	44'	1
Guest Dock	14	1/23/2018	1/24/2018	27'	1
Guest Dock	6	1/23/2018	1/26/2018	25'	3
Guest Dock	15	1/23/2018	1/25/2018	50'	2
Guest Dock	21	1/23/2018	1/24/2018	35'	1
Guest Dock	22	1/23/2018	1/24/2018	50'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	2	1/23/2018	1/25/2018	18'	2
Guest Dock	27	1/23/2018	1/24/2018	34'	1
Guest Dock	9	1/24/2018	1/25/2018	44'	1
Guest Dock	13	1/24/2018	1/26/2018	32'	2
Guest Dock	16	1/24/2018	1/26/2018	38'	2
Guest Dock	7	1/24/2018	1/25/2018	27'	1
Guest Dock	28	1/24/2018	1/29/2018	38'	5
Guest Dock	14	1/24/2018	1/26/2018	28'	2
Guest Dock	26	1/24/2018	1/27/2018	32'	3
Guest Dock	21	1/24/2018	1/25/2018	28'	1
Guest Dock	9	1/25/2018	1/27/2018	44'	2
Guest Dock	7	1/25/2018	1/26/2018	36'	1
Guest Dock	13	1/26/2018	1/27/2018	32'	1
Guest Dock	2	1/26/2018	1/28/2018	37'	2
Guest Dock	16	1/26/2018	1/28/2018	38'	2
Guest Dock	5	1/26/2018	1/28/2018	18'	2
Guest Dock	4	1/26/2018	1/27/2018	33'	1
Guest Dock	27	1/26/2018	1/29/2018	28'	3
Guest Dock	6	1/27/2018	1/28/2018	42'	1
Guest Dock	4	1/27/2018	1/28/2018	44'	1
Guest Dock	9	1/27/2018	1/28/2018	44'	1
Guest Dock	26	1/27/2018	1/28/2018	35'	1
Guest Dock	18	1/27/2018	1/28/2018	55'	1
Guest Dock	4	1/28/2018	1/29/2018	32'	1
Guest Dock	16	1/28/2018	1/29/2018	38'	1
Guest Dock	7	1/28/2018	2/2/2018	37'	5
Guest Dock	26	1/28/2018	1/29/2018	35'	1
Guest Dock	14	1/28/2018	1/31/2018	30'	3
Guest Dock	6	1/28/2018	1/30/2018	41'	2
Guest Dock	13	1/28/2018	1/30/2018	40'	2
Guest Dock	9	1/28/2018	1/29/2018	44'	1
Guest Dock	4	1/29/2018	2/3/2018	23'	5
Guest Dock	9	1/29/2018	2/1/2018	28'	3
Guest Dock	11	1/29/2018	1/31/2018	30'	2
Guest Dock	5	1/29/2018	2/5/2018	30'	7
Guest Dock	12	1/29/2018	2/3/2018	38'	5
Guest Dock	16	1/29/2018	1/30/2018	44'	1
Guest Dock	27	1/29/2018	1/30/2018	36'	1
Guest Dock	19	1/29/2018	1/30/2018	44'	1
Guest Dock	15	1/29/2018	1/30/2018	34'	1
Guest Dock	21	1/29/2018	2/1/2018	38'	3
Guest Dock	26	1/30/2018	2/3/2018	25'	4
Guest Dock	13	1/30/2018	1/31/2018	40'	1
Guest Dock	6	1/30/2018	2/2/2018	32'	3

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	2	1/30/2018	2/2/2018	34'	3
Guest Dock	27	1/30/2018	2/1/2018	36'	2
Guest Dock	14	1/31/2018	2/1/2018	30'	1
Guest Dock	16	1/31/2018	2/3/2018	44'	3
Guest Dock	13	1/31/2018	2/1/2018	40'	1
Guest Dock	11	1/31/2018	2/1/2018	30'	1
Guest Dock	28	1/31/2018	2/3/2018	25'	3
Guest Dock	14	2/1/2018	2/3/2018	30'	2
Guest Dock	27	2/1/2018	2/3/2018	36'	2
Guest Dock	11	2/1/2018	2/2/2018	30'	1
Guest Dock	6	2/2/2018	2/5/2018	44'	3
Guest Dock	13	2/2/2018	2/4/2018	30'	2
Guest Dock	11	2/2/2018	2/5/2018	38'	3
Guest Dock	22	2/2/2018	2/4/2018	47'	2
Guest Dock	7	2/2/2018	2/4/2018	40'	2
Guest Dock	28	2/3/2018	2/6/2018	36'	3
Guest Dock	2	2/3/2018	2/4/2018	34'	1
Guest Dock	9	2/3/2018	2/5/2018	24'	2
Guest Dock	7	2/4/2018	2/6/2018	40'	2
Guest Dock	14	2/4/2018	2/9/2018	40'	5
Guest Dock	10	2/5/2018	2/6/2018	28'	1
Guest Dock	6	2/5/2018	2/6/2018	30'	1
Guest Dock	12	2/5/2018	2/7/2018	27'	2
Guest Dock	2	2/5/2018	2/7/2018	19'	2
Guest Dock	4	2/5/2018	2/8/2018	44'	3
Guest Dock	5	2/5/2018	2/6/2018	30'	1
Guest Dock	18	2/5/2018	2/8/2018	45'	3
Guest Dock	9	2/5/2018	2/7/2018	34'	2
Guest Dock	11	2/5/2018	2/11/2018	38'	6
Guest Dock	21	2/5/2018	2/6/2018	45'	1
Guest Dock	27	2/6/2018	2/8/2018	36'	2
Guest Dock	6	2/6/2018	2/7/2018	30'	1
Guest Dock	5	2/6/2018	2/8/2018	30'	2
Guest Dock	7	2/6/2018	2/8/2018	25'	2
Guest Dock	6	2/7/2018	2/10/2018	32'	3
Guest Dock	20	2/7/2018	2/11/2018	63'	4
Guest Dock	26	2/7/2018	2/8/2018	39'	1
Guest Dock	27	2/8/2018	2/15/2018	50'	7
Guest Dock	5	2/8/2018	2/9/2018	30'	1
Guest Dock	4	2/8/2018	2/10/2018	32'	2
Guest Dock	3	2/8/2018	2/9/2018	40'	1
Guest Dock	18	2/8/2018	2/9/2018	45'	1
Guest Dock	16	2/9/2018	2/10/2018	45'	1
Guest Dock	2	2/9/2018	2/24/2018	25'	15

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	8	2/9/2018	2/11/2018	33'	2
Guest Dock	21	2/9/2018	2/10/2018	50'	1
Guest Dock	5	2/9/2018	2/11/2018	44'	2
Guest Dock	12	2/9/2018	2/10/2018	36'	1
Guest Dock	3	2/10/2018	2/12/2018	21'	2
Guest Dock	6	2/10/2018	2/17/2018	27'	7
Guest Dock	7	2/10/2018	2/14/2018	32'	4
Guest Dock	22	2/10/2018	2/13/2018	45'	3
Guest Dock	19	2/11/2018	2/12/2018	54'	1
Guest Dock	28	2/11/2018	2/12/2018	38'	1
Guest Dock	20	2/11/2018	2/12/2018	65'	1
Guest Dock	11	2/11/2018	2/12/2018	38'	1
Guest Dock	19	2/12/2018	2/14/2018	36'	2
Guest Dock	8	2/12/2018	2/14/2018	34'	2
Guest Dock	10	2/12/2018	2/14/2018	37'	2
Guest Dock	9	2/12/2018	2/13/2018	30'	1
Guest Dock	26	2/12/2018	2/13/2018	31'	1
Guest Dock	28	2/12/2018	2/13/2018	38'	1
Guest Dock	16	2/12/2018	2/16/2018	34'	4
Guest Dock	15	2/12/2018	2/13/2018	32'	1
Guest Dock	11	2/12/2018	2/15/2018	38'	3
Guest Dock	4	2/12/2018	2/13/2018	23'	1
Guest Dock	12	2/12/2018	2/13/2018	28'	1
Guest Dock	5	2/12/2018	2/13/2018	32'	1
Guest Dock	20	2/12/2018	2/13/2018	30'	1
Guest Dock	3	2/12/2018	2/13/2018	21'	1
Guest Dock	18	2/12/2018	2/14/2018	38'	2
Guest Dock	14	2/12/2018	2/14/2018	41'	2
Guest Dock	3	2/13/2018	2/14/2018	42'	1
Guest Dock	22	2/13/2018	2/14/2018	45'	1
Guest Dock	20	2/13/2018	2/15/2018	49'	2
Guest Dock	26	2/13/2018	2/15/2018	31'	2
Guest Dock	4	2/13/2018	2/14/2018	30'	1
Guest Dock	5	2/13/2018	2/15/2018	32'	2
Guest Dock	28	2/13/2018	2/14/2018	38'	1
Guest Dock	12	2/13/2018	2/14/2018	28'	1
Guest Dock	15	2/13/2018	2/14/2018	32'	1
Guest Dock	9	2/13/2018	2/19/2018	25'	6
Guest Dock	15	2/14/2018	2/16/2018	32'	2
Guest Dock	22	2/14/2018	3/1/2018	51'	15
Guest Dock	21	2/14/2018	2/15/2018	50'	1
Guest Dock	4	2/14/2018	2/16/2018	37'	2
Guest Dock	28	2/14/2018	2/15/2018	38'	1
Guest Dock	18	2/14/2018	2/17/2018	45'	3

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	8	2/14/2018	2/16/2018	34'	2
Guest Dock	14	2/14/2018	2/15/2018	41'	1
Guest Dock	12	2/14/2018	2/15/2018	28'	1
Guest Dock	7	2/14/2018	2/20/2018	32'	6
Guest Dock	12	2/15/2018	2/16/2018	28'	1
Guest Dock	14	2/15/2018	2/16/2018	41'	1
Guest Dock	27	2/15/2018	2/18/2018	50'	3
Guest Dock	21	2/15/2018	2/17/2018	50'	2
Guest Dock	20	2/15/2018	2/16/2018	32'	1
Guest Dock	5	2/15/2018	2/16/2018	32'	1
Guest Dock	11	2/15/2018	2/16/2018	38'	1
Guest Dock	26	2/16/2018	2/19/2018	38'	3
Guest Dock	28	2/16/2018	2/18/2018	38'	2
Guest Dock	5	2/16/2018	2/18/2018	24'	2
Guest Dock	15	2/16/2018	2/19/2018	38'	3
Guest Dock	8	2/16/2018	2/17/2018	30'	1
Guest Dock	10	2/16/2018	2/17/2018	40'	1
Guest Dock	20	2/16/2018	2/17/2018	47'	1
Guest Dock	8	2/17/2018	2/18/2018	10'	1
Guest Dock	10	2/17/2018	2/18/2018	30'	1
Guest Dock	6	2/17/2018	2/18/2018	37'	1
Guest Dock	13	2/17/2018	2/18/2018	35'	1
Guest Dock	21	2/17/2018	2/18/2018	50'	1
Guest Dock	3	2/17/2018	2/19/2018	40'	2
Guest Dock	20	2/17/2018	2/18/2018	47'	1
Guest Dock	4	2/17/2018	2/18/2018	40'	1
Guest Dock	5	2/18/2018	2/19/2018	24'	1
Guest Dock	14	2/18/2018	2/19/2018	35'	1
Guest Dock	8	2/18/2018	2/19/2018	30'	1
Guest Dock	28	2/18/2018	2/20/2018	40'	2
Guest Dock	4	2/18/2018	2/27/2018	40'	9
Guest Dock	6	2/18/2018	2/24/2018	37'	6
Guest Dock	18	2/18/2018	2/20/2018	45'	2
Guest Dock	19	2/19/2018	2/21/2018	47'	2
Guest Dock	26	2/19/2018	2/21/2018	37'	2
Guest Dock	20	2/19/2018	2/21/2018	63'	2
Guest Dock	21	2/19/2018	2/22/2018	65'	3
Guest Dock	5	2/19/2018	2/20/2018	24'	1
Guest Dock	27	2/19/2018	2/22/2018	38'	3
Guest Dock	15	2/19/2018	2/20/2018	38'	1
Guest Dock	9	2/19/2018	2/23/2018	25'	4
Guest Dock	11	2/19/2018	2/20/2018	38'	1
Guest Dock	15	2/20/2018	2/22/2018	38'	2
Guest Dock	7	2/20/2018	2/21/2018	34'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	5	2/20/2018	2/22/2018	34'	2
Guest Dock	12	2/20/2018	2/21/2018	38'	1
Guest Dock	10	2/20/2018	2/21/2018	32'	1
Guest Dock	3	2/20/2018	2/21/2018	38'	1
Guest Dock	8	2/20/2018	2/23/2018	44'	3
Guest Dock	18	2/20/2018	2/21/2018	45'	1
Guest Dock	13	2/20/2018	2/21/2018	45'	1
Guest Dock	14	2/20/2018	2/21/2018	28'	1
Guest Dock	11	2/20/2018	2/21/2018	32'	1
Guest Dock	26	2/21/2018	2/22/2018	37'	1
Guest Dock	13	2/21/2018	2/22/2018	32'	1
Guest Dock	14	2/21/2018	2/22/2018	28'	1
Guest Dock	28	2/21/2018	2/23/2018	30'	2
Guest Dock	10	2/21/2018	2/22/2018	34'	1
Guest Dock	7	2/21/2018	2/23/2018	31'	2
Guest Dock	12	2/21/2018	2/22/2018	38'	1
Guest Dock	3	2/21/2018	2/22/2018	63'	1
Guest Dock	18	2/22/2018	3/2/2018	52'	8
Guest Dock	12	2/22/2018	2/23/2018	38'	1
Guest Dock	15	2/22/2018	2/24/2018	38'	2
Guest Dock	10	2/22/2018	2/23/2018	32'	1
Guest Dock	8	2/23/2018	2/25/2018	30'	2
Guest Dock	9	2/23/2018	2/24/2018	25'	1
Guest Dock	16	2/23/2018	2/25/2018	40'	2
Guest Dock	9	2/24/2018	2/26/2018	25'	2
Guest Dock	28	2/24/2018	2/25/2018	30'	1
Guest Dock	3	2/24/2018	3/3/2018	42'	7
Guest Dock	6	2/24/2018	2/27/2018	37'	3
Guest Dock	15	2/24/2018	2/25/2018	38'	1
Guest Dock	7	2/25/2018	3/1/2018	35'	4
Guest Dock	16	2/25/2018	3/5/2018	37'	8
Guest Dock	14	2/25/2018	3/3/2018	38'	6
Guest Dock	11	2/25/2018	2/25/2018	34'	0
Guest Dock	8	2/25/2018	2/26/2018	30'	1
Guest Dock	8	2/26/2018	3/3/2018	30'	5
Guest Dock	10	2/26/2018	2/27/2018	32'	1
Guest Dock	9	2/26/2018	2/28/2018	25'	2
Guest Dock	19	2/26/2018	2/27/2018	53'	1
Guest Dock	2	2/26/2018	2/27/2018	38'	1
Guest Dock	12	2/27/2018	2/28/2018	38'	1
Guest Dock	5	2/27/2018	3/2/2018	32'	3
Guest Dock	10	2/27/2018	2/28/2018	34'	1
Guest Dock	15	2/27/2018	3/2/2018	38'	3
Guest Dock	27	2/27/2018	2/28/2018	38'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	6	2/27/2018	2/28/2018	32'	1
Guest Dock	19	2/27/2018	2/28/2018	63'	1
Guest Dock	26	2/27/2018	2/28/2018	34'	1
Guest Dock	2	2/27/2018	2/28/2018	38'	1
Guest Dock	4	2/27/2018	2/28/2018	28'	1
Guest Dock	11	2/27/2018	2/28/2018	45'	1
Guest Dock	21	2/28/2018	3/3/2018	45'	3
Guest Dock	2	2/28/2018	3/1/2018	28'	1
Guest Dock	28	2/28/2018	3/1/2018	34'	1
Guest Dock	11	2/28/2018	3/2/2018	38'	2
Guest Dock	9	2/28/2018	3/1/2018	42'	1
Guest Dock	27	2/28/2018	3/2/2018	34'	2
Guest Dock	19	2/28/2018	3/2/2018	37'	2
Guest Dock	4	2/28/2018	3/2/2018	40'	2
Guest Dock	10	2/28/2018	3/1/2018	32'	1
Guest Dock	6	2/28/2018	3/1/2018	37'	1
Guest Dock	2	3/1/2018	3/2/2018	28'	1
Guest Dock	9	3/1/2018	3/2/2018	32'	1
Guest Dock	7	3/1/2018	3/2/2018	35'	1
Guest Dock	26	3/1/2018	3/2/2018	42'	1
Guest Dock	28	3/1/2018	3/2/2018	34'	1
Guest Dock	13	3/1/2018	3/2/2018	30'	1
Guest Dock	10	3/2/2018	3/6/2018	26'	4
Guest Dock	5	3/2/2018	3/3/2018	32'	1
Guest Dock	28	3/2/2018	3/4/2018	35'	2
Guest Dock	27	3/2/2018	3/3/2018	30'	1
Guest Dock	19	3/2/2018	3/3/2018	52'	1
Guest Dock	14	3/3/2018	3/4/2018	38'	1
Guest Dock	27	3/3/2018	3/4/2018	30'	1
Guest Dock	4	3/3/2018	3/5/2018	44'	2
Guest Dock	15	3/3/2018	3/4/2018	41'	1
Guest Dock	19	3/3/2018	3/4/2018	45'	1
Guest Dock	8	3/3/2018	3/4/2018	30'	1
Guest Dock	7	3/3/2018	3/6/2018	34'	3
Guest Dock	27	3/4/2018	3/5/2018	30'	1
Guest Dock	21	3/4/2018	3/7/2018	60'	3
Guest Dock	15	3/4/2018	3/6/2018	38'	2
Guest Dock	28	3/4/2018	3/5/2018	35'	1
Guest Dock	8	3/4/2018	3/5/2018	30'	1
Guest Dock	19	3/4/2018	3/5/2018	45'	1
Guest Dock	4	3/5/2018	3/7/2018	30'	2
Guest Dock	3	3/5/2018	3/6/2018	38'	1
Guest Dock	28	3/5/2018	3/6/2018	32'	1
Guest Dock	19	3/5/2018	3/7/2018	37'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	9	3/5/2018	3/8/2018	42'	3
Guest Dock	8	3/5/2018	3/6/2018	30'	1
Guest Dock	20	3/5/2018	3/7/2018	49'	2
Guest Dock	13	3/5/2018	3/9/2018	30'	4
Guest Dock	14	3/5/2018	3/8/2018	41'	3
Guest Dock	22	3/5/2018	3/9/2018	38'	4
Guest Dock	27	3/5/2018	3/7/2018	34'	2
Guest Dock	2	3/5/2018	3/6/2018	28'	1
Guest Dock	26	3/5/2018	3/6/2018	40'	1
Guest Dock	16	3/5/2018	3/7/2018	32'	2
Guest Dock	11	3/5/2018	3/6/2018	35'	1
Guest Dock	5	3/5/2018	3/6/2018	45'	1
Guest Dock	6	3/5/2018	3/6/2018	34'	1
Guest Dock	8	3/6/2018	3/7/2018	30'	1
Guest Dock	11	3/6/2018	3/8/2018	28'	2
Guest Dock	6	3/6/2018	3/7/2018	45'	1
Guest Dock	15	3/6/2018	3/7/2018	27'	1
Guest Dock	3	3/6/2018	3/8/2018	21'	2
Guest Dock	7	3/6/2018	3/8/2018	38'	2
Guest Dock	2	3/6/2018	3/9/2018	19'	3
Guest Dock	19	3/7/2018	3/8/2018	37'	1
Guest Dock	6	3/7/2018	3/8/2018	45'	1
Guest Dock	26	3/7/2018	3/9/2018	31'	2
Guest Dock	10	3/7/2018	3/9/2018	34'	2
Guest Dock	15	3/7/2018	3/8/2018	30'	1
Guest Dock	12	3/7/2018	3/8/2018	25'	1
Guest Dock	21	3/7/2018	3/13/2018	60'	6
Guest Dock	4	3/7/2018	3/8/2018	30'	1
Guest Dock	16	3/7/2018	3/8/2018	32'	1
Guest Dock	4	3/8/2018	3/9/2018	30'	1
Guest Dock	6	3/8/2018	3/9/2018	32'	1
Guest Dock	14	3/8/2018	3/10/2018	41'	2
Guest Dock	9	3/8/2018	3/9/2018	45'	1
Guest Dock	28	3/8/2018	3/9/2018	33'	1
Guest Dock	27	3/8/2018	3/9/2018	37'	1
Guest Dock	8	3/8/2018	3/9/2018	38'	1
Guest Dock	11	3/8/2018	3/9/2018	28'	1
Guest Dock	12	3/8/2018	3/9/2018	25'	1
Guest Dock	5	3/8/2018	3/9/2018	32'	1
Guest Dock	2	3/9/2018	3/10/2018	19'	1
Guest Dock	28	3/9/2018	3/10/2018	33'	1
Guest Dock	8	3/9/2018	3/11/2018	24'	2
Guest Dock	3	3/9/2018	3/12/2018	37'	3
Guest Dock	5	3/10/2018	3/19/2018	38'	9

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	28	3/10/2018	3/12/2018	33'	2
Guest Dock	19	3/11/2018	3/13/2018	45'	2
Guest Dock	18	3/11/2018	3/14/2018	46'	3
Guest Dock	8	3/11/2018	3/14/2018	24'	3
Guest Dock	9	3/11/2018	3/14/2018	42'	3
Guest Dock	4	3/11/2018	3/12/2018	45'	1
Guest Dock	3	3/12/2018	3/13/2018	31'	1
Guest Dock	7	3/12/2018	3/14/2018	35'	2
Guest Dock	28	3/12/2018	3/13/2018	32'	1
Guest Dock	16	3/12/2018	3/13/2018	25'	1
Guest Dock	13	3/12/2018	3/14/2018	33'	2
Guest Dock	4	3/12/2018	3/16/2018	44'	4
Guest Dock	2	3/12/2018	3/14/2018	38'	2
Guest Dock	27	3/12/2018	3/14/2018	37'	2
Guest Dock	14	3/12/2018	3/23/2018	26'	11
Guest Dock	6	3/12/2018	3/13/2018	32'	1
Guest Dock	11	3/12/2018	3/14/2018	34'	2
Guest Dock	12	3/12/2018	3/13/2018	28'	1
Guest Dock	10	3/12/2018	3/15/2018	39'	3
Guest Dock	22	3/12/2018	3/13/2018	60'	1
Guest Dock	16	3/13/2018	3/14/2018	25'	1
Guest Dock	28	3/13/2018	3/14/2018	32'	1
Guest Dock	13	3/14/2018	3/17/2018	32'	3
Guest Dock	27	3/14/2018	3/15/2018	37'	1
Guest Dock	9	3/14/2018	3/16/2018	42'	2
Guest Dock	28	3/14/2018	3/17/2018	33'	3
Guest Dock	18	3/14/2018	3/21/2018	46'	7
Guest Dock	22	3/14/2018	3/17/2018	46'	3
Guest Dock	2	3/14/2018	3/16/2018	38'	2
Guest Dock	8	3/14/2018	3/15/2018	24'	1
Guest Dock	16	3/14/2018	3/17/2018	25'	3
Guest Dock	7	3/14/2018	3/15/2018	35'	1
Guest Dock	3	3/14/2018	3/15/2018	34'	1
Guest Dock	7	3/15/2018	3/16/2018	35'	1
Guest Dock	10	3/15/2018	3/16/2018	39'	1
Guest Dock	21	3/16/2018	3/17/2018	50'	1
Guest Dock	22	3/17/2018	3/19/2018	46'	2
Guest Dock	27	3/17/2018	3/18/2018	30'	1
Guest Dock	28	3/17/2018	3/19/2018	33'	2
Guest Dock	12	3/17/2018	3/18/2018	25'	1
Guest Dock	7	3/17/2018	3/18/2018	22'	1
Guest Dock	3	3/17/2018	3/18/2018	46'	1
Guest Dock	6	3/17/2018	3/18/2018	10'	1
Guest Dock	9	3/18/2018	3/20/2018	24'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	15	3/18/2018	3/19/2018	36'	1
Guest Dock	2	3/18/2018	3/20/2018	32'	2
Guest Dock	6	3/18/2018	3/19/2018	22'	1
Guest Dock	11	3/18/2018	3/19/2018	31'	1
Guest Dock	4	3/18/2018	3/19/2018	32'	1
Guest Dock	26	3/19/2018	3/20/2018	36'	1
Guest Dock	7	3/19/2018	3/20/2018	35'	1
Guest Dock	5	3/19/2018	3/20/2018	35'	1
Guest Dock	3	3/19/2018	3/20/2018	36'	1
Guest Dock	22	3/19/2018	3/24/2018	46'	5
Guest Dock	11	3/19/2018	3/20/2018	34'	1
Guest Dock	12	3/19/2018	3/20/2018	28'	1
Guest Dock	28	3/19/2018	3/20/2018	30'	1
Guest Dock	8	3/19/2018	3/20/2018	33'	1
Guest Dock	20	3/19/2018	3/21/2018	38'	2
Guest Dock	10	3/19/2018	3/22/2018	25'	3
Guest Dock	25	3/20/2018	3/23/2018	44'	3
Guest Dock	9	3/20/2018	3/21/2018	24'	1
Guest Dock	19	3/20/2018	3/27/2018	57'	7
Guest Dock	6	3/20/2018	3/22/2018	30'	2
Guest Dock	2	3/20/2018	3/21/2018	32'	1
Guest Dock	11	3/20/2018	3/22/2018	34'	2
Guest Dock	26	3/20/2018	3/23/2018	36'	3
Guest Dock	9	3/21/2018	3/22/2018	24'	1
Guest Dock	4	3/21/2018	3/22/2018	32'	1
Guest Dock	13	3/21/2018	3/22/2018	25'	1
Guest Dock	5	3/21/2018	3/22/2018	32'	1
Guest Dock	16	3/21/2018	3/22/2018	36'	1
Guest Dock	18	3/21/2018	3/24/2018	46'	3
Guest Dock	3	3/21/2018	3/22/2018	38'	1
Guest Dock	21	3/21/2018	3/23/2018	37'	2
Guest Dock	10	3/22/2018	3/31/2018	25'	9
Guest Dock	3	3/22/2018	3/23/2018	38'	1
Guest Dock	12	3/22/2018	3/23/2018	30'	1
Guest Dock	11	3/22/2018	3/23/2018	34'	1
Guest Dock	4	3/22/2018	3/25/2018	33'	3
Guest Dock	6	3/22/2018	3/23/2018	30'	1
Guest Dock	3	3/23/2018	3/25/2018	44'	2
Guest Dock	12	3/23/2018	3/24/2018	30'	1
Guest Dock	18	3/24/2018	3/27/2018	46'	3
Guest Dock	5	3/24/2018	3/25/2018	35'	1
Guest Dock	4	3/25/2018	3/28/2018	38'	3
Guest Dock	22	3/25/2018	3/26/2018	32'	1
Guest Dock	27	3/26/2018	3/29/2018	30'	3

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	8	3/26/2018	3/29/2018	30'	3
Guest Dock	26	3/26/2018	3/27/2018	36'	1
Guest Dock	28	3/26/2018	3/27/2018	30'	1
Guest Dock	5	3/26/2018	3/29/2018	32'	3
Guest Dock	28	3/27/2018	3/28/2018	36'	1
Guest Dock	9	3/27/2018	3/29/2018	38'	2
Guest Dock	4	3/28/2018	3/29/2018	32'	1
Guest Dock	18	3/28/2018	3/30/2018	38'	2
Guest Dock	2	3/28/2018	3/30/2018	27'	2
Guest Dock	19	3/28/2018	3/30/2018	38'	2
Guest Dock	14	3/28/2018	3/29/2018	38'	1
Guest Dock	7	3/28/2018	3/29/2018	45'	1
Guest Dock	13	3/28/2018	3/30/2018	25'	2
Guest Dock	11	3/28/2018	4/3/2018	34'	6
Guest Dock	26	3/28/2018	3/29/2018	36'	1
Guest Dock	6	3/28/2018	3/29/2018	34'	1
Guest Dock	6	3/29/2018	4/6/2018	34'	8
Guest Dock	26	3/29/2018	3/30/2018	36'	1
Guest Dock	5	3/29/2018	3/30/2018	30'	1
Guest Dock	4	3/29/2018	4/1/2018	25'	3
Guest Dock	7	3/29/2018	3/30/2018	31'	1
Guest Dock	15	3/29/2018	3/30/2018	32'	1
Guest Dock	8	3/29/2018	3/30/2018	32'	1
Guest Dock	16	3/29/2018	3/30/2018	28'	1
Guest Dock	9	3/29/2018	4/1/2018	30'	3
Guest Dock	12	3/29/2018	3/30/2018	38'	1
Guest Dock	27	3/30/2018	3/31/2018	36'	1
Guest Dock	2	3/30/2018	4/3/2018	26'	4
Guest Dock	7	3/30/2018	3/31/2018	29'	1
Guest Dock	15	3/30/2018	4/1/2018	45'	2
Guest Dock	3	3/30/2018	4/1/2018	37'	2
Guest Dock	12	3/30/2018	3/31/2018	38'	1
Guest Dock	14	3/30/2018	4/1/2018	28'	2
Guest Dock	8	3/30/2018	4/2/2018	40'	3
Guest Dock	5	3/31/2018	4/1/2018	33'	1
Guest Dock	26	3/31/2018	4/2/2018	32'	2
Guest Dock	13	3/31/2018	4/1/2018	25'	1
Guest Dock	12	3/31/2018	4/1/2018	38'	1
Guest Dock	16	3/31/2018	4/3/2018	35'	3
Guest Dock	7	3/31/2018	4/1/2018	29'	1
Guest Dock	14	4/1/2018	4/4/2018	25'	3
Guest Dock	10	4/1/2018	4/2/2018	45'	1
Guest Dock	5	4/1/2018	4/4/2018	38'	3
Guest Dock	3	4/1/2018	4/2/2018	46'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	12	4/1/2018	4/2/2018	38'	1
Guest Dock	9	4/1/2018	4/2/2018	25'	1
Guest Dock	12	4/2/2018	4/3/2018	38'	1
Guest Dock	18	4/2/2018	4/4/2018	46'	2
Guest Dock	8	4/2/2018	4/3/2018	30'	1
Guest Dock	9	4/2/2018	4/3/2018	45'	1
Guest Dock	10	4/2/2018	4/3/2018	27'	1
Guest Dock	3	4/2/2018	4/3/2018	38'	1
Guest Dock	27	4/2/2018	4/3/2018	36'	1
Guest Dock	7	4/2/2018	4/3/2018	32'	1
Guest Dock	20	4/2/2018	4/6/2018	50'	4
Guest Dock	4	4/2/2018	4/3/2018	31'	1
Guest Dock	26	4/2/2018	4/3/2018	60'	1
Guest Dock	12	4/3/2018	4/4/2018	38'	1
Guest Dock	3	4/3/2018	4/5/2018	38'	2
Guest Dock	28	4/3/2018	4/5/2018	32'	2
Guest Dock	27	4/3/2018	4/6/2018	45'	3
Guest Dock	26	4/3/2018	4/5/2018	30'	2
Guest Dock	2	4/3/2018	4/4/2018	26'	1
Guest Dock	4	4/3/2018	4/7/2018	27'	4
Guest Dock	13	4/4/2018	4/5/2018	38'	1
Guest Dock	3	4/5/2018	4/6/2018	22'	1
Guest Dock	12	4/5/2018	4/7/2018	50'	2
Guest Dock	2	4/5/2018	4/6/2018	38'	1
Guest Dock	18	4/5/2018	4/6/2018	46'	1
Guest Dock	5	4/5/2018	4/6/2018	30'	1
Guest Dock	28	4/5/2018	4/6/2018	36'	1
Guest Dock	11	4/6/2018	4/7/2018	27'	1
Guest Dock	7	4/6/2018	4/7/2018	45'	1
Guest Dock	16	4/6/2018	4/7/2018	37'	1
Guest Dock	2	4/6/2018	4/8/2018	25'	2
Guest Dock	9	4/6/2018	4/9/2018	35'	3
Guest Dock	3	4/6/2018	4/10/2018	52'	4
Guest Dock	15	4/6/2018	4/8/2018	23'	2
Guest Dock	26	4/6/2018	4/7/2018	37'	1
Guest Dock	11	4/7/2018	4/8/2018	29'	1
Guest Dock	16	4/7/2018	4/8/2018	35'	1
Guest Dock	7	4/7/2018	4/9/2018	40'	2
Guest Dock	5	4/7/2018	4/8/2018	29'	1
Guest Dock	12	4/7/2018	4/8/2018	50'	1
Guest Dock	8	4/7/2018	4/9/2018	41'	2
Guest Dock	28	4/7/2018	4/9/2018	36'	2
Guest Dock	4	4/7/2018	4/9/2018	27'	2
Guest Dock	6	4/8/2018	4/9/2018	30'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	22	4/8/2018	4/9/2018	50'	1
Guest Dock	16	4/8/2018	4/9/2018	37'	1
Guest Dock	14	4/8/2018	4/9/2018	25'	1
Guest Dock	15	4/8/2018	4/11/2018	28'	3
Guest Dock	12	4/8/2018	4/9/2018	50'	1
Guest Dock	2	4/8/2018	4/9/2018	25'	1
Guest Dock	5	4/8/2018	4/9/2018	30'	1
Guest Dock	4	4/9/2018	4/11/2018	38'	2
Guest Dock	9	4/9/2018	4/13/2018	34'	4
Guest Dock	16	4/9/2018	4/10/2018	41'	1
Guest Dock	8	4/9/2018	4/13/2018	25'	4
Guest Dock	2	4/9/2018	4/12/2018	27'	3
Guest Dock	14	4/9/2018	4/10/2018	25'	1
Guest Dock	22	4/9/2018	4/10/2018	50'	1
Guest Dock	19	4/9/2018	4/14/2018	50'	5
Guest Dock	7	4/9/2018	4/10/2018	30'	1
Guest Dock	13	4/9/2018	4/10/2018	30'	1
Guest Dock	6	4/9/2018	4/10/2018	40'	1
Guest Dock	21	4/9/2018	4/13/2018	45'	4
Guest Dock	20	4/9/2018	4/12/2018	50'	3
Guest Dock	10	4/9/2018	4/13/2018	34'	4
Guest Dock	11	4/9/2018	4/14/2018	29'	5
Guest Dock	26	4/9/2018	4/17/2018	44'	8
Guest Dock	13	4/10/2018	4/11/2018	30'	1
Guest Dock	6	4/10/2018	4/13/2018	35'	3
Guest Dock	16	4/10/2018	4/11/2018	28'	1
Guest Dock	7	4/10/2018	4/11/2018	22'	1
Guest Dock	3	4/10/2018	4/11/2018	40'	1
Guest Dock	27	4/10/2018	4/11/2018	36'	1
Guest Dock	18	4/10/2018	4/14/2018	45'	4
Guest Dock	12	4/10/2018	4/11/2018	41'	1
Guest Dock	7	4/11/2018	4/12/2018	35'	1
Guest Dock	27	4/11/2018	4/12/2018	36'	1
Guest Dock	28	4/11/2018	4/16/2018	34'	5
Guest Dock	12	4/11/2018	4/12/2018	28'	1
Guest Dock	13	4/11/2018	4/13/2018	41'	2
Guest Dock	5	4/11/2018	4/12/2018	30'	1
Guest Dock	14	4/11/2018	4/14/2018	32'	3
Guest Dock	7	4/12/2018	4/13/2018	28'	1
Guest Dock	20	4/12/2018	4/19/2018	54'	7
Guest Dock	12	4/12/2018	4/17/2018	36'	5
Guest Dock	13	4/13/2018	4/15/2018	41'	2
Guest Dock	21	4/13/2018	4/15/2018	47'	2
Guest Dock	7	4/13/2018	4/16/2018	28'	3

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	4	4/13/2018	4/14/2018	20'	1
Guest Dock	22	4/13/2018	4/14/2018	45'	1
Guest Dock	3	4/13/2018	4/16/2018	38'	3
Guest Dock	27	4/14/2018	4/16/2018	45'	2
Guest Dock	18	4/14/2018	4/15/2018	48'	1
Guest Dock	19	4/14/2018	4/17/2018	50'	3
Guest Dock	5	4/14/2018	4/15/2018	18'	1
Guest Dock	16	4/14/2018	4/17/2018	32'	3
Guest Dock	4	4/14/2018	4/15/2018	32'	1
Guest Dock	21	4/15/2018	4/16/2018	47'	1
Guest Dock	13	4/15/2018	4/16/2018	41'	1
Guest Dock	14	4/15/2018	4/16/2018	16'	1
Guest Dock	9	4/15/2018	4/16/2018	25'	1
Guest Dock	15	4/15/2018	4/16/2018	36'	1
Guest Dock	7	4/16/2018	4/18/2018	28'	2
Guest Dock	11	4/16/2018	4/17/2018	12'	1
Guest Dock	9	4/16/2018	4/17/2018	25'	1
Guest Dock	18	4/16/2018	4/17/2018	65'	1
Guest Dock	4	4/16/2018	4/17/2018	40'	1
Guest Dock	28	4/16/2018	4/23/2018	32'	7
Guest Dock	14	4/16/2018	4/17/2018	33'	1
Guest Dock	3	4/16/2018	4/17/2018	31'	1
Guest Dock	13	4/16/2018	4/17/2018	41'	1
Guest Dock	22	4/16/2018	4/18/2018	45'	2
Guest Dock	5	4/16/2018	4/17/2018	36'	1
Guest Dock	13	4/17/2018	4/19/2018	41'	2
Guest Dock	21	4/17/2018	4/19/2018	54'	2
Guest Dock	11	4/17/2018	4/18/2018	34'	1
Guest Dock	4	4/17/2018	4/19/2018	34'	2
Guest Dock	12	4/17/2018	4/18/2018	45'	1
Guest Dock	16	4/17/2018	4/18/2018	33'	1
Guest Dock	10	4/17/2018	4/18/2018	40'	1
Guest Dock	9	4/17/2018	4/20/2018	25'	3
Guest Dock	5	4/17/2018	4/18/2018	32'	1
Guest Dock	8	4/17/2018	4/19/2018	26'	2
Guest Dock	15	4/17/2018	4/18/2018	28'	1
Guest Dock	14	4/17/2018	4/18/2018	30'	1
Guest Dock	16	4/18/2018	4/20/2018	35'	2
Guest Dock	22	4/18/2018	4/19/2018	45'	1
Guest Dock	2	4/18/2018	4/28/2018	32'	10
Guest Dock	4	4/19/2018	4/20/2018	29'	1
Guest Dock	11	4/19/2018	4/22/2018	27'	3
Guest Dock	27	4/19/2018	4/20/2018	30'	1
Guest Dock	13	4/19/2018	4/21/2018	41'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	12	4/19/2018	4/20/2018	47'	1
Guest Dock	14	4/19/2018	4/20/2018	33'	1
Guest Dock	22	4/19/2018	4/20/2018	45'	1
Guest Dock	7	4/19/2018	4/22/2018	28'	3
Guest Dock	8	4/20/2018	4/22/2018	24'	2
Guest Dock	16	4/20/2018	4/23/2018	35'	3
Guest Dock	5	4/20/2018	4/21/2018	29'	1
Guest Dock	4	4/20/2018	4/23/2018	24'	3
Guest Dock	6	4/20/2018	4/23/2018	38'	3
Guest Dock	12	4/20/2018	4/21/2018	47'	1
Guest Dock	9	4/20/2018	4/21/2018	25'	1
Guest Dock	26	4/20/2018	4/21/2018	36'	1
Guest Dock	13	4/21/2018	4/22/2018	41'	1
Guest Dock	5	4/21/2018	4/22/2018	36'	1
Guest Dock	10	4/22/2018	4/24/2018	27'	2
Guest Dock	14	4/22/2018	4/23/2018	36'	1
Guest Dock	27	4/23/2018	4/24/2018	30'	1
Guest Dock	20	4/23/2018	4/25/2018	45'	2
Guest Dock	4	4/23/2018	4/24/2018	45'	1
Guest Dock	28	4/23/2018	4/27/2018	32'	4
Guest Dock	5	4/23/2018	4/24/2018	37'	1
Guest Dock	7	4/23/2018	4/25/2018	28'	2
Guest Dock	18	4/23/2018	4/25/2018	26'	2
Guest Dock	16	4/24/2018	4/26/2018	30'	2
Guest Dock	26	4/24/2018	4/25/2018	40'	1
Guest Dock	4	4/24/2018	4/26/2018	45'	2
Guest Dock	10	4/24/2018	4/28/2018	27'	4
Guest Dock	13	4/25/2018	4/27/2018	44'	2
Guest Dock	26	4/25/2018	4/26/2018	40'	1
Guest Dock	12	4/25/2018	4/30/2018	42'	5
Guest Dock	18	4/25/2018	4/26/2018	26'	1
Guest Dock	16	4/26/2018	4/27/2018	30'	1
Guest Dock	4	4/26/2018	4/27/2018	45'	1
Guest Dock	20	4/26/2018	4/29/2018	50'	3
Guest Dock	11	4/26/2018	4/27/2018	30'	1
Guest Dock	19	4/26/2018	4/27/2018	26'	1
Guest Dock	22	4/26/2018	4/27/2018	45'	1
Guest Dock	18	4/27/2018	4/28/2018	26'	1
Guest Dock	15	4/27/2018	4/29/2018	35'	2
Guest Dock	9	4/27/2018	4/29/2018	23'	2
Guest Dock	28	4/27/2018	4/28/2018	32'	1
Guest Dock	16	4/27/2018	4/28/2018	46'	1
Guest Dock	7	4/27/2018	4/30/2018	22'	3
Guest Dock	5	4/28/2018	4/29/2018	37'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	2	4/28/2018	4/29/2018	32'	1
Guest Dock	4	4/28/2018	4/29/2018	24'	1
Guest Dock	10	4/28/2018	4/30/2018	27'	2
Guest Dock	21	4/28/2018	4/30/2018	26'	2
Guest Dock	3	4/28/2018	4/30/2018	40'	2
Guest Dock	9	4/29/2018	5/2/2018	32'	3
Guest Dock	8	4/29/2018	4/30/2018	10'	1
Guest Dock	15	4/29/2018	4/30/2018	50'	1
Guest Dock	13	4/29/2018	5/1/2018	23'	2
Guest Dock	28	4/29/2018	5/1/2018	32'	2
Guest Dock	20	4/29/2018	4/30/2018	45'	1
Guest Dock	11	4/29/2018	4/30/2018	18'	1
Guest Dock	26	4/29/2018	4/30/2018	31'	1
Guest Dock	4	4/29/2018	4/30/2018	40'	1
Guest Dock	16	4/29/2018	4/30/2018	41'	1
Guest Dock	5	4/29/2018	4/30/2018	37'	1
Guest Dock	6	4/29/2018	5/1/2018	25'	2
Guest Dock	22	4/29/2018	5/1/2018	46'	2
Guest Dock	27	4/29/2018	4/30/2018	30'	1
Guest Dock	7	4/30/2018	5/1/2018	40'	1
Guest Dock	12	4/30/2018	5/1/2018	52'	1
Guest Dock	18	4/30/2018	5/1/2018	45'	1
Guest Dock	15	4/30/2018	5/2/2018	45'	2
Guest Dock	3	4/30/2018	5/3/2018	31'	3
Guest Dock	2	4/30/2018	5/1/2018	38'	1
Guest Dock	5	4/30/2018	5/1/2018	43'	1
Guest Dock	26	4/30/2018	5/1/2018	30'	1
Guest Dock	8	4/30/2018	5/1/2018	42'	1
Guest Dock	21	4/30/2018	5/1/2018	26'	1
Guest Dock	11	4/30/2018	5/1/2018	35'	1
Guest Dock	4	4/30/2018	5/1/2018	40'	1
Guest Dock	11	5/1/2018	5/12/2018	33'	11
Guest Dock	27	5/1/2018	5/2/2018	30'	1
Guest Dock	28	5/1/2018	5/2/2018	32'	1
Guest Dock	2	5/1/2018	5/2/2018	38'	1
Guest Dock	18	5/1/2018	5/2/2018	50'	1
Guest Dock	21	5/1/2018	5/4/2018	26'	3
Guest Dock	10	5/1/2018	5/2/2018	27'	1
Guest Dock	13	5/1/2018	5/2/2018	23'	1
Guest Dock	7	5/1/2018	5/2/2018	39'	1
Guest Dock	5	5/1/2018	5/2/2018	32'	1
Guest Dock	14	5/1/2018	5/6/2018	27'	5
Guest Dock	4	5/1/2018	5/3/2018	40'	2
Guest Dock	26	5/2/2018	5/4/2018	38'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	18	5/2/2018	5/4/2018	61'	2
Guest Dock	12	5/2/2018	5/3/2018	46'	1
Guest Dock	27	5/2/2018	5/4/2018	30'	2
Guest Dock	9	5/2/2018	5/6/2018	35'	4
Guest Dock	15	5/2/2018	5/3/2018	45'	1
Guest Dock	13	5/2/2018	5/3/2018	23'	1
Guest Dock	5	5/2/2018	5/4/2018	32'	2
Guest Dock	10	5/2/2018	5/3/2018	27'	1
Guest Dock	13	5/3/2018	5/4/2018	23'	1
Guest Dock	3	5/3/2018	5/4/2018	31'	1
Guest Dock	15	5/3/2018	5/7/2018	45'	4
Guest Dock	4	5/3/2018	5/4/2018	32'	1
Guest Dock	8	5/3/2018	5/4/2018	27'	1
Guest Dock	10	5/3/2018	5/4/2018	15'	1
Guest Dock	2	5/3/2018	5/4/2018	22'	1
Guest Dock	2	5/4/2018	5/5/2018	26'	1
Guest Dock	13	5/4/2018	5/5/2018	23'	1
Guest Dock	12	5/4/2018	5/5/2018	45'	1
Guest Dock	5	5/4/2018	5/7/2018	39'	3
Guest Dock	6	5/4/2018	5/6/2018	42'	2
Guest Dock	2	5/5/2018	5/7/2018	45'	2
Guest Dock	19	5/5/2018	5/6/2018	46'	1
Guest Dock	8	5/5/2018	5/6/2018	40'	1
Guest Dock	13	5/5/2018	5/6/2018	23'	1
Guest Dock	18	5/5/2018	5/6/2018	56'	1
Guest Dock	12	5/5/2018	5/6/2018	18'	1
Guest Dock	26	5/5/2018	5/6/2018	38'	1
Guest Dock	16	5/5/2018	5/6/2018	48'	1
Guest Dock	3	5/5/2018	5/6/2018	40'	1
Guest Dock	14	5/6/2018	5/11/2018	27'	5
Guest Dock	7	5/6/2018	5/8/2018	35'	2
Guest Dock	26	5/6/2018	5/7/2018	38'	1
Guest Dock	19	5/6/2018	5/7/2018	46'	1
Guest Dock	9	5/6/2018	5/15/2018	40'	9
Guest Dock	16	5/6/2018	5/10/2018	37'	4
Guest Dock	4	5/6/2018	5/7/2018	10'	1
Guest Dock	13	5/6/2018	5/7/2018	23'	1
Guest Dock	3	5/7/2018	5/10/2018	60'	3
Guest Dock	21	5/7/2018	5/9/2018	45'	2
Guest Dock	26	5/7/2018	5/10/2018	30'	3
Guest Dock	6	5/7/2018	5/8/2018	25'	1
Guest Dock	10	5/7/2018	5/13/2018	17'	6
Guest Dock	13	5/7/2018	5/8/2018	23'	1
Guest Dock	19	5/7/2018	5/8/2018	46'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	22	5/7/2018	5/17/2018	17'	10
Guest Dock	18	5/7/2018	5/22/2018	20'	15
Guest Dock	15	5/7/2018	5/8/2018	15'	1
Guest Dock	12	5/7/2018	5/8/2018	30'	1
Guest Dock	2	5/7/2018	5/9/2018	45'	2
Guest Dock	5	5/7/2018	5/9/2018	34'	2
Guest Dock	27	5/7/2018	5/8/2018	38'	1
Guest Dock	6	5/8/2018	5/9/2018	25'	1
Guest Dock	7	5/8/2018	5/9/2018	35'	1
Guest Dock	27	5/8/2018	5/9/2018	38'	1
Guest Dock	19	5/8/2018	5/11/2018	46'	3
Guest Dock	12	5/8/2018	5/9/2018	15'	1
Guest Dock	28	5/8/2018	5/11/2018	32'	3
Guest Dock	13	5/8/2018	5/9/2018	23'	1
Guest Dock	15	5/8/2018	5/9/2018	25'	1
Guest Dock	15	5/9/2018	5/10/2018	15'	1
Guest Dock	7	5/9/2018	5/10/2018	35'	1
Guest Dock	27	5/9/2018	5/14/2018	35'	5
Guest Dock	21	5/10/2018	5/11/2018	47'	1
Guest Dock	26	5/10/2018	5/11/2018	30'	1
Guest Dock	3	5/10/2018	5/11/2018	38'	1
Guest Dock	7	5/10/2018	5/11/2018	35'	1
Guest Dock	15	5/10/2018	5/11/2018	15'	1
Guest Dock	6	5/10/2018	5/11/2018	25'	1
Guest Dock	2	5/10/2018	5/11/2018	45'	1
Guest Dock	16	5/10/2018	5/17/2018	46'	7
Guest Dock	20	5/10/2018	5/13/2018	40'	3
Guest Dock	19	5/11/2018	5/14/2018	46'	3
Guest Dock	2	5/11/2018	5/12/2018	38'	1
Guest Dock	4	5/11/2018	5/12/2018	42'	1
Guest Dock	3	5/11/2018	5/12/2018	46'	1
Guest Dock	12	5/11/2018	5/13/2018	38'	2
Guest Dock	3	5/12/2018	5/13/2018	46'	1
Guest Dock	14	5/12/2018	5/14/2018	27'	2
Guest Dock	11	5/12/2018	5/15/2018	33'	3
Guest Dock	10	5/13/2018	5/14/2018	17'	1
Guest Dock	20	5/13/2018	5/14/2018	50'	1
Guest Dock	12	5/13/2018	5/16/2018	26'	3
Guest Dock	13	5/13/2018	5/14/2018	30'	1
Guest Dock	5	5/13/2018	5/14/2018	38'	1
Guest Dock	3	5/13/2018	5/14/2018	46'	1
Guest Dock	26	5/13/2018	5/14/2018	45'	1
Guest Dock	4	5/14/2018	5/15/2018	37'	1
Guest Dock	13	5/14/2018	5/15/2018	30'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	6	5/14/2018	5/15/2018	34'	1
Guest Dock	19	5/14/2018	5/16/2018	46'	2
Guest Dock	27	5/14/2018	5/15/2018	30'	1
Guest Dock	3	5/14/2018	5/15/2018	38'	1
Guest Dock	14	5/14/2018	5/15/2018	45'	1
Guest Dock	15	5/14/2018	5/15/2018	30'	1
Guest Dock	10	5/14/2018	5/15/2018	15'	1
Guest Dock	8	5/14/2018	5/19/2018	38'	5
Guest Dock	7	5/14/2018	5/15/2018	36'	1
Guest Dock	26	5/14/2018	5/18/2018	35'	4
Guest Dock	5	5/14/2018	5/18/2018	34'	4
Guest Dock	20	5/14/2018	5/15/2018	45'	1
Guest Dock	2	5/14/2018	5/15/2018	32'	1
Guest Dock	4	5/15/2018	5/16/2018	38'	1
Guest Dock	10	5/15/2018	5/16/2018	15'	1
Guest Dock	9	5/15/2018	5/16/2018	30'	1
Guest Dock	20	5/15/2018	5/17/2018	45'	2
Guest Dock	27	5/15/2018	5/16/2018	44'	1
Guest Dock	2	5/15/2018	5/21/2018	37'	6
Guest Dock	28	5/15/2018	5/22/2018	32'	7
Guest Dock	6	5/15/2018	5/16/2018	34'	1
Guest Dock	14	5/15/2018	5/16/2018	45'	1
Guest Dock	11	5/15/2018	5/16/2018	40'	1
Guest Dock	3	5/15/2018	5/16/2018	32'	1
Guest Dock	9	5/16/2018	5/17/2018	30'	1
Guest Dock	3	5/16/2018	5/17/2018	32'	1
Guest Dock	15	5/16/2018	5/17/2018	50'	1
Guest Dock	13	5/16/2018	5/18/2018	40'	2
Guest Dock	14	5/16/2018	5/17/2018	45'	1
Guest Dock	6	5/16/2018	5/18/2018	34'	2
Guest Dock	12	5/16/2018	5/17/2018	26'	1
Guest Dock	27	5/16/2018	5/24/2018	44'	8
Guest Dock	19	5/16/2018	5/18/2018	46'	2
Guest Dock	11	5/16/2018	5/17/2018	15'	1
Guest Dock	4	5/16/2018	5/17/2018	38'	1
Guest Dock	14	5/17/2018	5/18/2018	45'	1
Guest Dock	10	5/17/2018	5/18/2018	30'	1
Guest Dock	11	5/17/2018	5/19/2018	42'	2
Guest Dock	3	5/17/2018	5/18/2018	38'	1
Guest Dock	20	5/17/2018	5/18/2018	45'	1
Guest Dock	22	5/17/2018	5/22/2018	37'	5
Guest Dock	9	5/17/2018	5/18/2018	15'	1
Guest Dock	4	5/17/2018	5/18/2018	10'	1
Guest Dock	15	5/17/2018	5/18/2018	32'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	16	5/17/2018	5/18/2018	50'	1
Guest Dock	12	5/17/2018	5/18/2018	44'	1
Guest Dock	14	5/18/2018	5/19/2018	33'	1
Guest Dock	16	5/18/2018	5/19/2018	46'	1
Guest Dock	3	5/18/2018	5/19/2018	38'	1
Guest Dock	4	5/18/2018	5/20/2018	34'	2
Guest Dock	21	5/18/2018	5/20/2018	47'	2
Guest Dock	7	5/18/2018	5/23/2018	36'	5
Guest Dock	19	5/18/2018	5/21/2018	46'	3
Guest Dock	5	5/19/2018	5/21/2018	38'	2
Guest Dock	11	5/19/2018	5/20/2018	42'	1
Guest Dock	14	5/19/2018	5/20/2018	39'	1
Guest Dock	3	5/19/2018	5/20/2018	38'	1
Guest Dock	3	5/20/2018	5/21/2018	38'	1
Guest Dock	13	5/20/2018	5/25/2018	25'	5
Guest Dock	20	5/21/2018	5/22/2018	45'	1
Guest Dock	14	5/21/2018	5/22/2018	45'	1
Guest Dock	5	5/21/2018	5/22/2018	30'	1
Guest Dock	15	5/21/2018	5/22/2018	34'	1
Guest Dock	16	5/21/2018	5/22/2018	50'	1
Guest Dock	2	5/21/2018	5/24/2018	15'	3
Guest Dock	3	5/21/2018	5/22/2018	38'	1
Guest Dock	8	5/21/2018	5/22/2018	32'	1
Guest Dock	10	5/21/2018	5/23/2018	30'	2
Guest Dock	9	5/21/2018	5/23/2018	35'	2
Guest Dock	6	5/21/2018	5/25/2018	27'	4
Guest Dock	11	5/21/2018	5/22/2018	34'	1
Guest Dock	12	5/21/2018	5/24/2018	42'	3
Guest Dock	14	5/22/2018	5/23/2018	45'	1
Guest Dock	8	5/22/2018	5/23/2018	31'	1
Guest Dock	16	5/22/2018	5/24/2018	42'	2
Guest Dock	15	5/22/2018	5/23/2018	34'	1
Guest Dock	19	5/22/2018	5/23/2018	50'	1
Guest Dock	5	5/22/2018	5/29/2018	38'	7
Guest Dock	20	5/22/2018	5/23/2018	45'	1
Guest Dock	11	5/22/2018	5/25/2018	34'	3
Guest Dock	4	5/22/2018	5/23/2018	38'	1
Guest Dock	3	5/22/2018	5/23/2018	42'	1
Guest Dock	21	5/22/2018	5/23/2018	45'	1
Guest Dock	20	5/23/2018	5/24/2018	51'	1
Guest Dock	7	5/23/2018	5/29/2018	36'	6
Guest Dock	8	5/23/2018	5/24/2018	32'	1
Guest Dock	3	5/23/2018	5/26/2018	57'	3
Guest Dock	26	5/23/2018	5/24/2018	40'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	18	5/23/2018	5/25/2018	63'	2
Guest Dock	4	5/23/2018	5/25/2018	31'	2
Guest Dock	28	5/23/2018	5/25/2018	34'	2
Guest Dock	9	5/23/2018	5/25/2018	35'	2
Guest Dock	10	5/23/2018	5/28/2018	25'	5
Guest Dock	19	5/23/2018	5/24/2018	50'	1
Guest Dock	14	5/23/2018	5/24/2018	30'	1
Guest Dock	15	5/23/2018	5/24/2018	45'	1
Guest Dock	16	5/24/2018	5/25/2018	28'	1
Guest Dock	26	5/24/2018	5/25/2018	32'	1
Guest Dock	8	5/24/2018	5/30/2018	36'	6
Guest Dock	27	5/24/2018	5/30/2018	44'	6
Guest Dock	14	5/24/2018	5/25/2018	32'	1
Guest Dock	22	5/24/2018	5/25/2018	45'	1
Guest Dock	19	5/24/2018	5/25/2018	50'	1
Guest Dock	21	5/24/2018	5/25/2018	45'	1
Guest Dock	2	5/24/2018	5/25/2018	30'	1
Guest Dock	20	5/24/2018	5/25/2018	50'	1
Guest Dock	11	5/25/2018	5/27/2018	38'	2
Guest Dock	15	5/25/2018	5/26/2018	27'	1
Guest Dock	6	5/25/2018	5/28/2018	28'	3
Guest Dock	14	5/25/2018	5/26/2018	42'	1
Guest Dock	9	5/25/2018	5/27/2018	39'	2
Guest Dock	4	5/25/2018	5/28/2018	31'	3
Guest Dock	21	5/25/2018	5/28/2018	47'	3
Guest Dock	22	5/25/2018	5/28/2018	45'	3
Guest Dock	19	5/25/2018	5/26/2018	47'	1
Guest Dock	16	5/25/2018	5/29/2018	23'	4
Guest Dock	15	5/26/2018	5/30/2018	30'	4
Guest Dock	2	5/26/2018	5/27/2018	22'	1
Guest Dock	19	5/26/2018	5/28/2018	51'	2
Guest Dock	14	5/26/2018	5/27/2018	47'	1
Guest Dock	18	5/26/2018	5/28/2018	38'	2
Guest Dock	3	5/26/2018	5/28/2018	40'	2
Guest Dock	13	5/27/2018	5/28/2018	28'	1
Guest Dock	11	5/27/2018	5/28/2018	30'	1
Guest Dock	14	5/27/2018	5/28/2018	45'	1
Guest Dock	9	5/27/2018	5/28/2018	39'	1
Guest Dock	19	5/28/2018	6/1/2018	47'	4
Guest Dock	22	5/28/2018	5/29/2018	45'	1
Guest Dock	14	5/28/2018	5/29/2018	45'	1
Guest Dock	13	5/28/2018	5/30/2018	25'	2
Guest Dock	11	5/28/2018	5/29/2018	30'	1
Guest Dock	6	5/29/2018	5/30/2018	41'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	7	5/29/2018	5/30/2018	31'	1
Guest Dock	22	5/29/2018	5/31/2018	45'	2
Guest Dock	14	5/29/2018	6/1/2018	28'	3
Guest Dock	26	5/29/2018	5/30/2018	38'	1
Guest Dock	11	5/29/2018	5/30/2018	32'	1
Guest Dock	9	5/29/2018	5/30/2018	35'	1
Guest Dock	5	5/29/2018	6/5/2018	24'	7
Guest Dock	4	5/29/2018	6/1/2018		3
Guest Dock	3	5/30/2018	5/31/2018	50'	1
Guest Dock	26	5/30/2018	6/5/2018	33'	6
Guest Dock	27	5/30/2018	5/31/2018	38'	1
Guest Dock	15	5/30/2018	6/3/2018	30'	4
Guest Dock	13	5/30/2018	6/1/2018	25'	2
Guest Dock	16	5/30/2018	5/31/2018	45'	1
Guest Dock	16	5/31/2018	6/1/2018	45'	1
Guest Dock	12	5/31/2018	6/3/2018	42'	3
Guest Dock	28	5/31/2018	6/1/2018	38'	1
Guest Dock	27	5/31/2018	6/1/2018	40'	1
Guest Dock	6	5/31/2018	6/3/2018	27'	3
Guest Dock	3	5/31/2018	6/2/2018	44'	2
Guest Dock	10	6/1/2018	6/4/2018	33'	3
Guest Dock	18	6/1/2018	6/2/2018	50'	1
Guest Dock	16	6/1/2018	6/3/2018	32'	2
Guest Dock	28	6/1/2018	6/4/2018	35'	3
Guest Dock	2	6/1/2018	6/2/2018	32'	1
Guest Dock	8	6/1/2018	6/2/2018	44'	1
Guest Dock	13	6/1/2018	6/3/2018	25'	2
Guest Dock	4	6/1/2018	6/2/2018	40'	1
Guest Dock	11	6/1/2018	6/2/2018	38'	1
Guest Dock	19	6/1/2018	6/4/2018	50'	3
Guest Dock	27	6/1/2018	6/4/2018	40'	3
Guest Dock	14	6/1/2018	6/11/2018	25'	10
Guest Dock	9	6/1/2018	6/2/2018	28'	1
Guest Dock	4	6/2/2018	6/3/2018	32'	1
Guest Dock	9	6/2/2018	6/3/2018	38'	1
Guest Dock	11	6/2/2018	6/3/2018	30'	1
Guest Dock	3	6/2/2018	6/3/2018	35'	1
Guest Dock	8	6/2/2018	6/3/2018	35'	1
Guest Dock	21	6/2/2018	6/8/2018	63'	6
Guest Dock	7	6/2/2018	6/16/2018	36'	14
Guest Dock	16	6/3/2018	6/4/2018	30'	1
Guest Dock	4	6/3/2018	6/4/2018	34'	1
Guest Dock	9	6/3/2018	6/4/2018	32'	1
Guest Dock	8	6/3/2018	6/6/2018	50'	3

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	3	6/3/2018	6/9/2018	23'	6
Guest Dock	15	6/3/2018	6/4/2018	38'	1
Guest Dock	16	6/4/2018	6/5/2018	28'	1
Guest Dock	9	6/4/2018	6/5/2018	35'	1
Guest Dock	28	6/4/2018	6/9/2018	40'	5
Guest Dock	18	6/4/2018	6/5/2018	47'	1
Guest Dock	13	6/4/2018	6/5/2018	45'	1
Guest Dock	12	6/4/2018	6/5/2018	30'	1
Guest Dock	4	6/4/2018	6/5/2018	38'	1
Guest Dock	27	6/4/2018	6/5/2018	30'	1
Guest Dock	19	6/4/2018	6/7/2018	63'	3
Guest Dock	15	6/4/2018	6/7/2018	30'	3
Guest Dock	10	6/4/2018	6/5/2018	33'	1
Guest Dock	27	6/5/2018	6/6/2018	40'	1
Guest Dock	13	6/5/2018	6/6/2018	45'	1
Guest Dock	5	6/5/2018	6/7/2018	30'	2
Guest Dock	9	6/5/2018	6/11/2018	44'	6
Guest Dock	2	6/5/2018	6/6/2018	38'	1
Guest Dock	12	6/6/2018	6/7/2018	32'	1
Guest Dock	6	6/6/2018	6/7/2018	34'	1
Guest Dock	8	6/6/2018	6/7/2018	35'	1
Guest Dock	11	6/6/2018	6/7/2018	41'	1
Guest Dock	13	6/6/2018	6/7/2018	45'	1
Guest Dock	4	6/6/2018	6/9/2018	33'	3
Guest Dock	18	6/6/2018	6/7/2018	50'	1
Guest Dock	6	6/7/2018	6/8/2018	30'	1
Guest Dock	12	6/7/2018	6/9/2018	32'	2
Guest Dock	13	6/7/2018	6/8/2018	45'	1
Guest Dock	16	6/7/2018	6/9/2018	50'	2
Guest Dock	5	6/7/2018	6/9/2018	30'	2
Guest Dock	8	6/7/2018	6/8/2018	25'	1
Guest Dock	15	6/7/2018	6/9/2018	30'	2
Guest Dock	2	6/7/2018	6/9/2018	35'	2
Guest Dock	11	6/7/2018	6/8/2018	41'	1
Guest Dock	11	6/8/2018	6/12/2018	26'	4
Guest Dock	6	6/8/2018	6/10/2018	20'	2
Guest Dock	10	6/8/2018	6/11/2018	27'	3
Guest Dock	8	6/8/2018	6/10/2018	37'	2
Guest Dock	20	6/9/2018	6/11/2018	46'	2
Guest Dock	2	6/9/2018	6/12/2018	32'	3
Guest Dock	18	6/9/2018	6/11/2018	63'	2
Guest Dock	21	6/9/2018	6/12/2018	45'	3
Guest Dock	3	6/9/2018	6/10/2018	42'	1
Guest Dock	26	6/9/2018	6/11/2018	35'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	15	6/9/2018	6/11/2018	41'	2
Guest Dock	16	6/9/2018	6/10/2018	33'	1
Guest Dock	13	6/9/2018	6/10/2018	46'	1
Guest Dock	5	6/9/2018	6/11/2018	42'	2
Guest Dock	28	6/9/2018	6/14/2018	40'	5
Guest Dock	8	6/10/2018	6/13/2018	44'	3
Guest Dock	13	6/10/2018	6/11/2018	20'	1
Guest Dock	4	6/10/2018	6/18/2018	32'	8
Guest Dock	18	6/11/2018	6/14/2018	63'	3
Guest Dock	9	6/11/2018	6/12/2018	27'	1
Guest Dock	26	6/11/2018	6/13/2018	35'	2
Guest Dock	16	6/11/2018	6/13/2018	45'	2
Guest Dock	15	6/11/2018	6/14/2018	34'	3
Guest Dock	3	6/11/2018	6/14/2018	31'	3
Guest Dock	5	6/12/2018	6/13/2018	35'	1
Guest Dock	2	6/12/2018	6/13/2018	32'	1
Guest Dock	10	6/12/2018	6/14/2018	27'	2
Guest Dock	20	6/12/2018	6/13/2018	46'	1
Guest Dock	27	6/12/2018	6/15/2018	34'	3
Guest Dock	9	6/12/2018	6/15/2018	36'	3
Guest Dock	22	6/13/2018	6/14/2018	46'	1
Guest Dock	12	6/13/2018	6/15/2018	42'	2
Guest Dock	5	6/13/2018	6/14/2018	30'	1
Guest Dock	26	6/13/2018	6/15/2018	35'	2
Guest Dock	2	6/13/2018	6/14/2018	32'	1
Guest Dock	11	6/13/2018	6/15/2018	32'	2
Guest Dock	16	6/13/2018	6/14/2018	35'	1
Guest Dock	20	6/14/2018	6/15/2018	42'	1
Guest Dock	16	6/14/2018	6/15/2018	31'	1
Guest Dock	22	6/14/2018	6/16/2018	28'	2
Guest Dock	13	6/14/2018	6/19/2018	41'	5
Guest Dock	8	6/14/2018	6/17/2018	35'	3
Guest Dock	14	6/14/2018	6/15/2018	35'	1
Guest Dock	21	6/14/2018	6/17/2018	45'	3
Guest Dock	2	6/14/2018	6/18/2018	32'	4
Guest Dock	3	6/14/2018	6/16/2018	44'	2
Guest Dock	10	6/14/2018	6/17/2018	27'	3
Guest Dock	18	6/14/2018	6/15/2018	50'	1
Guest Dock	5	6/14/2018	6/15/2018	32'	1
Guest Dock	15	6/14/2018	6/15/2018	34'	1
Guest Dock	6	6/14/2018	6/15/2018	10'	1
Guest Dock	11	6/15/2018	6/17/2018	18'	2
Guest Dock	6	6/15/2018	6/16/2018	35'	1
Guest Dock	28	6/15/2018	6/18/2018	40'	3

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	5	6/15/2018	6/18/2018	27'	3
Guest Dock	16	6/15/2018	6/16/2018	43'	1
Guest Dock	27	6/15/2018	6/16/2018	32'	1
Guest Dock	9	6/15/2018	6/16/2018	32'	1
Guest Dock	19	6/15/2018	6/17/2018	51'	2
Guest Dock	26	6/15/2018	6/18/2018	35'	3
Guest Dock	18	6/15/2018	6/16/2018	45'	1
Guest Dock	12	6/15/2018	6/17/2018	34'	2
Guest Dock	15	6/15/2018	6/17/2018	39'	2
Guest Dock	9	6/16/2018	6/17/2018	32'	1
Guest Dock	3	6/16/2018	6/17/2018	46'	1
Guest Dock	7	6/16/2018	6/17/2018	40'	1
Guest Dock	6	6/16/2018	6/17/2018	35'	1
Guest Dock	16	6/16/2018	6/27/2018	36'	11
Guest Dock	20	6/16/2018	6/17/2018	45'	1
Guest Dock	18	6/16/2018	6/18/2018	38'	2
Guest Dock	21	6/17/2018	6/18/2018	45'	1
Guest Dock	7	6/17/2018	6/18/2018	40'	1
Guest Dock	15	6/17/2018	6/18/2018	42'	1
Guest Dock	14	6/17/2018	6/18/2018	43'	1
Guest Dock	10	6/17/2018	6/18/2018	27'	1
Guest Dock	11	6/17/2018	6/18/2018	38'	1
Guest Dock	8	6/17/2018	6/20/2018	35'	3
Guest Dock	6	6/17/2018	6/18/2018	30'	1
Guest Dock	9	6/17/2018	6/18/2018	12'	1
Guest Dock	19	6/17/2018	6/18/2018	32'	1
Guest Dock	12	6/17/2018	6/18/2018	34'	1
Guest Dock	26	6/18/2018	6/22/2018	32'	4
Guest Dock	11	6/18/2018	6/21/2018	15'	3
Guest Dock	9	6/18/2018	6/20/2018	32'	2
Guest Dock	3	6/18/2018	6/22/2018	44'	4
Guest Dock	28	6/18/2018	6/20/2018	30'	2
Guest Dock	20	6/18/2018	6/19/2018	38'	1
Guest Dock	4	6/18/2018	6/20/2018	42'	2
Guest Dock	10	6/18/2018	6/19/2018	27'	1
Guest Dock	12	6/18/2018	6/20/2018	34'	2
Guest Dock	5	6/18/2018	6/19/2018	32'	1
Guest Dock	7	6/18/2018	6/19/2018	30'	1
Guest Dock	27	6/18/2018	6/19/2018	35'	1
Guest Dock	18	6/18/2018	6/19/2018	38'	1
Guest Dock	14	6/18/2018	6/19/2018	43'	1
Guest Dock	6	6/18/2018	6/22/2018	27'	4
Guest Dock	2	6/18/2018	6/25/2018	32'	7
Guest Dock	7	6/19/2018	6/20/2018	30'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	10	6/19/2018	6/21/2018	27'	2
Guest Dock	7	6/20/2018	6/21/2018	42'	1
Guest Dock	27	6/20/2018	6/21/2018	30'	1
Guest Dock	12	6/20/2018	6/21/2018	34'	1
Guest Dock	9	6/20/2018	6/21/2018	32'	1
Guest Dock	5	6/20/2018	6/21/2018	30'	1
Guest Dock	4	6/20/2018	6/23/2018	39'	3
Guest Dock	28	6/20/2018	6/22/2018	20'	2
Guest Dock	27	6/21/2018	6/22/2018	46'	1
Guest Dock	15	6/21/2018	6/22/2018	32'	1
Guest Dock	20	6/21/2018	6/26/2018	57'	5
Guest Dock	9	6/21/2018	6/22/2018	32'	1
Guest Dock	12	6/21/2018	6/22/2018	34'	1
Guest Dock	22	6/22/2018	6/27/2018	47'	5
Guest Dock	3	6/22/2018	6/24/2018	24'	2
Guest Dock	11	6/22/2018	6/23/2018	37'	1
Guest Dock	15	6/22/2018	6/23/2018	27'	1
Guest Dock	12	6/22/2018	6/23/2018	23'	1
Guest Dock	27	6/22/2018	6/23/2018	46'	1
Guest Dock	10	6/22/2018	6/23/2018	14'	1
Guest Dock	8	6/22/2018	6/24/2018	30'	2
Guest Dock	21	6/22/2018	6/24/2018	45'	2
Guest Dock	18	6/22/2018	6/23/2018	46'	1
Guest Dock	19	6/22/2018	6/24/2018	47'	2
Guest Dock	7	6/22/2018	6/23/2018	23'	1
Guest Dock	5	6/22/2018	6/24/2018	37'	2
Guest Dock	6	6/23/2018	6/24/2018	39'	1
Guest Dock	12	6/23/2018	6/24/2018	33'	1
Guest Dock	7	6/23/2018	6/24/2018	40'	1
Guest Dock	11	6/23/2018	7/3/2018	24'	10
Guest Dock	26	6/23/2018	6/30/2018	32'	7
Guest Dock	10	6/23/2018	6/25/2018	14'	2
Guest Dock	4	6/23/2018	6/27/2018	17'	4
Guest Dock	14	6/24/2018	6/25/2018	39'	1
Guest Dock	12	6/24/2018	6/26/2018	30'	2
Guest Dock	3	6/24/2018	6/28/2018	30'	4
Guest Dock	6	6/24/2018	6/27/2018	27'	3
Guest Dock	13	6/24/2018	6/27/2018	34'	3
Guest Dock	9	6/24/2018	6/25/2018	30'	1
Guest Dock	8	6/25/2018	6/26/2018	30'	1
Guest Dock	5	6/25/2018	6/27/2018	39'	2
Guest Dock	2	6/25/2018	6/28/2018	32'	3
Guest Dock	7	6/25/2018	7/5/2018	28'	10
Guest Dock	18	6/25/2018	6/29/2018	63'	4

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	14	6/26/2018	6/29/2018	30'	3
Guest Dock	8	6/26/2018	6/30/2018	38'	4
Guest Dock	15	6/26/2018	7/1/2018	40'	5
Guest Dock	21	6/26/2018	6/27/2018	45'	1
Guest Dock	10	6/26/2018	6/27/2018	44'	1
Guest Dock	9	6/26/2018	6/27/2018	37'	1
Guest Dock	4	6/27/2018	6/29/2018	38'	2
Guest Dock	6	6/27/2018	6/28/2018	39'	1
Guest Dock	13	6/27/2018	6/29/2018	34'	2
Guest Dock	20	6/27/2018	6/28/2018	45'	1
Guest Dock	22	6/27/2018	6/28/2018	50'	1
Guest Dock	20	6/28/2018	6/29/2018	45'	1
Guest Dock	5	6/28/2018	7/2/2018	32'	4
Guest Dock	2	6/28/2018	7/9/2018	30'	11
Guest Dock	9	6/28/2018	7/1/2018	27'	3
Guest Dock	3	6/28/2018	6/30/2018	25'	2
Guest Dock	21	6/28/2018	6/29/2018	34'	1
Guest Dock	19	6/28/2018	7/4/2018	45'	6
Guest Dock	4	6/29/2018	6/30/2018	25'	1
Guest Dock	13	6/29/2018	7/2/2018	30'	3
Guest Dock	28	6/29/2018	7/4/2018	28'	5
Guest Dock	18	6/29/2018	6/30/2018	63'	1
Guest Dock	10	6/29/2018	6/30/2018		1
Guest Dock	14	6/29/2018	6/30/2018	22'	1
Guest Dock	6	6/29/2018	7/2/2018	36'	3
Guest Dock	22	6/30/2018	7/3/2018	38'	3
Guest Dock	26	6/30/2018	7/1/2018	40'	1
Guest Dock	3	6/30/2018	7/1/2018	24'	1
Guest Dock	20	6/30/2018	7/2/2018	63'	2
Guest Dock	21	6/30/2018	7/3/2018	48'	3
Guest Dock	27	6/30/2018	7/1/2018	40'	1
Guest Dock	8	6/30/2018	7/7/2018	24'	7
Guest Dock	10	6/30/2018	7/5/2018	26'	5
Guest Dock	18	6/30/2018	7/7/2018	45'	7
Guest Dock	14	6/30/2018	7/6/2018	22'	6
Guest Dock	4	7/1/2018	7/2/2018	40'	1
Guest Dock	9	7/1/2018	7/5/2018	32'	4
Guest Dock	15	7/1/2018	7/3/2018	27'	2
Guest Dock	3	7/1/2018	7/4/2018	24'	3
Guest Dock	12	7/1/2018	7/2/2018	40'	1
Guest Dock	26	7/1/2018	7/3/2018	32'	2
Guest Dock	27	7/2/2018	7/4/2018	36'	2
Guest Dock	6	7/2/2018	7/3/2018	35'	1
Guest Dock	5	7/2/2018	7/3/2018	15'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	4	7/2/2018	7/3/2018	30'	1
Guest Dock	15	7/3/2018	7/4/2018	42'	1
Guest Dock	6	7/3/2018	7/5/2018	37'	2
Guest Dock	5	7/3/2018	7/9/2018	30'	6
Guest Dock	21	7/3/2018	7/6/2018	45'	3
Guest Dock	11	7/3/2018	7/8/2018	38'	5
Guest Dock	16	7/3/2018	7/6/2018	25'	3
Guest Dock	26	7/3/2018	7/4/2018	30'	1
Guest Dock	12	7/3/2018	7/5/2018	24'	2
Guest Dock	4	7/3/2018	7/7/2018	26'	4
Guest Dock	20	7/3/2018	7/5/2018	45'	2
Guest Dock	15	7/4/2018	7/7/2018	25'	3
Guest Dock	26	7/4/2018	7/5/2018	24'	1
Guest Dock	22	7/4/2018	7/5/2018	48'	1
Guest Dock	27	7/4/2018	7/5/2018	10'	1
Guest Dock	28	7/4/2018	7/7/2018	50'	3
Guest Dock	3	7/4/2018	7/5/2018	42'	1
Guest Dock	10	7/5/2018	7/8/2018	28'	3
Guest Dock	19	7/5/2018	7/6/2018	50'	1
Guest Dock	12	7/5/2018	7/8/2018	25'	3
Guest Dock	26	7/5/2018	7/6/2018	31'	1
Guest Dock	27	7/5/2018	7/7/2018	30'	2
Guest Dock	9	7/5/2018	7/8/2018	26'	3
Guest Dock	3	7/5/2018	7/8/2018	17'	3
Guest Dock	7	7/5/2018	7/10/2018	22'	5
Guest Dock	14	7/6/2018	7/14/2018	25'	8
Guest Dock	13	7/6/2018	7/7/2018	20'	1
Guest Dock	26	7/6/2018	7/8/2018	39'	2
Guest Dock	16	7/6/2018	7/8/2018	22'	2
Guest Dock	22	7/6/2018	7/7/2018	47'	1
Guest Dock	27	7/7/2018	7/8/2018	50'	1
Guest Dock	4	7/7/2018	7/8/2018	21'	1
Guest Dock	18	7/7/2018	7/8/2018	45'	1
Guest Dock	15	7/7/2018	7/9/2018	27'	2
Guest Dock	19	7/7/2018	7/8/2018	49'	1
Guest Dock	22	7/7/2018	7/12/2018	38'	5
Guest Dock	13	7/7/2018	7/10/2018	23'	3
Guest Dock	28	7/7/2018	7/9/2018	30'	2
Guest Dock	8	7/7/2018	7/8/2018	24'	1
Guest Dock	3	7/8/2018	7/9/2018	17'	1
Guest Dock	18	7/8/2018	7/14/2018	53'	6
Guest Dock	8	7/8/2018	7/9/2018	24'	1
Guest Dock	6	7/8/2018	7/9/2018	37'	1
Guest Dock	11	7/8/2018	7/13/2018	38'	5

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	10	7/8/2018	7/15/2018	30'	7
Guest Dock	4	7/8/2018	7/11/2018	28'	3
Guest Dock	20	7/8/2018	7/13/2018	29'	5
Guest Dock	26	7/9/2018	7/10/2018	45'	1
Guest Dock	12	7/9/2018	7/10/2018	32'	1
Guest Dock	15	7/9/2018	7/12/2018	36'	3
Guest Dock	27	7/9/2018	7/10/2018	40'	1
Guest Dock	9	7/9/2018	7/10/2018	40'	1
Guest Dock	5	7/9/2018	7/11/2018	30'	2
Guest Dock	19	7/9/2018	7/11/2018	46'	2
Guest Dock	28	7/9/2018	7/13/2018	37'	4
Guest Dock	6	7/9/2018	7/13/2018	34'	4
Guest Dock	3	7/9/2018	7/10/2018	24'	1
Guest Dock	16	7/9/2018	7/10/2018	38'	1
Guest Dock	21	7/9/2018	7/10/2018	50'	1
Guest Dock	8	7/9/2018	7/10/2018	42'	1
Guest Dock	2	7/9/2018	7/11/2018	38'	2
Guest Dock	27	7/10/2018	7/11/2018	40'	1
Guest Dock	9	7/10/2018	7/13/2018	24'	3
Guest Dock	3	7/10/2018	7/11/2018	34'	1
Guest Dock	16	7/10/2018	7/11/2018	38'	1
Guest Dock	8	7/10/2018	7/11/2018	40'	1
Guest Dock	13	7/10/2018	7/11/2018	42'	1
Guest Dock	12	7/10/2018	7/12/2018	23'	2
Guest Dock	7	7/10/2018	7/11/2018	42'	1
Guest Dock	21	7/10/2018	7/11/2018	45'	1
Guest Dock	26	7/10/2018	7/12/2018	40'	2
Guest Dock	16	7/11/2018	7/14/2018	37'	3
Guest Dock	3	7/11/2018	7/14/2018	50'	3
Guest Dock	21	7/11/2018	7/12/2018	45'	1
Guest Dock	2	7/11/2018	7/14/2018	23'	3
Guest Dock	27	7/11/2018	7/12/2018	38'	1
Guest Dock	7	7/11/2018	7/15/2018	36'	4
Guest Dock	4	7/11/2018	7/15/2018	33'	4
Guest Dock	19	7/11/2018	7/13/2018	46'	2
Guest Dock	8	7/11/2018	7/13/2018	22'	2
Guest Dock	5	7/11/2018	7/12/2018	42'	1
Guest Dock	13	7/11/2018	7/13/2018	28'	2
Guest Dock	12	7/12/2018	7/13/2018	38'	1
Guest Dock	27	7/12/2018	7/13/2018	32'	1
Guest Dock	22	7/12/2018	7/15/2018	38'	3
Guest Dock	5	7/12/2018	7/13/2018	31'	1
Guest Dock	15	7/12/2018	7/15/2018	23'	3
Guest Dock	21	7/12/2018	7/13/2018	30'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	26	7/12/2018	7/13/2018	40'	1
Guest Dock	19	7/13/2018	7/16/2018	51'	3
Guest Dock	5	7/13/2018	7/17/2018	42'	4
Guest Dock	20	7/13/2018	7/16/2018	53'	3
Guest Dock	27	7/13/2018	7/14/2018	38'	1
Guest Dock	12	7/13/2018	7/15/2018	46'	2
Guest Dock	13	7/13/2018	7/15/2018	42'	2
Guest Dock	9	7/13/2018	7/15/2018	44'	2
Guest Dock	6	7/13/2018	7/15/2018	18'	2
Guest Dock	11	7/13/2018	7/15/2018	38'	2
Guest Dock	21	7/13/2018	7/14/2018	56'	1
Guest Dock	2	7/14/2018	7/15/2018	24'	1
Guest Dock	3	7/14/2018	7/15/2018	38'	1
Guest Dock	26	7/14/2018	7/24/2018	37'	10
Guest Dock	14	7/14/2018	7/15/2018	28'	1
Guest Dock	27	7/14/2018	7/15/2018	34'	1
Guest Dock	16	7/14/2018	7/27/2018	43'	13
Guest Dock	18	7/15/2018	7/16/2018	46'	1
Guest Dock	8	7/15/2018	7/16/2018	30'	1
Guest Dock	3	7/15/2018	7/16/2018	38'	1
Guest Dock	9	7/15/2018	7/16/2018	34'	1
Guest Dock	7	7/15/2018	7/18/2018	40'	3
Guest Dock	10	7/15/2018	7/16/2018	44'	1
Guest Dock	22	7/15/2018	7/17/2018	38'	2
Guest Dock	27	7/15/2018	7/18/2018	40'	3
Guest Dock	14	7/15/2018	7/18/2018	22'	3
Guest Dock	11	7/15/2018	7/16/2018	29'	1
Guest Dock	28	7/15/2018	7/16/2018	40'	1
Guest Dock	28	7/16/2018	7/17/2018	40'	1
Guest Dock	18	7/16/2018	7/18/2018	50'	2
Guest Dock	8	7/16/2018	7/18/2018	38'	2
Guest Dock	2	7/16/2018	7/17/2018	38'	1
Guest Dock	19	7/16/2018	7/18/2018	46'	2
Guest Dock	4	7/16/2018	7/19/2018	43'	3
Guest Dock	3	7/16/2018	7/17/2018	28'	1
Guest Dock	11	7/16/2018	7/23/2018	30'	7
Guest Dock	9	7/16/2018	7/17/2018	34'	1
Guest Dock	13	7/16/2018	7/17/2018	18'	1
Guest Dock	15	7/16/2018	7/20/2018	34'	4
Guest Dock	6	7/16/2018	7/17/2018	35'	1
Guest Dock	12	7/16/2018	7/18/2018	53'	2
Guest Dock	21	7/16/2018	7/23/2018	46'	7
Guest Dock	10	7/16/2018	7/20/2018	35'	4
Guest Dock	6	7/17/2018	7/18/2018	35'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	3	7/17/2018	7/20/2018	28'	3
Guest Dock	5	7/17/2018	7/18/2018	38'	1
Guest Dock	13	7/17/2018	7/18/2018	29'	1
Guest Dock	9	7/17/2018	7/18/2018	34'	1
Guest Dock	2	7/17/2018	7/20/2018	36'	3
Guest Dock	22	7/17/2018	7/19/2018	38'	2
Guest Dock	28	7/17/2018	7/18/2018	40'	1
Guest Dock	5	7/18/2018	7/19/2018	38'	1
Guest Dock	28	7/18/2018	7/19/2018	40'	1
Guest Dock	9	7/18/2018	7/21/2018	34'	3
Guest Dock	19	7/18/2018	7/19/2018	46'	1
Guest Dock	27	7/18/2018	7/21/2018	32'	3
Guest Dock	6	7/18/2018	7/20/2018	42'	2
Guest Dock	7	7/18/2018	7/19/2018	38'	1
Guest Dock	18	7/18/2018	7/21/2018	63'	3
Guest Dock	8	7/18/2018	7/23/2018	53'	5
Guest Dock	13	7/19/2018	7/26/2018	26'	7
Guest Dock	28	7/19/2018	7/21/2018	35'	2
Guest Dock	4	7/19/2018	7/20/2018	32'	1
Guest Dock	7	7/19/2018	7/21/2018	36'	2
Guest Dock	22	7/19/2018	7/22/2018	46'	3
Guest Dock	4	7/20/2018	7/23/2018	26'	3
Guest Dock	5	7/20/2018	7/21/2018	36'	1
Guest Dock	14	7/20/2018	7/23/2018	26'	3
Guest Dock	15	7/20/2018	7/23/2018	27'	3
Guest Dock	6	7/20/2018	7/23/2018	42'	3
Guest Dock	10	7/20/2018	7/21/2018	45'	1
Guest Dock	3	7/20/2018	7/21/2018	28'	1
Guest Dock	2	7/20/2018	7/22/2018	23'	2
Guest Dock	27	7/21/2018	7/22/2018	32'	1
Guest Dock	12	7/21/2018	7/23/2018	28'	2
Guest Dock	7	7/21/2018	7/31/2018	36'	10
Guest Dock	9	7/21/2018	7/22/2018	34'	1
Guest Dock	3	7/21/2018	7/22/2018	36'	1
Guest Dock	5	7/21/2018	7/22/2018	25'	1
Guest Dock	18	7/21/2018	7/22/2018	45'	1
Guest Dock	10	7/21/2018	7/22/2018	41'	1
Guest Dock	28	7/21/2018	7/22/2018	35'	1
Guest Dock	5	7/22/2018	7/23/2018	32'	1
Guest Dock	3	7/22/2018	7/24/2018	36'	2
Guest Dock	10	7/22/2018	7/23/2018	41'	1
Guest Dock	2	7/22/2018	7/23/2018	50'	1
Guest Dock	27	7/22/2018	7/23/2018	34'	1
Guest Dock	18	7/22/2018	7/23/2018	45'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	28	7/22/2018	7/23/2018	35'	1
Guest Dock	9	7/23/2018	8/7/2018	38'	15
Guest Dock	5	7/23/2018	7/26/2018	21'	3
Guest Dock	12	7/23/2018	7/24/2018	53'	1
Guest Dock	28	7/23/2018	7/24/2018	38'	1
Guest Dock	2	7/23/2018	7/24/2018	30'	1
Guest Dock	14	7/23/2018	7/28/2018	22'	5
Guest Dock	15	7/23/2018	7/24/2018	34'	1
Guest Dock	8	7/23/2018	7/30/2018	30'	7
Guest Dock	22	7/23/2018	7/24/2018	45'	1
Guest Dock	27	7/23/2018	7/25/2018	32'	2
Guest Dock	15	7/24/2018	7/25/2018	34'	1
Guest Dock	11	7/24/2018	7/25/2018	30'	1
Guest Dock	10	7/24/2018	7/28/2018	41'	4
Guest Dock	26	7/24/2018	7/27/2018	40'	3
Guest Dock	22	7/24/2018	7/26/2018	61'	2
Guest Dock	2	7/24/2018	7/26/2018	36'	2
Guest Dock	3	7/24/2018	7/25/2018	36'	1
Guest Dock	19	7/24/2018	7/25/2018	63'	1
Guest Dock	4	7/24/2018	7/25/2018	29'	1
Guest Dock	12	7/24/2018	7/27/2018	53'	3
Guest Dock	18	7/24/2018	7/26/2018	47'	2
Guest Dock	20	7/24/2018	7/26/2018	46'	2
Guest Dock	21	7/24/2018	7/26/2018	64'	2
Guest Dock	4	7/25/2018	7/27/2018	34'	2
Guest Dock	15	7/25/2018	8/5/2018	34'	11
Guest Dock	11	7/25/2018	7/26/2018	28'	1
Guest Dock	6	7/25/2018	7/26/2018	36'	1
Guest Dock	19	7/25/2018	7/28/2018	45'	3
Guest Dock	21	7/26/2018	7/29/2018	57'	3
Guest Dock	6	7/26/2018	7/27/2018	36'	1
Guest Dock	2	7/26/2018	7/28/2018	36'	2
Guest Dock	13	7/26/2018	7/27/2018	35'	1
Guest Dock	20	7/26/2018	7/27/2018	46'	1
Guest Dock	11	7/26/2018	7/29/2018	26'	3
Guest Dock	5	7/26/2018	7/28/2018	43'	2
Guest Dock	26	7/27/2018	7/28/2018	40'	1
Guest Dock	12	7/27/2018	7/28/2018	53'	1
Guest Dock	27	7/27/2018	7/29/2018	41'	2
Guest Dock	28	7/27/2018	7/29/2018	38'	2
Guest Dock	13	7/27/2018	7/28/2018	36'	1
Guest Dock	3	7/27/2018	7/28/2018	27'	1
Guest Dock	6	7/27/2018	7/29/2018	34'	2
Guest Dock	16	7/27/2018	7/29/2018	48'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	10	7/28/2018	7/29/2018	41'	1
Guest Dock	12	7/28/2018	7/29/2018	41'	1
Guest Dock	14	7/28/2018	8/1/2018	40'	4
Guest Dock	5	7/28/2018	7/29/2018	33'	1
Guest Dock	26	7/28/2018	7/29/2018	38'	1
Guest Dock	13	7/28/2018	7/29/2018	36'	1
Guest Dock	2	7/28/2018	7/29/2018	36'	1
Guest Dock	10	7/29/2018	7/31/2018	41'	2
Guest Dock	22	7/29/2018	8/2/2018	50'	4
Guest Dock	28	7/29/2018	7/30/2018	38'	1
Guest Dock	18	7/29/2018	7/30/2018	50'	1
Guest Dock	27	7/29/2018	7/31/2018	42'	2
Guest Dock	5	7/29/2018	7/30/2018	36'	1
Guest Dock	16	7/29/2018	8/3/2018	29'	5
Guest Dock	13	7/29/2018	8/1/2018	41'	3
Guest Dock	28	7/30/2018	7/31/2018	38'	1
Guest Dock	4	7/30/2018	8/2/2018	34'	3
Guest Dock	19	7/30/2018	8/1/2018	45'	2
Guest Dock	21	7/30/2018	8/1/2018	30'	2
Guest Dock	18	7/30/2018	8/2/2018	50'	3
Guest Dock	6	7/30/2018	7/31/2018	32'	1
Guest Dock	2	7/30/2018	7/31/2018	34'	1
Guest Dock	20	7/30/2018	7/31/2018	45'	1
Guest Dock	3	7/31/2018	8/4/2018	59'	4
Guest Dock	7	7/31/2018	8/2/2018	36'	2
Guest Dock	28	7/31/2018	8/1/2018	38'	1
Guest Dock	20	7/31/2018	8/3/2018	58'	3
Guest Dock	10	7/31/2018	8/3/2018	41'	3
Guest Dock	14	8/1/2018	8/2/2018	40'	1
Guest Dock	21	8/1/2018	8/3/2018	30'	2
Guest Dock	12	8/1/2018	8/3/2018	41'	2
Guest Dock	13	8/1/2018	8/3/2018	41'	2
Guest Dock	2	8/1/2018	8/3/2018	25'	2
Guest Dock	4	8/2/2018	8/5/2018	34'	3
Guest Dock	18	8/2/2018	8/6/2018	50'	4
Guest Dock	19	8/2/2018	8/5/2018	41'	3
Guest Dock	14	8/2/2018	8/3/2018	40'	1
Guest Dock	5	8/2/2018	8/5/2018	27'	3
Guest Dock	26	8/2/2018	8/3/2018	34'	1
Guest Dock	27	8/2/2018	8/3/2018	31'	1
Guest Dock	20	8/3/2018	8/5/2018	58'	2
Guest Dock	7	8/3/2018	8/6/2018	36'	3
Guest Dock	22	8/3/2018	8/5/2018	46'	2
Guest Dock	13	8/3/2018	8/5/2018	25'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	27	8/3/2018	8/4/2018	39'	1
Guest Dock	14	8/3/2018	8/8/2018	29'	5
Guest Dock	16	8/4/2018	8/5/2018	27'	1
Guest Dock	27	8/4/2018	8/5/2018	35'	1
Guest Dock	10	8/4/2018	8/6/2018	41'	2
Guest Dock	8	8/4/2018	8/5/2018	19'	1
Guest Dock	3	8/4/2018	8/8/2018	59'	4
Guest Dock	26	8/4/2018	8/5/2018	20'	1
Guest Dock	8	8/5/2018	8/6/2018	27'	1
Guest Dock	13	8/5/2018	8/7/2018	22'	2
Guest Dock	6	8/5/2018	8/8/2018	34'	3
Guest Dock	11	8/5/2018	8/6/2018	25'	1
Guest Dock	15	8/5/2018	8/9/2018	34'	4
Guest Dock	5	8/5/2018	8/10/2018	29'	5
Guest Dock	4	8/5/2018	8/8/2018	21'	3
Guest Dock	19	8/5/2018	8/7/2018	41'	2
Guest Dock	20	8/6/2018	8/7/2018	35'	1
Guest Dock	10	8/6/2018	8/7/2018	40'	1
Guest Dock	21	8/6/2018	8/9/2018	23'	3
Guest Dock	18	8/6/2018	8/7/2018	45'	1
Guest Dock	11	8/6/2018	8/7/2018	25'	1
Guest Dock	7	8/6/2018	8/7/2018	36'	1
Guest Dock	12	8/6/2018	8/8/2018	19'	2
Guest Dock	22	8/6/2018	8/8/2018	32'	2
Guest Dock	10	8/7/2018	8/8/2018	18'	1
Guest Dock	8	8/7/2018	8/9/2018	22'	2
Guest Dock	7	8/7/2018	8/8/2018	36'	1
Guest Dock	11	8/7/2018	8/8/2018	30'	1
Guest Dock	13	8/7/2018	8/8/2018	22'	1
Guest Dock	19	8/7/2018	8/8/2018	53'	1
Guest Dock	18	8/8/2018	8/9/2018	45'	1
Guest Dock	6	8/8/2018	8/10/2018	18'	2
Guest Dock	11	8/8/2018	8/10/2018	22'	2
Guest Dock	3	8/8/2018	8/9/2018	46'	1
Guest Dock	7	8/8/2018	8/11/2018	34'	3
Guest Dock	28	8/8/2018	8/9/2018	40'	1
Guest Dock	19	8/8/2018	8/10/2018	63'	2
Guest Dock	22	8/8/2018	8/9/2018	32'	1
Guest Dock	20	8/9/2018	8/10/2018	32'	1
Guest Dock	21	8/9/2018	8/12/2018	45'	3
Guest Dock	2	8/9/2018	8/10/2018	24'	1
Guest Dock	22	8/9/2018	8/11/2018	50'	2
Guest Dock	18	8/9/2018	8/10/2018	45'	1
Guest Dock	28	8/9/2018	8/11/2018	30'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	10	8/9/2018	8/11/2018	20'	2
Guest Dock	2	8/10/2018	8/11/2018	24'	1
Guest Dock	19	8/10/2018	8/12/2018	46'	2
Guest Dock	18	8/10/2018	8/11/2018	48'	1
Guest Dock	9	8/10/2018	8/12/2018	22'	2
Guest Dock	26	8/10/2018	8/11/2018	40'	1
Guest Dock	6	8/10/2018	8/19/2018	32'	9
Guest Dock	4	8/10/2018	8/12/2018	35'	2
Guest Dock	14	8/10/2018	8/12/2018	26'	2
Guest Dock	5	8/10/2018	8/11/2018	18'	1
Guest Dock	11	8/10/2018	8/11/2018	36'	1
Guest Dock	22	8/11/2018	8/12/2018	36'	1
Guest Dock	15	8/11/2018	8/12/2018	21'	1
Guest Dock	3	8/11/2018	8/12/2018	40'	1
Guest Dock	8	8/11/2018	8/13/2018	30'	2
Guest Dock	10	8/11/2018	8/12/2018	18'	1
Guest Dock	5	8/11/2018	8/14/2018	25'	3
Guest Dock	7	8/11/2018	8/12/2018	28'	1
Guest Dock	26	8/11/2018	8/13/2018	31'	2
Guest Dock	11	8/11/2018	8/12/2018	39'	1
Guest Dock	28	8/11/2018	8/12/2018	50'	1
Guest Dock	2	8/11/2018	8/12/2018	40'	1
Guest Dock	18	8/11/2018	8/14/2018	53'	3
Guest Dock	22	8/12/2018	8/13/2018	45'	1
Guest Dock	11	8/12/2018	8/13/2018	39'	1
Guest Dock	7	8/12/2018	8/13/2018	40'	1
Guest Dock	10	8/12/2018	8/18/2018	18'	6
Guest Dock	2	8/12/2018	8/27/2018	27'	15
Guest Dock	15	8/12/2018	8/14/2018	42'	2
Guest Dock	21	8/13/2018	8/14/2018	28'	1
Guest Dock	19	8/13/2018	8/14/2018	46'	1
Guest Dock	26	8/13/2018	8/14/2018	42'	1
Guest Dock	13	8/13/2018	8/26/2018	30'	13
Guest Dock	7	8/13/2018	8/14/2018	40'	1
Guest Dock	20	8/13/2018	8/20/2018	30'	7
Guest Dock	12	8/14/2018	8/15/2018	34'	1
Guest Dock	19	8/14/2018	8/15/2018	46'	1
Guest Dock	26	8/14/2018	8/15/2018	42'	1
Guest Dock	3	8/14/2018	8/15/2018	42'	1
Guest Dock	21	8/14/2018	8/15/2018	28'	1
Guest Dock	4	8/14/2018	8/15/2018	38'	1
Guest Dock	21	8/15/2018	8/16/2018	28'	1
Guest Dock	9	8/15/2018	8/18/2018	36'	3
Guest Dock	3	8/15/2018	8/27/2018	37'	12

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	4	8/15/2018	8/16/2018	38'	1
Guest Dock	18	8/15/2018	8/16/2018	53'	1
Guest Dock	27	8/15/2018	8/17/2018	42'	2
Guest Dock	7	8/15/2018	8/16/2018	10'	1
Guest Dock	22	8/15/2018	8/16/2018	45'	1
Guest Dock	16	8/16/2018	8/17/2018	45'	1
Guest Dock	11	8/16/2018	8/17/2018	24'	1
Guest Dock	4	8/16/2018	8/17/2018	31'	1
Guest Dock	12	8/16/2018	8/17/2018	34'	1
Guest Dock	15	8/16/2018	8/17/2018	32'	1
Guest Dock	22	8/16/2018	8/19/2018	54'	3
Guest Dock	5	8/16/2018	8/23/2018	36'	7
Guest Dock	21	8/16/2018	8/17/2018	28'	1
Guest Dock	11	8/17/2018	8/20/2018	14'	3
Guest Dock	19	8/17/2018	8/19/2018	60'	2
Guest Dock	27	8/17/2018	8/18/2018	42'	1
Guest Dock	21	8/17/2018	8/19/2018	45'	2
Guest Dock	18	8/17/2018	8/19/2018	38'	2
Guest Dock	12	8/17/2018	8/18/2018	42'	1
Guest Dock	15	8/17/2018	8/20/2018	46'	3
Guest Dock	9	8/18/2018	8/20/2018	36'	2
Guest Dock	27	8/18/2018	8/22/2018	42'	4
Guest Dock	7	8/18/2018	8/21/2018	32'	3
Guest Dock	10	8/18/2018	8/25/2018	18'	7
Guest Dock	12	8/18/2018	8/21/2018	24'	3
Guest Dock	28	8/19/2018	8/21/2018	40'	2
Guest Dock	16	8/19/2018	8/20/2018	22'	1
Guest Dock	21	8/19/2018	8/31/2018	54'	12
Guest Dock	22	8/19/2018	8/26/2018	49'	7
Guest Dock	18	8/19/2018	8/20/2018	38'	1
Guest Dock	18	8/20/2018	8/22/2018	45'	2
Guest Dock	19	8/20/2018	8/22/2018	46'	2
Guest Dock	15	8/20/2018	8/21/2018	38'	1
Guest Dock	20	8/20/2018	8/23/2018	45'	3
Guest Dock	6	8/20/2018	8/21/2018	40'	1
Guest Dock	26	8/20/2018	8/21/2018	39'	1
Guest Dock	8	8/20/2018	8/22/2018	30'	2
Guest Dock	11	8/20/2018	8/21/2018	38'	1
Guest Dock	16	8/20/2018	8/24/2018	28'	4
Guest Dock	9	8/20/2018	8/27/2018	30'	7
Guest Dock	4	8/20/2018	8/21/2018	34'	1
Guest Dock	7	8/21/2018	8/23/2018	40'	2
Guest Dock	11	8/21/2018	8/23/2018	38'	2
Guest Dock	6	8/21/2018	8/22/2018	21'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	4	8/21/2018	8/22/2018	34'	1
Guest Dock	15	8/21/2018	8/23/2018	47'	2
Guest Dock	12	8/21/2018	8/22/2018	24'	1
Guest Dock	12	8/22/2018	8/23/2018	24'	1
Guest Dock	6	8/22/2018	8/24/2018	44'	2
Guest Dock	8	8/22/2018	8/24/2018	30'	2
Guest Dock	18	8/22/2018	8/23/2018	45'	1
Guest Dock	28	8/22/2018	8/25/2018	20'	3
Guest Dock	27	8/22/2018	8/23/2018	42'	1
Guest Dock	19	8/23/2018	8/24/2018	45'	1
Guest Dock	18	8/23/2018	8/24/2018	52'	1
Guest Dock	20	8/23/2018	8/24/2018	45'	1
Guest Dock	12	8/23/2018	8/24/2018	24'	1
Guest Dock	5	8/23/2018	8/24/2018	30'	1
Guest Dock	4	8/23/2018	8/24/2018	30'	1
Guest Dock	15	8/23/2018	8/25/2018	47'	2
Guest Dock	11	8/23/2018	8/25/2018	21'	2
Guest Dock	26	8/23/2018	8/26/2018	32'	3
Guest Dock	7	8/23/2018	8/25/2018	35'	2
Guest Dock	19	8/24/2018	8/25/2018	48'	1
Guest Dock	4	8/24/2018	8/27/2018	17'	3
Guest Dock	12	8/24/2018	8/25/2018	24'	1
Guest Dock	8	8/24/2018	8/25/2018	30'	1
Guest Dock	18	8/24/2018	8/26/2018	45'	2
Guest Dock	5	8/24/2018	8/26/2018	30'	2
Guest Dock	14	8/25/2018	8/31/2018	35'	6
Guest Dock	10	8/25/2018	8/28/2018	30'	3
Guest Dock	8	8/25/2018	8/26/2018	35'	1
Guest Dock	19	8/25/2018	8/26/2018	48'	1
Guest Dock	11	8/25/2018	8/29/2018	24'	4
Guest Dock	28	8/25/2018	8/26/2018	50'	1
Guest Dock	7	8/25/2018	9/1/2018	18'	7
Guest Dock	27	8/25/2018	8/28/2018	33'	3
Guest Dock	16	8/25/2018	8/27/2018	27'	2
Guest Dock	26	8/26/2018	8/28/2018	32'	2
Guest Dock	8	8/26/2018	8/27/2018	30'	1
Guest Dock	28	8/26/2018	8/27/2018	39'	1
Guest Dock	22	8/26/2018	8/27/2018	34'	1
Guest Dock	19	8/26/2018	9/4/2018	47'	9
Guest Dock	5	8/26/2018	9/2/2018	44'	7
Guest Dock	18	8/26/2018	8/28/2018	54'	2
Guest Dock	20	8/26/2018	8/29/2018	46'	3
Guest Dock	13	8/26/2018	8/28/2018	30'	2
Guest Dock	9	8/27/2018	8/28/2018	30'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	16	8/27/2018	8/31/2018	28'	4
Guest Dock	4	8/27/2018	8/29/2018	27'	2
Guest Dock	22	8/27/2018	8/28/2018	34'	1
Guest Dock	2	8/27/2018	8/30/2018	19'	3
Guest Dock	3	8/27/2018	8/30/2018	37'	3
Guest Dock	8	8/27/2018	8/29/2018	32'	2
Guest Dock	12	8/27/2018	8/28/2018	28'	1
Guest Dock	12	8/28/2018	8/29/2018	28'	1
Guest Dock	9	8/28/2018	8/31/2018	40'	3
Guest Dock	22	8/28/2018	8/29/2018	34'	1
Guest Dock	26	8/28/2018	8/30/2018	32'	2
Guest Dock	10	8/28/2018	8/29/2018	30'	1
Guest Dock	28	8/28/2018	8/30/2018	40'	2
Guest Dock	13	8/28/2018	8/30/2018	30'	2
Guest Dock	10	8/29/2018	8/30/2018	30'	1
Guest Dock	4	8/29/2018	8/30/2018	27'	1
Guest Dock	11	8/29/2018	8/30/2018	24'	1
Guest Dock	12	8/29/2018	8/30/2018	28'	1
Guest Dock	8	8/29/2018	8/30/2018	32'	1
Guest Dock	4	8/30/2018	9/1/2018	27'	2
Guest Dock	13	8/30/2018	8/31/2018	38'	1
Guest Dock	20	8/30/2018	9/1/2018	46'	2
Guest Dock	18	8/30/2018	8/31/2018	44'	1
Guest Dock	11	8/30/2018	8/31/2018	24'	1
Guest Dock	3	8/30/2018	8/31/2018	37'	1
Guest Dock	28	8/30/2018	9/1/2018	40'	2
Guest Dock	27	8/30/2018	8/31/2018	45'	1
Guest Dock	2	8/30/2018	9/2/2018	30'	3
Guest Dock	10	8/30/2018	8/31/2018	30'	1
Guest Dock	8	8/30/2018	8/31/2018	32'	1
Guest Dock	26	8/30/2018	8/31/2018	30'	1
Guest Dock	13	8/31/2018	9/3/2018	23'	3
Guest Dock	3	8/31/2018	9/3/2018	21'	3
Guest Dock	26	8/31/2018	9/4/2018	40'	4
Guest Dock	14	8/31/2018	9/3/2018	18'	3
Guest Dock	27	8/31/2018	9/1/2018	39'	1
Guest Dock	16	8/31/2018	9/3/2018	39'	3
Guest Dock	9	8/31/2018	9/3/2018	33'	3
Guest Dock	21	8/31/2018	9/1/2018	65'	1
Guest Dock	8	8/31/2018	9/1/2018	27'	1
Guest Dock	22	9/1/2018	9/3/2018	45'	2
Guest Dock	12	9/1/2018	9/3/2018	23'	2
Guest Dock	15	9/1/2018	9/8/2018	18'	7
Guest Dock	8	9/1/2018	9/3/2018	25'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	18	9/1/2018	9/3/2018	34'	2
Guest Dock	11	9/1/2018	9/2/2018	22'	1
Guest Dock	7	9/1/2018	9/3/2018	23'	2
Guest Dock	20	9/1/2018	9/3/2018	60'	2
Guest Dock	4	9/1/2018	9/2/2018	36'	1
Guest Dock	28	9/1/2018	9/6/2018	40'	5
Guest Dock	27	9/1/2018	9/4/2018	33'	3
Guest Dock	5	9/2/2018	9/3/2018	33'	1
Guest Dock	2	9/2/2018	9/3/2018	27'	1
Guest Dock	11	9/2/2018	9/4/2018	50'	2
Guest Dock	3	9/3/2018	9/4/2018	43'	1
Guest Dock	8	9/3/2018	9/5/2018	25'	2
Guest Dock	5	9/3/2018	9/4/2018	32'	1
Guest Dock	6	9/3/2018	9/7/2018	34'	4
Guest Dock	4	9/3/2018	9/4/2018	28'	1
Guest Dock	22	9/3/2018	9/4/2018	45'	1
Guest Dock	16	9/4/2018	9/5/2018	30'	1
Guest Dock	22	9/4/2018	9/5/2018	45'	1
Guest Dock	3	9/4/2018	9/5/2018	27'	1
Guest Dock	7	9/4/2018	9/5/2018	35'	1
Guest Dock	5	9/4/2018	9/6/2018	44'	2
Guest Dock	14	9/4/2018	9/7/2018	27'	3
Guest Dock	2	9/4/2018	9/5/2018	27'	1
Guest Dock	26	9/4/2018	9/6/2018	40'	2
Guest Dock	27	9/4/2018	9/5/2018	39'	1
Guest Dock	9	9/4/2018	9/6/2018	33'	2
Guest Dock	21	9/4/2018	9/7/2018	40'	3
Guest Dock	4	9/4/2018	9/7/2018	28'	3
Guest Dock	2	9/5/2018	9/8/2018	27'	3
Guest Dock	11	9/5/2018	9/12/2018	25'	7
Guest Dock	16	9/5/2018	9/6/2018	30'	1
Guest Dock	27	9/5/2018	9/8/2018	33'	3
Guest Dock	3	9/5/2018	9/6/2018	27'	1
Guest Dock	13	9/6/2018	9/7/2018	38'	1
Guest Dock	19	9/6/2018	9/7/2018	45'	1
Guest Dock	12	9/6/2018	9/9/2018	40'	3
Guest Dock	28	9/6/2018	9/7/2018	26'	1
Guest Dock	7	9/6/2018	9/7/2018	32'	1
Guest Dock	16	9/6/2018	9/7/2018	30'	1
Guest Dock	8	9/6/2018	9/7/2018	32'	1
Guest Dock	26	9/6/2018	9/8/2018	40'	2
Guest Dock	3	9/6/2018	9/21/2018	34'	15
Guest Dock	9	9/6/2018	9/7/2018	18'	1
Guest Dock	19	9/7/2018	9/9/2018	45'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	28	9/7/2018	9/8/2018	45'	1
Guest Dock	7	9/7/2018	9/10/2018	35'	3
Guest Dock	8	9/7/2018	9/11/2018	34'	4
Guest Dock	18	9/7/2018	9/22/2018	57'	15
Guest Dock	5	9/8/2018	9/9/2018	36'	1
Guest Dock	9	9/8/2018	9/11/2018	40'	3
Guest Dock	15	9/8/2018	9/15/2018	18'	7
Guest Dock	26	9/8/2018	9/9/2018	36'	1
Guest Dock	28	9/8/2018	9/9/2018	40'	1
Guest Dock	2	9/8/2018	9/18/2018	27'	10
Guest Dock	16	9/8/2018	9/9/2018	36'	1
Guest Dock	6	9/8/2018	9/9/2018	29'	1
Guest Dock	27	9/8/2018	9/11/2018	33'	3
Guest Dock	13	9/8/2018	9/14/2018	43'	6
Guest Dock	16	9/9/2018	9/10/2018	36'	1
Guest Dock	28	9/9/2018	9/12/2018	34'	3
Guest Dock	12	9/9/2018	9/10/2018	40'	1
Guest Dock	6	9/9/2018	9/14/2018	38'	5
Guest Dock	19	9/9/2018	9/10/2018	45'	1
Guest Dock	5	9/9/2018	9/21/2018	38'	12
Guest Dock	4	9/10/2018	9/11/2018	28'	1
Guest Dock	12	9/10/2018	9/11/2018	32'	1
Guest Dock	19	9/10/2018	9/11/2018	50'	1
Guest Dock	7	9/10/2018	9/11/2018	35'	1
Guest Dock	16	9/10/2018	9/11/2018	38'	1
Guest Dock	21	9/10/2018	9/11/2018	40'	1
Guest Dock	14	9/10/2018	9/20/2018	38'	10
Guest Dock	26	9/10/2018	9/11/2018	36'	1
Guest Dock	20	9/10/2018	9/11/2018	28'	1
Guest Dock	20	9/11/2018	9/12/2018	28'	1
Guest Dock	10	9/11/2018	9/16/2018	40'	5
Guest Dock	22	9/11/2018	9/13/2018	34'	2
Guest Dock	26	9/11/2018	9/14/2018	40'	3
Guest Dock	4	9/11/2018	9/12/2018	36'	1
Guest Dock	9	9/11/2018	9/12/2018	38'	1
Guest Dock	27	9/11/2018	9/15/2018	33'	4
Guest Dock	28	9/12/2018	9/13/2018	38'	1
Guest Dock	4	9/12/2018	9/13/2018	36'	1
Guest Dock	11	9/12/2018	9/13/2018	25'	1
Guest Dock	7	9/12/2018	9/13/2018	10'	1
Guest Dock	20	9/12/2018	9/14/2018	28'	2
Guest Dock	12	9/12/2018	9/15/2018	25'	3
Guest Dock	11	9/13/2018	9/14/2018	0'	1
Guest Dock	22	9/13/2018	9/14/2018	47'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	4	9/13/2018	9/14/2018	30'	1
Guest Dock	16	9/13/2018	9/16/2018	27'	3
Guest Dock	21	9/13/2018	9/16/2018	34'	3
Guest Dock	28	9/13/2018	9/16/2018	34'	3
Guest Dock	6	9/14/2018	9/15/2018	50'	1
Guest Dock	26	9/14/2018	9/15/2018	39'	1
Guest Dock	4	9/14/2018	9/15/2018	30'	1
Guest Dock	22	9/14/2018	9/15/2018	47'	1
Guest Dock	11	9/14/2018	9/16/2018	0'	2
Guest Dock	7	9/15/2018	9/18/2018	35'	3
Guest Dock	26	9/15/2018	9/17/2018	39'	2
Guest Dock	4	9/15/2018	9/17/2018	30'	2
Guest Dock	12	9/15/2018	9/18/2018	26'	3
Guest Dock	6	9/15/2018	9/24/2018	18'	9
Guest Dock	8	9/15/2018	9/17/2018	27'	2
Guest Dock	9	9/15/2018	9/18/2018	25'	3
Guest Dock	22	9/15/2018	9/16/2018	42'	1
Guest Dock	27	9/15/2018	9/16/2018	50'	1
Guest Dock	15	9/16/2018	9/21/2018	29'	5
Guest Dock	13	9/16/2018	10/1/2018	32'	15
Guest Dock	10	9/16/2018	9/17/2018	32'	1
Guest Dock	20	9/16/2018	9/17/2018	50'	1
Guest Dock	27	9/16/2018	9/17/2018	34'	1
Guest Dock	26	9/17/2018	9/20/2018	33'	3
Guest Dock	8	9/17/2018	9/19/2018	27'	2
Guest Dock	28	9/17/2018	9/19/2018	34'	2
Guest Dock	4	9/17/2018	9/18/2018	41'	1
Guest Dock	20	9/17/2018	9/18/2018	30'	1
Guest Dock	16	9/17/2018	9/18/2018	28'	1
Guest Dock	27	9/17/2018	9/18/2018	34'	1
Guest Dock	19	9/17/2018	9/22/2018	50'	5
Guest Dock	10	9/17/2018	9/18/2018	25'	1
Guest Dock	22	9/17/2018	9/18/2018	38'	1
Guest Dock	21	9/17/2018	9/18/2018	32'	1
Guest Dock	20	9/18/2018	9/19/2018	32'	1
Guest Dock	4	9/18/2018	9/19/2018	35'	1
Guest Dock	10	9/18/2018	9/21/2018	25'	3
Guest Dock	12	9/18/2018	9/24/2018	34'	6
Guest Dock	22	9/18/2018	9/19/2018	38'	1
Guest Dock	2	9/18/2018	9/19/2018	25'	1
Guest Dock	9	9/18/2018	9/22/2018	28'	4
Guest Dock	27	9/18/2018	9/19/2018	34'	1
Guest Dock	16	9/18/2018	9/19/2018	28'	1
Guest Dock	11	9/18/2018	9/20/2018	30'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	16	9/19/2018	9/20/2018	28'	1
Guest Dock	8	9/19/2018	9/20/2018	27'	1
Guest Dock	20	9/19/2018	9/26/2018	55'	7
Guest Dock	4	9/19/2018	9/20/2018	35'	1
Guest Dock	28	9/19/2018	9/21/2018	35'	2
Guest Dock	26	9/20/2018	9/23/2018	33'	3
Guest Dock	14	9/20/2018	9/21/2018	35'	1
Guest Dock	27	9/20/2018	9/23/2018	34'	3
Guest Dock	4	9/20/2018	9/21/2018	30'	1
Guest Dock	8	9/20/2018	9/22/2018	27'	2
Guest Dock	14	9/21/2018	9/22/2018	22'	1
Guest Dock	7	9/21/2018	9/24/2018	30'	3
Guest Dock	21	9/21/2018	9/22/2018	46'	1
Guest Dock	4	9/21/2018	9/23/2018	25'	2
Guest Dock	5	9/21/2018	9/22/2018	32'	1
Guest Dock	10	9/21/2018	9/22/2018	25'	1
Guest Dock	5	9/22/2018	9/23/2018	33'	1
Guest Dock	15	9/22/2018	9/24/2018	49'	2
Guest Dock	9	9/22/2018	9/28/2018	28'	6
Guest Dock	10	9/22/2018	9/25/2018	25'	3
Guest Dock	19	9/22/2018	9/23/2018	50'	1
Guest Dock	18	9/22/2018	9/23/2018	62'	1
Guest Dock	14	9/22/2018	9/25/2018	25'	3
Guest Dock	28	9/22/2018	9/23/2018	50'	1
Guest Dock	8	9/22/2018	9/24/2018	27'	2
Guest Dock	21	9/22/2018	9/23/2018	45'	1
Guest Dock	3	9/22/2018	9/23/2018	44'	1
Guest Dock	26	9/23/2018	9/25/2018	37'	2
Guest Dock	4	9/23/2018	9/24/2018	25'	1
Guest Dock	27	9/23/2018	9/26/2018	34'	3
Guest Dock	2	9/24/2018	9/26/2018	34'	2
Guest Dock	3	9/24/2018	9/25/2018	32'	1
Guest Dock	12	9/24/2018	9/25/2018	34'	1
Guest Dock	4	9/24/2018	9/25/2018	38'	1
Guest Dock	19	9/24/2018	9/25/2018	62'	1
Guest Dock	28	9/24/2018	9/25/2018	35'	1
Guest Dock	15	9/24/2018	9/25/2018	30'	1
Guest Dock	8	9/24/2018	9/25/2018	27'	1
Guest Dock	4	9/25/2018	9/26/2018	38'	1
Guest Dock	18	9/25/2018	9/26/2018	62'	1
Guest Dock	26	9/25/2018	9/26/2018	37'	1
Guest Dock	7	9/25/2018	9/28/2018	30'	3
Guest Dock	3	9/25/2018	9/26/2018	32'	1
Guest Dock	15	9/25/2018	9/27/2018	30'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	2	9/26/2018	9/27/2018	32'	1
Guest Dock	20	9/26/2018	9/27/2018	47'	1
Guest Dock	22	9/26/2018	9/28/2018	50'	2
Guest Dock	6	9/26/2018	9/28/2018	28'	2
Guest Dock	27	9/26/2018	9/27/2018	34'	1
Guest Dock	3	9/26/2018	9/27/2018	32'	1
Guest Dock	10	9/26/2018	9/28/2018	27'	2
Guest Dock	15	9/27/2018	10/2/2018	27'	5
Guest Dock	4	9/27/2018	9/29/2018	26'	2
Guest Dock	3	9/27/2018	9/30/2018	40'	3
Guest Dock	5	9/27/2018	9/28/2018	42'	1
Guest Dock	21	9/27/2018	9/28/2018	30'	1
Guest Dock	14	9/27/2018	9/28/2018	32'	1
Guest Dock	8	9/27/2018	9/28/2018	22'	1
Guest Dock	21	9/28/2018	9/30/2018	35'	2
Guest Dock	8	9/28/2018	9/30/2018	42'	2
Guest Dock	6	9/28/2018	10/2/2018	30'	4
Guest Dock	9	9/28/2018	10/3/2018	17'	5
Guest Dock	14	9/28/2018	10/1/2018	23'	3
Guest Dock	10	9/28/2018	9/29/2018	17'	1
Guest Dock	18	9/28/2018	9/30/2018	55'	2
Guest Dock	2	9/28/2018	10/3/2018	19'	5
Guest Dock	28	9/28/2018	10/1/2018	32'	3
Guest Dock	10	9/29/2018	10/6/2018	17'	7
Guest Dock	7	9/29/2018	10/6/2018	21'	7
Guest Dock	5	9/29/2018	9/30/2018	33'	1
Guest Dock	20	9/29/2018	10/2/2018	45'	3
Guest Dock	12	9/29/2018	10/1/2018	21'	2
Guest Dock	3	9/30/2018	10/1/2018	42'	1
Guest Dock	4	9/30/2018	10/1/2018	34'	1
Guest Dock	21	9/30/2018	10/1/2018	50'	1
Guest Dock	26	9/30/2018	10/7/2018	36'	7
Guest Dock	27	9/30/2018	10/1/2018	30'	1
Guest Dock	18	9/30/2018	10/1/2018	45'	1
Guest Dock	4	10/1/2018	10/5/2018	28'	4
Guest Dock	12	10/1/2018	10/6/2018	33'	5
Guest Dock	21	10/1/2018	10/3/2018	56'	2
Guest Dock	16	10/1/2018	10/6/2018	30'	5
Guest Dock	13	10/1/2018	10/2/2018	28'	1
Guest Dock	11	10/1/2018	10/5/2018	30'	4
Guest Dock	14	10/1/2018	10/3/2018	34'	2
Guest Dock	3	10/1/2018	10/2/2018	28'	1
Guest Dock	28	10/1/2018	10/6/2018	32'	5
Guest Dock	18	10/1/2018	10/3/2018	55'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	3	10/2/2018	10/3/2018	28'	1
Guest Dock	15	10/2/2018	10/15/2018	38'	13
Guest Dock	13	10/2/2018	10/3/2018	28'	1
Guest Dock	6	10/2/2018	10/8/2018	30'	6
Guest Dock	19	10/2/2018	10/5/2018	45'	3
Guest Dock	22	10/3/2018	10/4/2018	56'	1
Guest Dock	9	10/3/2018	10/4/2018	23'	1
Guest Dock	2	10/3/2018	10/8/2018	34'	5
Guest Dock	14	10/3/2018	10/4/2018	30'	1
Guest Dock	21	10/3/2018	10/4/2018	51'	1
Guest Dock	21	10/4/2018	10/8/2018	38'	4
Guest Dock	3	10/4/2018	10/5/2018	23'	1
Guest Dock	9	10/4/2018	10/5/2018	30'	1
Guest Dock	14	10/4/2018	10/5/2018	42'	1
Guest Dock	13	10/4/2018	10/8/2018	32'	4
Guest Dock	3	10/5/2018	10/6/2018	38'	1
Guest Dock	18	10/5/2018	10/6/2018	63'	1
Guest Dock	11	10/5/2018	10/7/2018	39'	2
Guest Dock	27	10/5/2018	10/6/2018	30'	1
Guest Dock	5	10/5/2018	10/6/2018	45'	1
Guest Dock	14	10/5/2018	10/6/2018	48'	1
Guest Dock	19	10/5/2018	10/7/2018	47'	2
Guest Dock	9	10/5/2018	10/6/2018	23'	1
Guest Dock	20	10/5/2018	10/7/2018	46'	2
Guest Dock	7	10/6/2018	10/8/2018	21'	2
Guest Dock	9	10/6/2018	10/9/2018	23'	3
Guest Dock	18	10/6/2018	10/7/2018	63'	1
Guest Dock	12	10/6/2018	10/13/2018	24'	7
Guest Dock	16	10/6/2018	10/9/2018	30'	3
Guest Dock	27	10/6/2018	10/7/2018	30'	1
Guest Dock	3	10/6/2018	10/7/2018	44'	1
Guest Dock	3	10/7/2018	10/8/2018	46'	1
Guest Dock	10	10/7/2018	10/10/2018	27'	3
Guest Dock	5	10/7/2018	10/8/2018	24'	1
Guest Dock	20	10/7/2018	10/10/2018	46'	3
Guest Dock	21	10/8/2018	10/9/2018	45'	1
Guest Dock	4	10/8/2018	10/12/2018	44'	4
Guest Dock	11	10/8/2018	10/15/2018	32'	7
Guest Dock	14	10/8/2018	10/9/2018	28'	1
Guest Dock	3	10/8/2018	10/12/2018	28'	4
Guest Dock	6	10/8/2018	10/23/2018	30'	15
Guest Dock	22	10/8/2018	10/9/2018	30'	1
Guest Dock	2	10/8/2018	10/9/2018	28'	1
Guest Dock	7	10/8/2018	10/10/2018	26'	2

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	19	10/9/2018	10/10/2018	32'	1
Guest Dock	22	10/9/2018	10/11/2018	30'	2
Guest Dock	16	10/9/2018	10/11/2018	30'	2
Guest Dock	5	10/9/2018	10/12/2018	42'	3
Guest Dock	14	10/9/2018	10/10/2018	28'	1
Guest Dock	27	10/9/2018	10/10/2018	35'	1
Guest Dock	20	10/10/2018	10/11/2018	46'	1
Guest Dock	21	10/10/2018	10/13/2018	50'	3
Guest Dock	27	10/10/2018	10/11/2018	25'	1
Guest Dock	18	10/10/2018	10/12/2018	65'	2
Guest Dock	9	10/10/2018	10/25/2018	38'	15
Guest Dock	10	10/10/2018	10/12/2018	27'	2
Guest Dock	7	10/10/2018	10/12/2018	26'	2
Guest Dock	19	10/10/2018	10/20/2018	54'	10
Guest Dock	14	10/11/2018	10/12/2018	38'	1
Guest Dock	22	10/11/2018	11/1/2018	0'	21
Guest Dock	26	10/11/2018	10/12/2018	40'	1
Guest Dock	28	10/11/2018	10/15/2018	40'	4
Guest Dock	4	10/12/2018	10/14/2018	26'	2
Guest Dock	27	10/12/2018	10/14/2018	40'	2
Guest Dock	14	10/12/2018	10/14/2018	32'	2
Guest Dock	5	10/12/2018	10/14/2018	25'	2
Guest Dock	7	10/12/2018	10/14/2018	42'	2
Guest Dock	16	10/12/2018	10/15/2018	26'	3
Guest Dock	10	10/12/2018	10/16/2018	17'	4
Guest Dock	26	10/12/2018	10/13/2018	30'	1
Guest Dock	3	10/12/2018	10/13/2018	38'	1
Guest Dock	3	10/13/2018	10/14/2018	38'	1
Guest Dock	20	10/13/2018	10/14/2018	45'	1
Guest Dock	12	10/13/2018	10/14/2018	25'	1
Guest Dock	26	10/13/2018	10/14/2018	32'	1
Guest Dock	14	10/14/2018	10/15/2018	40'	1
Guest Dock	18	10/14/2018	10/17/2018	47'	3
Guest Dock	12	10/14/2018	10/29/2018	45'	15
Guest Dock	3	10/14/2018	10/22/2018	43'	8
Guest Dock	7	10/14/2018	10/15/2018	43'	1
Guest Dock	4	10/14/2018	10/15/2018	32'	1
Guest Dock	21	10/14/2018	10/29/2018	45'	15
Guest Dock	26	10/14/2018	10/19/2018	38'	5
Guest Dock	5	10/14/2018	10/29/2018	40'	15
Guest Dock	16	10/15/2018	10/29/2018	45'	14
Guest Dock	14	10/15/2018	10/16/2018	42'	1
Guest Dock	4	10/15/2018	10/16/2018	38'	1
Guest Dock	8	10/15/2018	10/16/2018	10'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	28	10/15/2018	10/18/2018	31'	3
Guest Dock	24	10/15/2018	10/20/2018	60'	5
Guest Dock	7	10/15/2018	10/18/2018	28'	3
Guest Dock	11	10/15/2018	10/16/2018	26'	1
Guest Dock	15	10/15/2018	10/16/2018	38'	1
Guest Dock	15	10/16/2018	10/17/2018	42'	1
Guest Dock	11	10/16/2018	10/17/2018	38'	1
Guest Dock	20	10/16/2018	10/18/2018	60'	2
Guest Dock	10	10/16/2018	10/23/2018	32'	7
Guest Dock	4	10/16/2018	10/17/2018	32'	1
Guest Dock	8	10/16/2018	10/19/2018	34'	3
Guest Dock	4	10/17/2018	10/18/2018	32'	1
Guest Dock	15	10/17/2018	10/19/2018	30'	2
Guest Dock	11	10/17/2018	10/19/2018	42'	2
Guest Dock	13	10/17/2018	10/19/2018	40'	2
Guest Dock	7	10/18/2018	10/19/2018	42'	1
Guest Dock	2	10/18/2018	10/19/2018	28'	1
Guest Dock	20	10/18/2018	10/23/2018	47'	5
Guest Dock	18	10/18/2018	10/19/2018	45'	1
Guest Dock	28	10/18/2018	10/21/2018	39'	3
Guest Dock	14	10/18/2018	10/29/2018	45'	11
Guest Dock	2	10/19/2018	10/28/2018	40'	9
Guest Dock	15	10/19/2018	10/20/2018	33'	1
Guest Dock	8	10/19/2018	10/21/2018	40'	2
Guest Dock	18	10/19/2018	10/21/2018	49'	2
Guest Dock	7	10/19/2018	10/21/2018	40'	2
Guest Dock	11	10/19/2018	10/22/2018	36'	3
Guest Dock	4	10/19/2018	10/21/2018	42'	2
Guest Dock	13	10/19/2018	10/20/2018	47'	1
Guest Dock	26	10/19/2018	10/29/2018	38'	10
Guest Dock	24	10/20/2018	10/23/2018	40'	3
Guest Dock	19	10/20/2018	10/22/2018	50'	2
Guest Dock	15	10/20/2018	10/21/2018	33'	1
Guest Dock	13	10/20/2018	10/25/2018	47'	5
Guest Dock	7	10/21/2018	10/22/2018	38'	1
Guest Dock	18	10/21/2018	10/22/2018	42'	1
Guest Dock	15	10/21/2018	10/25/2018	28'	4
Guest Dock	28	10/21/2018	10/22/2018	30'	1
Guest Dock	8	10/21/2018	10/29/2018	34'	8
Guest Dock	3	10/22/2018	10/26/2018	41'	4
Guest Dock	28	10/22/2018	10/29/2018	37'	7
Guest Dock	19	10/22/2018	10/23/2018	50'	1
Guest Dock	11	10/22/2018	10/24/2018	43'	2
Guest Dock	18	10/22/2018	10/23/2018	45'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	7	10/22/2018	10/29/2018	44'	7
Guest Dock	24	10/23/2018	10/27/2018	40'	4
Guest Dock	20	10/23/2018	10/29/2018	51'	6
Guest Dock	6	10/23/2018	10/29/2018	39'	6
Guest Dock	10	10/23/2018	10/26/2018	36'	3
Guest Dock	18	10/23/2018	10/29/2018	50'	6
Guest Dock	11	10/24/2018	10/25/2018	32'	1
Guest Dock	9	10/25/2018	10/26/2018	36'	1
Guest Dock	11	10/25/2018	11/10/2018	0'	16
Guest Dock	13	10/25/2018	10/26/2018	47'	1
Guest Dock	19	10/25/2018	10/26/2018	45'	1
Guest Dock	13	10/26/2018	10/29/2018	45'	3
Guest Dock	15	10/26/2018	10/27/2018	38'	1
Guest Dock	3	10/26/2018	10/27/2018	40'	1
Guest Dock	10	10/26/2018	10/29/2018	38'	3
Guest Dock	9	10/26/2018	10/27/2018	21'	1
Guest Dock	3	10/27/2018	10/29/2018	42'	2
Guest Dock	9	10/27/2018	10/29/2018	34'	2
Guest Dock	15	10/27/2018	10/29/2018	41'	2
Guest Dock	2	10/28/2018	10/29/2018	40'	1
Guest Dock	20	10/29/2018	10/30/2018	61'	1
Guest Dock	21	10/29/2018	10/30/2018	42'	1
Guest Dock	4	10/29/2018	10/31/2018	30'	2
Guest Dock	2	10/29/2018	10/30/2018	38'	1
Guest Dock	26	10/29/2018	11/2/2018	34'	4
Guest Dock	18	10/29/2018	10/30/2018	64'	1
Guest Dock	12	10/29/2018	10/30/2018	45'	1
Guest Dock	5	10/29/2018	11/6/2018	44'	8
Guest Dock	9	10/29/2018	11/3/2018	28'	5
Guest Dock	27	10/29/2018	10/30/2018	35'	1
Guest Dock	8	10/29/2018	11/1/2018	28'	3
Guest Dock	13	10/29/2018	11/2/2018	30'	4
Guest Dock	28	10/29/2018	11/2/2018	32'	4
Guest Dock	10	10/29/2018	10/30/2018	30'	1
Guest Dock	7	10/29/2018	11/2/2018	42'	4
Guest Dock	20	10/30/2018	11/10/2018	47'	11
Guest Dock	12	10/30/2018	11/1/2018	31'	2
Guest Dock	10	10/30/2018	10/31/2018	35'	1
Guest Dock	6	10/30/2018	10/31/2018	37'	1
Guest Dock	14	10/30/2018	11/3/2018	50'	4
Guest Dock	21	10/30/2018	11/1/2018	58'	2
Guest Dock	27	10/30/2018	10/31/2018	40'	1
Guest Dock	18	10/30/2018	11/1/2018	46'	2
Guest Dock	16	10/31/2018	11/7/2018	37'	7

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	10	10/31/2018	11/2/2018	35'	2
Guest Dock	15	10/31/2018	11/7/2018	37'	7
Guest Dock	4	10/31/2018	11/1/2018	30'	1
Guest Dock	27	11/1/2018	11/4/2018	40'	3
Guest Dock	21	11/1/2018	11/2/2018	58'	1
Guest Dock	6	11/1/2018	11/2/2018	40'	1
Guest Dock	8	11/1/2018	11/2/2018	28'	1
Guest Dock	19	11/1/2018	11/11/2018	50'	10
Guest Dock	18	11/1/2018	11/3/2018	50'	2
Guest Dock	4	11/1/2018	11/2/2018	30'	1
Guest Dock	3	11/1/2018	11/2/2018	36'	1
Guest Dock	12	11/1/2018	11/2/2018	46'	1
Guest Dock	22	11/1/2018	11/10/2018	0'	9
Guest Dock	26	11/2/2018	11/4/2018	40'	2
Guest Dock	28	11/2/2018	11/15/2018	35'	13
Guest Dock	21	11/2/2018	11/4/2018	46'	2
Guest Dock	13	11/2/2018	11/3/2018	36'	1
Guest Dock	12	11/2/2018	11/4/2018	46'	2
Guest Dock	13	11/3/2018	11/6/2018	41'	3
Guest Dock	2	11/3/2018	11/5/2018	32'	2
Guest Dock	3	11/3/2018	11/11/2018	44'	8
Guest Dock	4	11/3/2018	11/5/2018	20'	2
Guest Dock	14	11/3/2018	11/8/2018	36'	5
Guest Dock	26	11/4/2018	11/6/2018	34'	2
Guest Dock	9	11/4/2018	11/11/2018	28'	7
Guest Dock	10	11/4/2018	11/5/2018	36'	1
Guest Dock	27	11/4/2018	11/5/2018	35'	1
Guest Dock	21	11/4/2018	11/5/2018	45'	1
Guest Dock	6	11/4/2018	11/8/2018	33'	4
Guest Dock	12	11/4/2018	11/5/2018	36'	1
Guest Dock	12	11/5/2018	11/7/2018	46'	2
Guest Dock	10	11/5/2018	11/7/2018	42'	2
Guest Dock	7	11/5/2018	11/6/2018	45'	1
Guest Dock	27	11/5/2018	11/6/2018	30'	1
Guest Dock	8	11/5/2018	11/6/2018	34'	1
Guest Dock	2	11/5/2018	11/6/2018	32'	1
Guest Dock	18	11/5/2018	11/8/2018	52'	3
Guest Dock	4	11/5/2018	11/7/2018	35'	2
Guest Dock	27	11/6/2018	11/12/2018	34'	6
Guest Dock	2	11/6/2018	11/9/2018	38'	3
Guest Dock	5	11/6/2018	11/7/2018	40'	1
Guest Dock	13	11/6/2018	11/12/2018	32'	6
Guest Dock	26	11/6/2018	11/10/2018	36'	4
Guest Dock	4	11/7/2018	11/8/2018	40'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	10	11/7/2018	11/10/2018	30'	3
Guest Dock	5	11/7/2018	11/10/2018	42'	3
Guest Dock	16	11/7/2018	11/9/2018	37'	2
Guest Dock	6	11/8/2018	11/11/2018	36'	3
Guest Dock	15	11/8/2018	11/9/2018	40'	1
Guest Dock	4	11/8/2018	11/9/2018	32'	1
Guest Dock	18	11/9/2018	11/10/2018	50'	1
Guest Dock	4	11/9/2018	11/12/2018	28'	3
Guest Dock	15	11/9/2018	11/13/2018	50'	4
Guest Dock	16	11/9/2018	11/12/2018	38'	3
Guest Dock	2	11/9/2018	11/11/2018	21'	2
Guest Dock	20	11/10/2018	11/17/2018	65'	7
Guest Dock	10	11/10/2018	11/11/2018	24'	1
Guest Dock	22	11/10/2018	11/13/2018	0'	3
Guest Dock	12	11/10/2018	11/11/2018	46'	1
Guest Dock	5	11/10/2018	11/11/2018	42'	1
Guest Dock	2	11/11/2018	11/15/2018	19'	4
Guest Dock	12	11/11/2018	11/12/2018	42'	1
Guest Dock	18	11/11/2018	11/13/2018	50'	2
Guest Dock	21	11/11/2018	11/12/2018	46'	1
Guest Dock	19	11/11/2018	11/13/2018	54'	2
Guest Dock	14	11/11/2018	11/13/2018	36'	2
Guest Dock	3	11/11/2018	11/12/2018	42'	1
Guest Dock	21	11/12/2018	11/14/2018	41'	2
Guest Dock	7	11/12/2018	11/14/2018	32'	2
Guest Dock	16	11/12/2018	11/14/2018	46'	2
Guest Dock	3	11/12/2018	11/19/2018	44'	7
Guest Dock	13	11/12/2018	11/13/2018	46'	1
Guest Dock	10	11/12/2018	11/15/2018	34'	3
Guest Dock	4	11/12/2018	11/13/2018	38'	1
Guest Dock	4	11/13/2018	11/15/2018	38'	2
Guest Dock	26	11/13/2018	11/14/2018	32'	1
Guest Dock	27	11/13/2018	11/14/2018	32'	1
Guest Dock	15	11/13/2018	11/14/2018	27'	1
Guest Dock	13	11/13/2018	11/14/2018	22'	1
Guest Dock	12	11/13/2018	11/14/2018	35'	1
Guest Dock	14	11/13/2018	11/15/2018	36'	2
Guest Dock	22	11/13/2018	11/14/2018	31'	1
Guest Dock	18	11/13/2018	11/14/2018	54'	1
Guest Dock	6	11/13/2018	11/15/2018	40'	2
Guest Dock	9	11/13/2018	11/14/2018	41'	1
Guest Dock	19	11/13/2018	11/14/2018	60'	1
Guest Dock	5	11/13/2018	11/15/2018	30'	2
Guest Dock	11	11/13/2018	11/14/2018	34'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	22	11/14/2018	11/16/2018	31'	2
Guest Dock	7	11/14/2018	11/15/2018	32'	1
Guest Dock	26	11/14/2018	11/16/2018	32'	2
Guest Dock	16	11/14/2018	11/17/2018	46'	3
Guest Dock	12	11/14/2018	11/15/2018	35'	1
Guest Dock	15	11/14/2018	11/15/2018	27'	1
Guest Dock	27	11/14/2018	11/16/2018	32'	2
Guest Dock	13	11/14/2018	11/15/2018	38'	1
Guest Dock	11	11/14/2018	11/15/2018	36'	1
Guest Dock	21	11/14/2018	11/17/2018	40'	3
Guest Dock	9	11/14/2018	11/15/2018	40'	1
Guest Dock	11	11/15/2018	11/18/2018	27'	3
Guest Dock	19	11/15/2018	11/16/2018	41'	1
Guest Dock	6	11/15/2018	11/16/2018	44'	1
Guest Dock	15	11/15/2018	11/16/2018	27'	1
Guest Dock	8	11/15/2018	11/30/2018	38'	15
Guest Dock	12	11/15/2018	11/16/2018	35'	1
Guest Dock	4	11/15/2018	11/17/2018	38'	2
Guest Dock	13	11/15/2018	11/16/2018	38'	1
Guest Dock	28	11/15/2018	11/16/2018	40'	1
Guest Dock	5	11/15/2018	11/16/2018	30'	1
Guest Dock	19	11/16/2018	11/18/2018	45'	2
Guest Dock	7	11/16/2018	11/17/2018	30'	1
Guest Dock	28	11/16/2018	11/17/2018	40'	1
Guest Dock	14	11/16/2018	11/19/2018	40'	3
Guest Dock	6	11/17/2018	11/20/2018	39'	3
Guest Dock	16	11/17/2018	11/21/2018	38'	4
Guest Dock	2	11/17/2018	11/19/2018	37'	2
Guest Dock	26	11/17/2018	11/20/2018	40'	3
Guest Dock	20	11/17/2018	11/18/2018	65'	1
Guest Dock	7	11/17/2018	11/21/2018	30'	4
Guest Dock	22	11/17/2018	11/18/2018	52'	1
Guest Dock	4	11/17/2018	11/18/2018	27'	1
Guest Dock	13	11/18/2018	11/19/2018	41'	1
Guest Dock	11	11/18/2018	11/19/2018	21'	1
Guest Dock	15	11/19/2018	11/28/2018	37'	9
Guest Dock	10	11/19/2018	11/21/2018	27'	2
Guest Dock	12	11/19/2018	11/20/2018	35'	1
Guest Dock	19	11/19/2018	11/22/2018	26'	3
Guest Dock	13	11/19/2018	11/22/2018	41'	3
Guest Dock	2	11/19/2018	11/27/2018	30'	8
Guest Dock	9	11/19/2018	11/22/2018	32'	3
Guest Dock	14	11/19/2018	11/29/2018	44'	10
Guest Dock	28	11/19/2018	11/22/2018	20'	3

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	5	11/19/2018	11/22/2018	44'	3
Guest Dock	26	11/20/2018	11/21/2018	40'	1
Guest Dock	4	11/20/2018	11/28/2018	38'	8
Guest Dock	3	11/20/2018	11/22/2018	42'	2
Guest Dock	11	11/20/2018	11/26/2018	25'	6
Guest Dock	22	11/20/2018	11/21/2018	49'	1
Guest Dock	22	11/21/2018	11/22/2018	49'	1
Guest Dock	12	11/21/2018	11/22/2018	34'	1
Guest Dock	27	11/21/2018	11/26/2018	39'	5
Guest Dock	26	11/21/2018	11/22/2018	32'	1
Guest Dock	6	11/21/2018	11/24/2018	37'	3
Guest Dock	16	11/21/2018	11/23/2018	43'	2
Guest Dock	10	11/21/2018	11/24/2018	27'	3
Guest Dock	3	11/22/2018	11/25/2018	26'	3
Guest Dock	7	11/22/2018	12/1/2018	42'	9
Guest Dock	13	11/22/2018	12/2/2018	16'	10
Guest Dock	12	11/23/2018	11/25/2018	40'	2
Guest Dock	16	11/23/2018	11/23/2018	43'	0
Guest Dock	21	11/23/2018	11/25/2018	45'	2
Guest Dock	26	11/23/2018	11/25/2018	40'	2
Guest Dock	10	11/24/2018	11/27/2018	27'	3
Guest Dock	28	11/24/2018	11/25/2018	32'	1
Guest Dock	9	11/24/2018	11/28/2018	20'	4
Guest Dock	19	11/24/2018	11/25/2018	45'	1
Guest Dock	22	11/24/2018	11/25/2018	65'	1
Guest Dock	21	11/25/2018	11/27/2018	51'	2
Guest Dock	26	11/26/2018	11/27/2018	32'	1
Guest Dock	5	11/26/2018	11/28/2018	37'	2
Guest Dock	19	11/26/2018	11/28/2018	35'	2
Guest Dock	11	11/26/2018	11/27/2018	21'	1
Guest Dock	18	11/26/2018	11/27/2018	40'	1
Guest Dock	12	11/26/2018	11/27/2018	30'	1
Guest Dock	16	11/26/2018	11/28/2018	34'	2
Guest Dock	18	11/27/2018	12/4/2018	40'	7
Guest Dock	26	11/27/2018	11/28/2018	32'	1
Guest Dock	10	11/27/2018	11/30/2018	27'	3
Guest Dock	21	11/27/2018	11/28/2018	51'	1
Guest Dock	15	11/28/2018	12/1/2018	37'	3
Guest Dock	4	11/28/2018	11/29/2018	38'	1
Guest Dock	28	11/28/2018	11/30/2018	40'	2
Guest Dock	20	11/28/2018	12/1/2018	46'	3
Guest Dock	16	11/28/2018	12/1/2018	38'	3
Guest Dock	4	11/29/2018	12/2/2018	38'	3
Guest Dock	28	11/30/2018	12/1/2018	40'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	10	11/30/2018	12/3/2018	27'	3
Guest Dock	5	11/30/2018	12/5/2018	27'	5
Guest Dock	6	12/1/2018	12/3/2018	37'	2
Guest Dock	20	12/1/2018	12/2/2018	46'	1
Guest Dock	7	12/1/2018	12/2/2018	42'	1
Guest Dock	19	12/1/2018	12/2/2018	52'	1
Guest Dock	19	12/2/2018	12/3/2018	50'	1
Guest Dock	8	12/2/2018	12/3/2018	32'	1
Guest Dock	13	12/2/2018	12/4/2018	16'	2
Guest Dock	28	12/2/2018	12/4/2018	45'	2
Guest Dock	9	12/2/2018	12/4/2018	39'	2
Guest Dock	15	12/2/2018	12/3/2018	45'	1
Guest Dock	7	12/3/2018	12/4/2018	32'	1
Guest Dock	19	12/3/2018	12/4/2018	50'	1
Guest Dock	2	12/3/2018	12/4/2018	21'	1
Guest Dock	22	12/3/2018	12/7/2018	34'	4
Guest Dock	9	12/4/2018	12/8/2018	36'	4
Guest Dock	12	12/4/2018	12/5/2018	16'	1
Guest Dock	28	12/4/2018	12/5/2018	38'	1
Guest Dock	6	12/4/2018	12/7/2018	26'	3
Guest Dock	15	12/4/2018	12/5/2018	45'	1
Guest Dock	7	12/4/2018	12/7/2018	44'	3
Guest Dock	13	12/4/2018	12/7/2018	39'	3
Guest Dock	26	12/4/2018	12/7/2018	32'	3
Guest Dock	21	12/4/2018	12/7/2018	50'	3
Guest Dock	8	12/4/2018	12/5/2018	32'	1
Guest Dock	4	12/4/2018	12/5/2018	36'	1
Guest Dock	4	12/5/2018	12/6/2018	36'	1
Guest Dock	8	12/5/2018	12/6/2018	32'	1
Guest Dock	5	12/5/2018	12/6/2018	27'	1
Guest Dock	15	12/6/2018	12/7/2018	33'	1
Guest Dock	5	12/6/2018	12/7/2018	27'	1
Guest Dock	16	12/6/2018	12/7/2018	45'	1
Guest Dock	11	12/6/2018	12/7/2018	30'	1
Guest Dock	10	12/6/2018	12/10/2018	25'	4
Guest Dock	28	12/6/2018	12/7/2018	36'	1
Guest Dock	19	12/6/2018	12/14/2018	38'	8
Guest Dock	5	12/7/2018	12/8/2018	27'	1
Guest Dock	15	12/7/2018	12/8/2018	28'	1
Guest Dock	14	12/7/2018	12/8/2018	46'	1
Guest Dock	16	12/7/2018	12/17/2018	26'	10
Guest Dock	13	12/7/2018	12/8/2018	37'	1
Guest Dock	12	12/7/2018	12/8/2018	43'	1
Guest Dock	9	12/8/2018	12/14/2018	36'	6

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	8	12/8/2018	12/10/2018	43'	2
Guest Dock	7	12/8/2018	12/9/2018	42'	1
Guest Dock	14	12/8/2018	12/9/2018	46'	1
Guest Dock	13	12/8/2018	12/9/2018	37'	1
Guest Dock	12	12/8/2018	12/9/2018	35'	1
Guest Dock	15	12/8/2018	12/15/2018	44'	7
Guest Dock	5	12/9/2018	12/13/2018	42'	4
Guest Dock	7	12/9/2018	12/10/2018	40'	1
Guest Dock	12	12/9/2018	12/10/2018	46'	1
Guest Dock	11	12/9/2018	12/10/2018	42'	1
Guest Dock	27	12/9/2018	12/11/2018	0'	2
Guest Dock	6	12/9/2018	12/10/2018	28'	1
Guest Dock	14	12/9/2018	12/10/2018	37'	1
Guest Dock	4	12/9/2018	12/10/2018	40'	1
Guest Dock	13	12/9/2018	12/10/2018	37'	1
Guest Dock	26	12/9/2018	12/14/2018	53'	5
Guest Dock	22	12/10/2018	12/11/2018	45'	1
Guest Dock	20	12/10/2018	12/11/2018	30'	1
Guest Dock	13	12/10/2018	12/11/2018	32'	1
Guest Dock	2	12/10/2018	12/14/2018	19'	4
Guest Dock	14	12/10/2018	12/14/2018	37'	4
Guest Dock	4	12/10/2018	12/12/2018	42'	2
Guest Dock	11	12/10/2018	12/14/2018	34'	4
Guest Dock	6	12/10/2018	12/11/2018	25'	1
Guest Dock	8	12/10/2018	12/12/2018	26'	2
Guest Dock	7	12/10/2018	12/12/2018	35'	2
Guest Dock	12	12/10/2018	12/14/2018	42'	4
Guest Dock	27	12/11/2018	12/13/2018	25'	2
Guest Dock	10	12/11/2018	12/12/2018	38'	1
Guest Dock	13	12/11/2018	12/12/2018	32'	1
Guest Dock	6	12/11/2018	12/12/2018	25'	1
Guest Dock	8	12/12/2018	12/13/2018	10'	1
Guest Dock	13	12/12/2018	12/13/2018	32'	1
Guest Dock	7	12/12/2018	12/16/2018	37'	4
Guest Dock	4	12/13/2018	12/14/2018	42'	1
Guest Dock	13	12/13/2018	12/16/2018	43'	3
Guest Dock	27	12/13/2018	12/14/2018	35'	1
Guest Dock	8	12/13/2018	12/15/2018	43'	2
Guest Dock	6	12/13/2018	12/14/2018	42'	1
Guest Dock	10	12/13/2018	12/14/2018	32'	1
Guest Dock	5	12/13/2018	12/16/2018	41'	3
Guest Dock	4	12/14/2018	12/15/2018	38'	1
Guest Dock	26	12/14/2018	12/16/2018	40'	2
Guest Dock	15	12/15/2018	12/22/2018	44'	7

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	11	12/15/2018	12/16/2018	18'	1
Guest Dock	9	12/15/2018	12/16/2018	27'	1
Guest Dock	4	12/15/2018	12/18/2018	31'	3
Guest Dock	5	12/16/2018	12/17/2018	40'	1
Guest Dock	7	12/16/2018	12/22/2018	27'	6
Guest Dock	13	12/16/2018	12/17/2018	43'	1
Guest Dock	13	12/17/2018	12/22/2018	43'	5
Guest Dock	18	12/17/2018	12/18/2018	45'	1
Guest Dock	9	12/17/2018	12/18/2018	42'	1
Guest Dock	8	12/17/2018	12/20/2018	36'	3
Guest Dock	11	12/17/2018	12/20/2018	35'	3
Guest Dock	4	12/18/2018	12/19/2018	31'	1
Guest Dock	6	12/18/2018	12/21/2018	40'	3
Guest Dock	9	12/18/2018	12/19/2018	42'	1
Guest Dock	26	12/19/2018	12/21/2018	32'	2
Guest Dock	18	12/19/2018	12/21/2018	36'	2
Guest Dock	9	12/19/2018	12/20/2018	42'	1
Guest Dock	10	12/19/2018	12/20/2018	30'	1
Guest Dock	16	12/19/2018	12/21/2018	45'	2
Guest Dock	4	12/19/2018	12/21/2018	42'	2
Guest Dock	21	12/19/2018	12/21/2018	34'	2
Guest Dock	2	12/19/2018	12/20/2018	28'	1
Guest Dock	2	12/20/2018	12/21/2018	27'	1
Guest Dock	14	12/20/2018	12/21/2018	35'	1
Guest Dock	8	12/20/2018	12/23/2018	36'	3
Guest Dock	20	12/20/2018	1/3/2019	38'	14
Guest Dock	3	12/20/2018	12/21/2018	31'	1
Guest Dock	11	12/20/2018	12/21/2018	35'	1
Guest Dock	10	12/20/2018	12/21/2018	30'	1
Guest Dock	9	12/20/2018	12/21/2018	24'	1
Guest Dock	28	12/20/2018	12/21/2018	30'	1
Guest Dock	6	12/21/2018	12/22/2018	40'	1
Guest Dock	28	12/21/2018	12/24/2018	40'	3
Guest Dock	5	12/22/2018	12/29/2018	28'	7
Guest Dock	15	12/22/2018	12/23/2018	44'	1
Guest Dock	2	12/23/2018	12/26/2018	27'	3
Guest Dock	4	12/23/2018	12/25/2018	30'	2
Guest Dock	19	12/23/2018	12/24/2018	46'	1
Guest Dock	3	12/23/2018	12/29/2018	46'	6
Guest Dock	22	12/23/2018	12/27/2018	48'	4
Guest Dock	8	12/24/2018	12/26/2018	37'	2
Guest Dock	7	12/24/2018	12/25/2018	35'	1
Guest Dock	21	12/25/2018	12/27/2018	52'	2
Guest Dock	7	12/25/2018	12/26/2018	30'	1

Marina	Mooring	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
Guest Dock	10	12/25/2018	12/28/2018	30'	3
Guest Dock	8	12/26/2018	12/27/2018	30'	1
Guest Dock	7	12/26/2018	12/30/2018	23'	4
Guest Dock	2	12/26/2018	12/28/2018	30'	2
Guest Dock	14	12/26/2018	12/27/2018	30'	1
Guest Dock	27	12/26/2018	12/28/2018	31'	2
Guest Dock	12	12/26/2018	12/28/2018	42'	2
Guest Dock	16	12/26/2018	12/27/2018	37'	1
Guest Dock	18	12/26/2018	12/28/2018	45'	2
Guest Dock	11	12/26/2018	12/28/2018	44'	2
Guest Dock	4	12/26/2018	12/28/2018	30'	2
Guest Dock	15	12/26/2018	1/2/2019	27'	7
Guest Dock	13	12/26/2018	12/28/2018	36'	2
Guest Dock	26	12/26/2018	12/28/2018	32'	2
Guest Dock	21	12/27/2018	12/28/2018	65'	1
Guest Dock	22	12/27/2018	12/28/2018	52'	1
Guest Dock	8	12/27/2018	12/28/2018	30'	1
Guest Dock	22	12/28/2018	12/29/2018	52'	1
Guest Dock	6	12/28/2018	12/29/2018	35'	1
Guest Dock	12	12/28/2018	12/31/2018	50'	3
Guest Dock	8	12/28/2018	12/31/2018	37'	3
Guest Dock	26	12/29/2018	1/2/2019	40'	4
Guest Dock	13	12/29/2018	12/30/2018	46'	1
Guest Dock	2	12/29/2018	12/31/2018	18'	2
Guest Dock	16	12/29/2018	1/1/2019	29'	3
Guest Dock	4	12/30/2018	1/6/2019	28'	7
Guest Dock	22	12/30/2018	1/1/2019	50'	2
Guest Dock	6	12/30/2018	12/31/2018	35'	1
Guest Dock	13	12/30/2018	1/1/2019	34'	2
Guest Dock	18	12/30/2018	1/2/2019	52'	3
Guest Dock	9	12/30/2018	12/31/2018	38'	1
Guest Dock	19	12/30/2018	1/7/2019	50'	8
Guest Dock	7	12/31/2018	1/1/2019	37'	1
Guest Dock	5	12/31/2018	1/1/2019	39'	1

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	12/18/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	31'	3
A1 La Playa Cove	A1 Anchorage	12/17/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	32'	3
A1 La Playa Cove	A1 Anchorage	12/6/2018	Moorings	Confirmed	12/21/2018	12/24/2018	45'	3
A1 La Playa Cove	A1 Anchorage	8/3/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/18/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	36'	3
A1 La Playa Cove	A1 Anchorage	12/12/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	35'	3
A1 La Playa Cove	A1 Anchorage	10/15/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	37'	3
A1 La Playa Cove	A1 Anchorage	12/16/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	60'	3
A1 La Playa Cove	A1 Anchorage	12/10/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/17/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	45'	3
A1 La Playa Cove	A1 Anchorage	10/25/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	10/16/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/20/2018	WEBSITE	Confirmed	12/21/2018	12/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/13/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/10/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/10/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	37'	3
A1 La Playa Cove	A1 Anchorage	12/12/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	35'	3
A1 La Playa Cove	A1 Anchorage	11/22/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/12/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	32'	3
A1 La Playa Cove	A1 Anchorage	12/12/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	38'	3
A1 La Playa Cove	A1 Anchorage	12/13/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	25'	3
A1 La Playa Cove	A1 Anchorage	12/13/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	36'	3
A1 La Playa Cove	A1 Anchorage	12/13/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	15'	3
A1 La Playa Cove	A1 Anchorage	12/13/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	34'	3
A1 La Playa Cove	A1 Anchorage	12/11/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	42'	3
A1 La Playa Cove	A1 Anchorage	12/13/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	25'	3
A1 La Playa Cove	A1 Anchorage	12/10/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	40'	3
A1 La Playa Cove	A1 Anchorage	12/12/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	26'	3
A1 La Playa Cove	A1 Anchorage	12/13/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	53'	3
A1 La Playa Cove	A1 Anchorage	12/7/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	39'	3
A1 La Playa Cove	A1 Anchorage	12/12/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	46'	3
A1 La Playa Cove	A1 Anchorage	12/13/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	32'	3
A1 La Playa Cove	A1 Anchorage	12/13/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	34'	3
A1 La Playa Cove	A1 Anchorage	12/13/2018	WEBSITE	Confirmed	12/14/2018	12/17/2018	24'	3
A1 La Playa Cove	A1 Anchorage	12/7/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	28'	3
A1 La Playa Cove	A1 Anchorage	12/5/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	24'	3
A1 La Playa Cove	A1 Anchorage	12/6/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/5/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	26'	3
A1 La Playa Cove	A1 Anchorage	12/5/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	27'	3
A1 La Playa Cove	A1 Anchorage	12/3/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	43'	3
A1 La Playa Cove	A1 Anchorage	12/5/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	33'	3
A1 La Playa Cove	A1 Anchorage	12/3/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	63'	3
A1 La Playa Cove	A1 Anchorage	12/4/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	26'	3
A1 La Playa Cove	A1 Anchorage	12/6/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	40'	3
A1 La Playa Cove	A1 Anchorage	12/4/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	25'	3
A1 La Playa Cove	A1 Anchorage	12/4/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	42'	3
A1 La Playa Cove	A1 Anchorage	11/25/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	34'	3
A1 La Playa Cove	A1 Anchorage	12/5/2018	Moorings	Confirmed	12/7/2018	12/10/2018	53'	3
A1 La Playa Cove	A1 Anchorage	12/5/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	34'	3
A1 La Playa Cove	A1 Anchorage	12/4/2018	Moorings	Confirmed	12/7/2018	12/10/2018	32'	3
A1 La Playa Cove	A1 Anchorage	12/5/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	15'	3
A1 La Playa Cove	A1 Anchorage	12/7/2018	Moorings	Confirmed	12/7/2018	12/10/2018	36'	3
A1 La Playa Cove	A1 Anchorage	12/4/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	25'	3
A1 La Playa Cove	A1 Anchorage	12/3/2018	Moorings	Confirmed	12/7/2018	12/10/2018	38'	3
A1 La Playa Cove	A1 Anchorage	12/6/2018	Moorings	Confirmed	12/7/2018	12/10/2018	45'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	12/2/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	28'	3
A1 La Playa Cove	A1 Anchorage	12/3/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	32'	3
A1 La Playa Cove	A1 Anchorage	12/4/2018	Moorings	Confirmed	12/7/2018	12/10/2018	44'	3
A1 La Playa Cove	A1 Anchorage	11/22/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/6/2018	Moorings	Confirmed	12/7/2018	12/10/2018	45'	3
A1 La Playa Cove	A1 Anchorage	12/7/2018	Moorings	Confirmed	12/7/2018	12/10/2018	46'	3
A1 La Playa Cove	A1 Anchorage	12/3/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	37'	3
A1 La Playa Cove	A1 Anchorage	12/5/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/6/2018	WEBSITE	Confirmed	12/7/2018	12/10/2018	30'	3
A1 La Playa Cove	A1 Anchorage	11/27/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	30'	3
A1 La Playa Cove	A1 Anchorage	11/25/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	45'	3
A1 La Playa Cove	A1 Anchorage	11/27/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	45'	3
A1 La Playa Cove	A1 Anchorage	11/21/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	38'	3
A1 La Playa Cove	A1 Anchorage	11/28/2018	Moorings	Confirmed	11/30/2018	12/3/2018	29'	3
A1 La Playa Cove	A1 Anchorage	11/27/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	37'	3
A1 La Playa Cove	A1 Anchorage	11/28/2018	Moorings	Confirmed	11/30/2018	12/3/2018	45'	3
A1 La Playa Cove	A1 Anchorage	11/27/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	15'	3
A1 La Playa Cove	A1 Anchorage	11/27/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	32'	3
A1 La Playa Cove	A1 Anchorage	11/27/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	34'	3
A1 La Playa Cove	A1 Anchorage	11/27/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	36'	3
A1 La Playa Cove	A1 Anchorage	11/25/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	34'	3
A1 La Playa Cove	A1 Anchorage	11/28/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	25'	3
A1 La Playa Cove	A1 Anchorage	11/28/2018	Moorings	Confirmed	11/30/2018	12/3/2018	26'	3
A1 La Playa Cove	A1 Anchorage	11/28/2018	Moorings	Confirmed	11/30/2018	12/3/2018	35'	3
A1 La Playa Cove	A1 Anchorage	11/23/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	63'	3
A1 La Playa Cove	A1 Anchorage	11/28/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	57'	3
A1 La Playa Cove	A1 Anchorage	11/28/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	36'	3
A1 La Playa Cove	A1 Anchorage	11/14/2018	Moorings	Confirmed	11/30/2018	12/3/2018	34'	3
A1 La Playa Cove	A1 Anchorage	11/29/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	37'	3
A1 La Playa Cove	A1 Anchorage	11/27/2018	WEBSITE	Confirmed	11/30/2018	12/3/2018	24'	3
A1 La Playa Cove	A1 Anchorage	11/13/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	33'	3
A1 La Playa Cove	A1 Anchorage	11/13/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	38'	3
A1 La Playa Cove	A1 Anchorage	11/18/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	56'	3
A1 La Playa Cove	A1 Anchorage	11/21/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	24'	3
A1 La Playa Cove	A1 Anchorage	11/19/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	26'	3
A1 La Playa Cove	A1 Anchorage	11/21/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	26'	3
A1 La Playa Cove	A1 Anchorage	11/6/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	35'	3
A1 La Playa Cove	A1 Anchorage	11/19/2018	Moorings	Confirmed	11/23/2018	11/26/2018	26'	3
A1 La Playa Cove	A1 Anchorage	11/21/2018	Moorings	Confirmed	11/23/2018	11/26/2018	34'	3
A1 La Playa Cove	A1 Anchorage	10/29/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	28'	3
A1 La Playa Cove	A1 Anchorage	11/13/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	30'	3
A1 La Playa Cove	A1 Anchorage	10/30/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	32'	3
A1 La Playa Cove	A1 Anchorage	11/19/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	41'	3
A1 La Playa Cove	A1 Anchorage	11/16/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	48'	3
A1 La Playa Cove	A1 Anchorage	11/20/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	34'	3
A1 La Playa Cove	A1 Anchorage	11/15/2018	Moorings	Confirmed	11/23/2018	11/26/2018	45'	3
A1 La Playa Cove	A1 Anchorage	11/19/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018		3
A1 La Playa Cove	A1 Anchorage	11/16/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	35'	3
A1 La Playa Cove	A1 Anchorage	11/19/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	42'	3
A1 La Playa Cove	A1 Anchorage	10/28/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	28'	3
A1 La Playa Cove	A1 Anchorage	9/26/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	30'	3
A1 La Playa Cove	A1 Anchorage	11/20/2018	Moorings	Confirmed	11/23/2018	11/26/2018	45'	3
A1 La Playa Cove	A1 Anchorage	11/13/2018	Moorings	Confirmed	11/23/2018	11/26/2018	44'	3
A1 La Playa Cove	A1 Anchorage	11/18/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	32'	3
A1 La Playa Cove	A1 Anchorage	11/21/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	34'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	11/12/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	25'	3
A1 La Playa Cove	A1 Anchorage	11/19/2018	Moorings	Confirmed	11/23/2018	11/26/2018		3
A1 La Playa Cove	A1 Anchorage	10/14/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	37'	3
A1 La Playa Cove	A1 Anchorage	11/22/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	30'	3
A1 La Playa Cove	A1 Anchorage	11/18/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	37'	3
A1 La Playa Cove	A1 Anchorage	10/14/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	30'	3
A1 La Playa Cove	A1 Anchorage	10/16/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	30'	3
A1 La Playa Cove	A1 Anchorage	11/22/2018	WEBSITE	Confirmed	11/23/2018	11/26/2018	34'	3
A1 La Playa Cove	A1 Anchorage	10/23/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	44'	3
A1 La Playa Cove	A1 Anchorage	11/12/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	50'	3
A1 La Playa Cove	A1 Anchorage	11/12/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	40'	3
A1 La Playa Cove	A1 Anchorage	11/15/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	37'	3
A1 La Playa Cove	A1 Anchorage	10/28/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	48'	3
A1 La Playa Cove	A1 Anchorage	11/13/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	47'	3
A1 La Playa Cove	A1 Anchorage	11/15/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	32'	3
A1 La Playa Cove	A1 Anchorage	11/13/2018	Moorings	Confirmed	11/16/2018	11/19/2018	44'	3
A1 La Playa Cove	A1 Anchorage	10/28/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	30'	3
A1 La Playa Cove	A1 Anchorage	11/13/2018	Moorings	Confirmed	11/16/2018	11/19/2018	31'	3
A1 La Playa Cove	A1 Anchorage	11/13/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018		3
A1 La Playa Cove	A1 Anchorage	11/5/2018	Moorings	Confirmed	11/16/2018	11/19/2018	45'	3
A1 La Playa Cove	A1 Anchorage	11/15/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	25'	3
A1 La Playa Cove	A1 Anchorage	11/15/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	34'	3
A1 La Playa Cove	A1 Anchorage	11/12/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	42'	3
A1 La Playa Cove	A1 Anchorage	10/27/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	34'	3
A1 La Playa Cove	A1 Anchorage	11/13/2018	Moorings	Confirmed	11/16/2018	11/19/2018	26'	3
A1 La Playa Cove	A1 Anchorage	11/7/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	50'	3
A1 La Playa Cove	A1 Anchorage	11/13/2018	Moorings	Confirmed	11/16/2018	11/19/2018	35'	3
A1 La Playa Cove	A1 Anchorage	11/13/2018	WEBSITE	Confirmed	11/16/2018	11/19/2018	24'	3
A1 La Playa Cove	A1 Anchorage	11/7/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	43'	3
A1 La Playa Cove	A1 Anchorage	11/1/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/30/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	33'	3
A1 La Playa Cove	A1 Anchorage	11/7/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	35'	3
A1 La Playa Cove	A1 Anchorage	11/8/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	50'	3
A1 La Playa Cove	A1 Anchorage	11/8/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	34'	3
A1 La Playa Cove	A1 Anchorage	11/9/2018	Moorings	Confirmed	11/9/2018	11/12/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/27/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	34'	3
A1 La Playa Cove	A1 Anchorage	10/29/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	28'	3
A1 La Playa Cove	A1 Anchorage	11/5/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	42'	3
A1 La Playa Cove	A1 Anchorage	11/4/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	38'	3
A1 La Playa Cove	A1 Anchorage	11/8/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/30/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	32'	3
A1 La Playa Cove	A1 Anchorage	11/9/2018	Moorings	Confirmed	11/9/2018	11/12/2018	40'	3
A1 La Playa Cove	A1 Anchorage	11/7/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	25'	3
A1 La Playa Cove	A1 Anchorage	10/29/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	35'	3
A1 La Playa Cove	A1 Anchorage	10/17/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	36'	3
A1 La Playa Cove	A1 Anchorage	10/29/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	45'	3
A1 La Playa Cove	A1 Anchorage	11/7/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018		3
A1 La Playa Cove	A1 Anchorage	11/7/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	31'	3
A1 La Playa Cove	A1 Anchorage	10/28/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	28'	3
A1 La Playa Cove	A1 Anchorage	9/4/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	34'	3
A1 La Playa Cove	A1 Anchorage	11/7/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	52'	3
A1 La Playa Cove	A1 Anchorage	11/5/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	36'	3
A1 La Playa Cove	A1 Anchorage	10/31/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	47'	3
A1 La Playa Cove	A1 Anchorage	10/25/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	30'	3
A1 La Playa Cove	A1 Anchorage	11/6/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	30'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	11/4/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/14/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	37'	3
A1 La Playa Cove	A1 Anchorage	11/7/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	42'	3
A1 La Playa Cove	A1 Anchorage	10/30/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	34'	3
A1 La Playa Cove	A1 Anchorage	10/30/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	26'	3
A1 La Playa Cove	A1 Anchorage	11/5/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	47'	3
A1 La Playa Cove	A1 Anchorage	11/7/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	50'	3
A1 La Playa Cove	A1 Anchorage	11/7/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	36'	3
A1 La Playa Cove	A1 Anchorage	11/8/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/27/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	27'	3
A1 La Playa Cove	A1 Anchorage	10/16/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	30'	3
A1 La Playa Cove	A1 Anchorage	10/13/2018	WEBSITE	Confirmed	11/9/2018	11/12/2018	30'	3
A1 La Playa Cove	A1 Anchorage	11/1/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	47'	3
A1 La Playa Cove	A1 Anchorage	11/1/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	50'	3
A1 La Playa Cove	A1 Anchorage	10/27/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	27'	3
A1 La Playa Cove	A1 Anchorage	10/30/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	36'	3
A1 La Playa Cove	A1 Anchorage	10/30/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	60'	3
A1 La Playa Cove	A1 Anchorage	10/26/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	44'	3
A1 La Playa Cove	A1 Anchorage	10/30/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	32'	3
A1 La Playa Cove	A1 Anchorage	10/31/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	40'	3
A1 La Playa Cove	A1 Anchorage	8/3/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	30'	3
A1 La Playa Cove	A1 Anchorage	10/28/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	28'	3
A1 La Playa Cove	A1 Anchorage	11/1/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	31'	3
A1 La Playa Cove	A1 Anchorage	10/30/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	33'	3
A1 La Playa Cove	A1 Anchorage	10/29/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	45'	3
A1 La Playa Cove	A1 Anchorage	10/17/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	36'	3
A1 La Playa Cove	A1 Anchorage	11/1/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	25'	3
A1 La Playa Cove	A1 Anchorage	11/1/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	29'	3
A1 La Playa Cove	A1 Anchorage	10/29/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	65'	3
A1 La Playa Cove	A1 Anchorage	11/1/2018	Moorings	Confirmed	11/2/2018	11/5/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/14/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/31/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/29/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	42'	3
A1 La Playa Cove	A1 Anchorage	10/29/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	28'	3
A1 La Playa Cove	A1 Anchorage	10/27/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	34'	3
A1 La Playa Cove	A1 Anchorage	11/1/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	26'	3
A1 La Playa Cove	A1 Anchorage	11/1/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	32'	3
A1 La Playa Cove	A1 Anchorage	10/29/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	41'	3
A1 La Playa Cove	A1 Anchorage	10/31/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	38'	3
A1 La Playa Cove	A1 Anchorage	10/30/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	35'	3
A1 La Playa Cove	A1 Anchorage	10/24/2018	WEBSITE	Confirmed	11/2/2018	11/5/2018	43'	3
A1 La Playa Cove	A1 Anchorage	10/18/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	32'	3
A1 La Playa Cove	A1 Anchorage	10/23/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	38'	3
A1 La Playa Cove	A1 Anchorage	9/14/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	21'	3
A1 La Playa Cove	A1 Anchorage	10/15/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/17/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	55'	3
A1 La Playa Cove	A1 Anchorage	10/2/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	60'	3
A1 La Playa Cove	A1 Anchorage	10/12/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	39'	3
A1 La Playa Cove	A1 Anchorage	10/12/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	41'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	41'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	33'	3
A1 La Playa Cove	A1 Anchorage	10/11/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	41'	3
A1 La Playa Cove	A1 Anchorage	10/13/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	47'	3
A1 La Playa Cove	A1 Anchorage	10/15/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	32'	3
A1 La Playa Cove	A1 Anchorage	10/6/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	47'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	48'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	55'	3
A1 La Playa Cove	A1 Anchorage	10/11/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	50'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	36'	3
A1 La Playa Cove	A1 Anchorage	9/12/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	45'	3
A1 La Playa Cove	A1 Anchorage	9/15/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	36'	3
A1 La Playa Cove	A1 Anchorage	9/19/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	46'	3
A1 La Playa Cove	A1 Anchorage	8/7/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	50'	3
A1 La Playa Cove	A1 Anchorage	10/22/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/18/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	25'	3
A1 La Playa Cove	A1 Anchorage	10/17/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	36'	3
A1 La Playa Cove	A1 Anchorage	10/15/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	48'	3
A1 La Playa Cove	A1 Anchorage	10/16/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	48'	3
A1 La Playa Cove	A1 Anchorage	10/18/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	31'	3
A1 La Playa Cove	A1 Anchorage	8/3/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	30'	3
A1 La Playa Cove	A1 Anchorage	10/15/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	43'	3
A1 La Playa Cove	A1 Anchorage	10/17/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	60'	3
A1 La Playa Cove	A1 Anchorage	6/3/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	35'	3
A1 La Playa Cove	A1 Anchorage	9/26/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	36'	3
A1 La Playa Cove	A1 Anchorage	9/14/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	42'	3
A1 La Playa Cove	A1 Anchorage	9/8/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	43'	3
A1 La Playa Cove	A1 Anchorage	9/10/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	42'	3
A1 La Playa Cove	A1 Anchorage	10/17/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	47'	3
A1 La Playa Cove	A1 Anchorage	10/16/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	30'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	43'	3
A1 La Playa Cove	A1 Anchorage	9/26/2018	WEBSITE	Confirmed	10/26/2018	10/29/2018	39'	3
A1 La Playa Cove	A1 Anchorage	10/16/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/26/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	34'	3
A1 La Playa Cove	A1 Anchorage	10/17/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	47'	3
A1 La Playa Cove	A1 Anchorage	10/18/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	50'	3
A1 La Playa Cove	A1 Anchorage	10/15/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	41'	3
A1 La Playa Cove	A1 Anchorage	10/16/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	50'	3
A1 La Playa Cove	A1 Anchorage	10/18/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	27'	3
A1 La Playa Cove	A1 Anchorage	10/2/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	36'	3
A1 La Playa Cove	A1 Anchorage	9/26/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/26/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	34'	3
A1 La Playa Cove	A1 Anchorage	10/12/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	48'	3
A1 La Playa Cove	A1 Anchorage	10/8/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	36'	3
A1 La Playa Cove	A1 Anchorage	10/17/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	34'	3
A1 La Playa Cove	A1 Anchorage	10/9/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	42'	3
A1 La Playa Cove	A1 Anchorage	10/15/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	37'	3
A1 La Playa Cove	A1 Anchorage	10/17/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	36'	3
A1 La Playa Cove	A1 Anchorage	9/16/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/3/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	30'	3
A1 La Playa Cove	A1 Anchorage	10/16/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	32'	3
A1 La Playa Cove	A1 Anchorage	10/16/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	45'	3
A1 La Playa Cove	A1 Anchorage	10/18/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/11/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	34'	3
A1 La Playa Cove	A1 Anchorage	10/16/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	30'	3
A1 La Playa Cove	A1 Anchorage	10/17/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	34'	3
A1 La Playa Cove	A1 Anchorage	10/18/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	27'	3
A1 La Playa Cove	A1 Anchorage	10/9/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	32'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	48'	3
A1 La Playa Cove	A1 Anchorage	10/14/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	47'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	10/4/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	65'	3
A1 La Playa Cove	A1 Anchorage	10/2/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	41'	3
A1 La Playa Cove	A1 Anchorage	10/15/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	33'	3
A1 La Playa Cove	A1 Anchorage	10/15/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/14/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	30'	3
A1 La Playa Cove	A1 Anchorage	10/13/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	43'	3
A1 La Playa Cove	A1 Anchorage	10/15/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/23/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	43'	3
A1 La Playa Cove	A1 Anchorage	10/18/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	35'	3
A1 La Playa Cove	A1 Anchorage	10/16/2018	WEBSITE	Confirmed	10/19/2018	10/22/2018	39'	3
A1 La Playa Cove	A1 Anchorage	9/27/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	31'	3
A1 La Playa Cove	A1 Anchorage	9/30/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	42'	3
A1 La Playa Cove	A1 Anchorage	9/28/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	33'	3
A1 La Playa Cove	A1 Anchorage	10/11/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/12/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018		3
A1 La Playa Cove	A1 Anchorage	10/8/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	28'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	38'	3
A1 La Playa Cove	A1 Anchorage	10/9/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/24/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/11/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	41'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	38'	3
A1 La Playa Cove	A1 Anchorage	10/11/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	29'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	22'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	27'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	32'	3
A1 La Playa Cove	A1 Anchorage	10/8/2018	Moorings	Confirmed	10/12/2018	10/15/2018	44'	3
A1 La Playa Cove	A1 Anchorage	10/11/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	50'	3
A1 La Playa Cove	A1 Anchorage	9/25/2018	Moorings	Confirmed	10/12/2018	10/15/2018	34'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	27'	3
A1 La Playa Cove	A1 Anchorage	9/16/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/15/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	43'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	44'	3
A1 La Playa Cove	A1 Anchorage	9/28/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	31'	3
A1 La Playa Cove	A1 Anchorage	10/9/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	38'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	37'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	36'	3
A1 La Playa Cove	A1 Anchorage	10/11/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	28'	3
A1 La Playa Cove	A1 Anchorage	10/9/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	42'	3
A1 La Playa Cove	A1 Anchorage	10/10/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	47'	3
A1 La Playa Cove	A1 Anchorage	10/11/2018	WEBSITE	Confirmed	10/12/2018	10/15/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/25/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	30'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	28'	3
A1 La Playa Cove	A1 Anchorage	10/1/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	30'	3
A1 La Playa Cove	A1 Anchorage	10/3/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	27'	3
A1 La Playa Cove	A1 Anchorage	10/1/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	40'	3
A1 La Playa Cove	A1 Anchorage	10/2/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	42'	3
A1 La Playa Cove	A1 Anchorage	9/29/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	38'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	28'	3
A1 La Playa Cove	A1 Anchorage	10/3/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/28/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	35'	3
A1 La Playa Cove	A1 Anchorage	10/3/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	37'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	36'	3
A1 La Playa Cove	A1 Anchorage	10/3/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018		3
A1 La Playa Cove	A1 Anchorage	9/27/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	28'	3
A1 La Playa Cove	A1 Anchorage	10/3/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	42'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	9/16/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	32'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	40'	3
A1 La Playa Cove	A1 Anchorage	9/23/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/18/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/18/2018	Moorings	Confirmed	10/5/2018	10/8/2018	44'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/29/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	27'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	22'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	29'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	Moorings	Confirmed	10/5/2018	10/8/2018	45'	3
A1 La Playa Cove	A1 Anchorage	10/2/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018		3
A1 La Playa Cove	A1 Anchorage	9/13/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	34'	3
A1 La Playa Cove	A1 Anchorage	10/2/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/16/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	32'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	Moorings	Confirmed	10/5/2018	10/8/2018	54'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	45'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	38'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	64'	3
A1 La Playa Cove	A1 Anchorage	9/30/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	42'	3
A1 La Playa Cove	A1 Anchorage	9/23/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	47'	3
A1 La Playa Cove	A1 Anchorage	10/3/2018	Moorings	Confirmed	10/5/2018	10/8/2018	26'	3
A1 La Playa Cove	A1 Anchorage	10/3/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	27'	3
A1 La Playa Cove	A1 Anchorage	10/4/2018	WEBSITE	Confirmed	10/5/2018	10/8/2018	25'	3
A1 La Playa Cove	A1 Anchorage	9/27/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/24/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	50'	3
A1 La Playa Cove	A1 Anchorage	9/26/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	29'	3
A1 La Playa Cove	A1 Anchorage	9/26/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	27'	3
A1 La Playa Cove	A1 Anchorage	9/18/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	52'	3
A1 La Playa Cove	A1 Anchorage	9/27/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	40'	3
A1 La Playa Cove	A1 Anchorage	9/13/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/26/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	25'	3
A1 La Playa Cove	A1 Anchorage	9/28/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	38'	3
A1 La Playa Cove	A1 Anchorage	9/26/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	32'	3
A1 La Playa Cove	A1 Anchorage	9/27/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	35'	3
A1 La Playa Cove	A1 Anchorage	9/25/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/19/2018	Moorings	Confirmed	9/28/2018	10/1/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/25/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	42'	3
A1 La Playa Cove	A1 Anchorage	9/24/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	40'	3
A1 La Playa Cove	A1 Anchorage	9/27/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	38'	3
A1 La Playa Cove	A1 Anchorage	9/25/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	31'	3
A1 La Playa Cove	A1 Anchorage	9/25/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/27/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	50'	3
A1 La Playa Cove	A1 Anchorage	9/26/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/31/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	32'	3
A1 La Playa Cove	A1 Anchorage	9/20/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	50'	3
A1 La Playa Cove	A1 Anchorage	9/25/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	28'	3
A1 La Playa Cove	A1 Anchorage	9/16/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	27'	3
A1 La Playa Cove	A1 Anchorage	9/25/2018	WEBSITE	Confirmed	9/28/2018	10/1/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/16/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/24/2018	Moorings	Confirmed	9/21/2018	9/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/13/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/20/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	28'	3
A1 La Playa Cove	A1 Anchorage	9/20/2018	Moorings	Confirmed	9/21/2018	9/24/2018	52'	3
A1 La Playa Cove	A1 Anchorage	9/17/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	40'	3
A1 La Playa Cove	A1 Anchorage	9/12/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	35'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	38'	3
A1 La Playa Cove	A1 Anchorage	9/18/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	49'	3
A1 La Playa Cove	A1 Anchorage	9/16/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	48'	3
A1 La Playa Cove	A1 Anchorage	9/19/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	37'	3
A1 La Playa Cove	A1 Anchorage	9/15/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	36'	3
A1 La Playa Cove	A1 Anchorage	9/17/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/18/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	31'	3
A1 La Playa Cove	A1 Anchorage	9/17/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	28'	3
A1 La Playa Cove	A1 Anchorage	9/19/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	42'	3
A1 La Playa Cove	A1 Anchorage	9/17/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/9/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	32'	3
A1 La Playa Cove	A1 Anchorage	9/5/2018	Moorings	Confirmed	9/21/2018	9/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/18/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	35'	3
A1 La Playa Cove	A1 Anchorage	8/22/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	48'	3
A1 La Playa Cove	A1 Anchorage	9/17/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	33'	3
A1 La Playa Cove	A1 Anchorage	9/20/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	38'	3
A1 La Playa Cove	A1 Anchorage	9/18/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	36'	3
A1 La Playa Cove	A1 Anchorage	7/27/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	32'	3
A1 La Playa Cove	A1 Anchorage	9/17/2018	Moorings	Confirmed	9/21/2018	9/24/2018	65'	3
A1 La Playa Cove	A1 Anchorage	8/28/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	31'	3
A1 La Playa Cove	A1 Anchorage	9/5/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	27'	3
A1 La Playa Cove	A1 Anchorage	9/20/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	48'	3
A1 La Playa Cove	A1 Anchorage	9/13/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/17/2018	Moorings	Confirmed	9/21/2018	9/24/2018	50'	3
A1 La Playa Cove	A1 Anchorage	9/20/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/20/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/20/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	38'	3
A1 La Playa Cove	A1 Anchorage	9/7/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/12/2018	Moorings	Confirmed	9/21/2018	9/24/2018	43'	3
A1 La Playa Cove	A1 Anchorage	9/9/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	33'	3
A1 La Playa Cove	A1 Anchorage	9/12/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	44'	3
A1 La Playa Cove	A1 Anchorage	9/9/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	53'	3
A1 La Playa Cove	A1 Anchorage	9/9/2018	WEBSITE	Confirmed	9/21/2018	9/24/2018	40'	3
A1 La Playa Cove	A1 Anchorage	9/12/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	62'	3
A1 La Playa Cove	A1 Anchorage	9/10/2018	Moorings	Confirmed	9/14/2018	9/17/2018	37'	3
A1 La Playa Cove	A1 Anchorage	9/11/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	45'	3
A1 La Playa Cove	A1 Anchorage	9/8/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	38'	3
A1 La Playa Cove	A1 Anchorage	9/13/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	48'	3
A1 La Playa Cove	A1 Anchorage	9/13/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	25'	3
A1 La Playa Cove	A1 Anchorage	8/22/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	38'	3
A1 La Playa Cove	A1 Anchorage	9/3/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	37'	3
A1 La Playa Cove	A1 Anchorage	8/28/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	32'	3
A1 La Playa Cove	A1 Anchorage	9/4/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	27'	3
A1 La Playa Cove	A1 Anchorage	9/13/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	36'	3
A1 La Playa Cove	A1 Anchorage	9/5/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	46'	3
A1 La Playa Cove	A1 Anchorage	9/8/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	32'	3
A1 La Playa Cove	A1 Anchorage	9/13/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	38'	3
A1 La Playa Cove	A1 Anchorage	9/10/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	42'	3
A1 La Playa Cove	A1 Anchorage	9/12/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	42'	3
A1 La Playa Cove	A1 Anchorage	8/9/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	32'	3
A1 La Playa Cove	A1 Anchorage	9/9/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	40'	3
A1 La Playa Cove	A1 Anchorage	9/13/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/11/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	35'	3
A1 La Playa Cove	A1 Anchorage	9/12/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	28'	3
A1 La Playa Cove	A1 Anchorage	9/10/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	37'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	9/13/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	47'	3
A1 La Playa Cove	A1 Anchorage	9/11/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	36'	3
A1 La Playa Cove	A1 Anchorage	8/3/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/4/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	32'	3
A1 La Playa Cove	A1 Anchorage	9/10/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	50'	3
A1 La Playa Cove	A1 Anchorage	9/12/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	62'	3
A1 La Playa Cove	A1 Anchorage	9/6/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	37'	3
A1 La Playa Cove	A1 Anchorage	9/12/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	27'	3
A1 La Playa Cove	A1 Anchorage	8/7/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/6/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/12/2018	WEBSITE	Confirmed	9/14/2018	9/17/2018	38'	3
A1 La Playa Cove	A1 Anchorage	9/3/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/6/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	30'	3
A1 La Playa Cove	A1 Anchorage	9/4/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	41'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	27'	3
A1 La Playa Cove	A1 Anchorage	9/4/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	50'	3
A1 La Playa Cove	A1 Anchorage	9/6/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	28'	3
A1 La Playa Cove	A1 Anchorage	9/6/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	32'	3
A1 La Playa Cove	A1 Anchorage	9/5/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	47'	3
A1 La Playa Cove	A1 Anchorage	9/5/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	28'	3
A1 La Playa Cove	A1 Anchorage	9/5/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	31'	3
A1 La Playa Cove	A1 Anchorage	9/7/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	42'	3
A1 La Playa Cove	A1 Anchorage	9/4/2018	Moorings	Confirmed	9/7/2018	9/10/2018	38'	3
A1 La Playa Cove	A1 Anchorage	8/30/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	34'	3
A1 La Playa Cove	A1 Anchorage	9/5/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/22/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/2/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	30'	3
A1 La Playa Cove	A1 Anchorage	8/29/2018	Moorings	Confirmed	9/7/2018	9/10/2018	44'	3
A1 La Playa Cove	A1 Anchorage	8/7/2018	Moorings	Confirmed	9/7/2018	9/10/2018	35'	3
A1 La Playa Cove	A1 Anchorage	9/7/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	45'	3
A1 La Playa Cove	A1 Anchorage	9/6/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	32'	3
A1 La Playa Cove	A1 Anchorage	9/5/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	25'	3
A1 La Playa Cove	A1 Anchorage	7/27/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/28/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	42'	3
A1 La Playa Cove	A1 Anchorage	8/27/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	36'	3
A1 La Playa Cove	A1 Anchorage	9/6/2018	Moorings	Confirmed	9/7/2018	9/10/2018	22'	3
A1 La Playa Cove	A1 Anchorage	8/28/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	32'	3
A1 La Playa Cove	A1 Anchorage	9/5/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	27'	3
A1 La Playa Cove	A1 Anchorage	9/1/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	27'	3
A1 La Playa Cove	A1 Anchorage	8/21/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	36'	3
A1 La Playa Cove	A1 Anchorage	9/4/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	38'	3
A1 La Playa Cove	A1 Anchorage	9/2/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	39'	3
A1 La Playa Cove	A1 Anchorage	9/5/2018	WEBSITE	Confirmed	9/7/2018	9/10/2018	31'	3
A1 La Playa Cove	A1 Anchorage	8/14/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	49'	3
A1 La Playa Cove	A1 Anchorage	8/27/2018	Moorings	Confirmed	8/31/2018	9/3/2018	40'	3
A1 La Playa Cove	A1 Anchorage	8/27/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	30'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	44'	3
A1 La Playa Cove	A1 Anchorage	8/17/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	42'	3
A1 La Playa Cove	A1 Anchorage	8/15/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	43'	3
A1 La Playa Cove	A1 Anchorage	8/24/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	28'	3
A1 La Playa Cove	A1 Anchorage	8/24/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	26'	3
A1 La Playa Cove	A1 Anchorage	8/25/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	24'	3
A1 La Playa Cove	A1 Anchorage	8/25/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	34'	3
A1 La Playa Cove	A1 Anchorage	8/26/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	53'	3
A1 La Playa Cove	A1 Anchorage	8/26/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	37'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	8/21/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	43'	3
A1 La Playa Cove	A1 Anchorage	8/8/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/7/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/27/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	38'	3
A1 La Playa Cove	A1 Anchorage	5/14/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	53'	3
A1 La Playa Cove	A1 Anchorage	5/10/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	34'	3
A1 La Playa Cove	A1 Anchorage	8/27/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	27'	3
A1 La Playa Cove	A1 Anchorage	8/30/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	34'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/22/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	30'	3
A1 La Playa Cove	A1 Anchorage	8/13/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	36'	3
A1 La Playa Cove	A1 Anchorage	7/17/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	40'	3
A1 La Playa Cove	A1 Anchorage	1/2/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	36'	3
A1 La Playa Cove	A1 Anchorage	6/19/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	30'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	56'	3
A1 La Playa Cove	A1 Anchorage	8/2/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	34'	3
A1 La Playa Cove	A1 Anchorage	8/6/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	38'	3
A1 La Playa Cove	A1 Anchorage	8/23/2018	Moorings	Confirmed	8/31/2018	9/3/2018	43'	3
A1 La Playa Cove	A1 Anchorage	8/26/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	28'	3
A1 La Playa Cove	A1 Anchorage	4/23/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	46'	3
A1 La Playa Cove	A1 Anchorage	8/22/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	36'	3
A1 La Playa Cove	A1 Anchorage	8/6/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	35'	3
A1 La Playa Cove	A1 Anchorage	4/16/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/9/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/15/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/20/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	41'	3
A1 La Playa Cove	A1 Anchorage	8/22/2018	WEBSITE	Confirmed	8/31/2018	9/3/2018	42'	3
A1 La Playa Cove	A1 Anchorage	4/30/2018	Moorings	Confirmed	8/31/2018	9/3/2018	63'	3
A1 La Playa Cove	A1 Anchorage	8/20/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	53'	3
A1 La Playa Cove	A1 Anchorage	7/31/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	30'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	46'	3
A1 La Playa Cove	A1 Anchorage	8/1/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	27'	3
A1 La Playa Cove	A1 Anchorage	8/20/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	53'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	52'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	62'	3
A1 La Playa Cove	A1 Anchorage	5/4/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	48'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	54'	3
A1 La Playa Cove	A1 Anchorage	8/5/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	42'	3
A1 La Playa Cove	A1 Anchorage	8/9/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	28'	3
A1 La Playa Cove	A1 Anchorage	7/22/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	44'	3
A1 La Playa Cove	A1 Anchorage	8/15/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	37'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	60'	3
A1 La Playa Cove	A1 Anchorage	8/19/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	36'	3
A1 La Playa Cove	A1 Anchorage	8/20/2018	Moorings	Confirmed	8/24/2018	8/27/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/21/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	31'	3
A1 La Playa Cove	A1 Anchorage	8/20/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	42'	3
A1 La Playa Cove	A1 Anchorage	8/20/2018	Moorings	Confirmed	8/24/2018	8/27/2018	28'	3
A1 La Playa Cove	A1 Anchorage	8/20/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/13/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/13/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/26/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	65'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	64'	3
A1 La Playa Cove	A1 Anchorage	8/20/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/27/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	63'	3
A1 La Playa Cove	A1 Anchorage	8/19/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	27'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	8/20/2018	Moorings	Confirmed	8/24/2018	8/27/2018	45'	3
A1 La Playa Cove	A1 Anchorage	8/20/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	35'	3
A1 La Playa Cove	A1 Anchorage	7/11/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	48'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	38'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	42'	3
A1 La Playa Cove	A1 Anchorage	8/17/2018	Moorings	Confirmed	8/24/2018	8/27/2018	38'	3
A1 La Playa Cove	A1 Anchorage	7/26/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/26/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	48'	3
A1 La Playa Cove	A1 Anchorage	7/27/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	54'	3
A1 La Playa Cove	A1 Anchorage	8/1/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	64'	3
A1 La Playa Cove	A1 Anchorage	8/20/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	22'	3
A1 La Playa Cove	A1 Anchorage	7/3/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	27'	3
A1 La Playa Cove	A1 Anchorage	8/21/2018	WEBSITE	Confirmed	8/24/2018	8/27/2018	22'	3
A1 La Playa Cove	A1 Anchorage	8/15/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	42'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	27'	3
A1 La Playa Cove	A1 Anchorage	8/6/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/15/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	22'	3
A1 La Playa Cove	A1 Anchorage	8/5/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	35'	3
A1 La Playa Cove	A1 Anchorage	8/13/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	36'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	39'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	38'	3
A1 La Playa Cove	A1 Anchorage	8/15/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	38'	3
A1 La Playa Cove	A1 Anchorage	7/28/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	41'	3
A1 La Playa Cove	A1 Anchorage	7/31/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	31'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	47'	3
A1 La Playa Cove	A1 Anchorage	8/7/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	28'	3
A1 La Playa Cove	A1 Anchorage	7/27/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	35'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/22/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/12/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	28'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	63'	3
A1 La Playa Cove	A1 Anchorage	8/13/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	42'	3
A1 La Playa Cove	A1 Anchorage	8/12/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	37'	3
A1 La Playa Cove	A1 Anchorage	8/5/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/14/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	35'	3
A1 La Playa Cove	A1 Anchorage	8/8/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	34'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	34'	3
A1 La Playa Cove	A1 Anchorage	8/8/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	36'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	Moorings	Confirmed	8/17/2018	8/20/2018	40'	3
A1 La Playa Cove	A1 Anchorage	8/13/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	42'	3
A1 La Playa Cove	A1 Anchorage	8/2/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	44'	3
A1 La Playa Cove	A1 Anchorage	8/13/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	40'	3
A1 La Playa Cove	A1 Anchorage	8/4/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	28'	3
A1 La Playa Cove	A1 Anchorage	8/2/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	46'	3
A1 La Playa Cove	A1 Anchorage	8/15/2018	Moorings	Confirmed	8/17/2018	8/20/2018	42'	3
A1 La Playa Cove	A1 Anchorage	8/1/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	27'	3
A1 La Playa Cove	A1 Anchorage	8/16/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	46'	3
A1 La Playa Cove	A1 Anchorage	7/31/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	30'	3
A1 La Playa Cove	A1 Anchorage	8/9/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	30'	3
A1 La Playa Cove	A1 Anchorage	8/8/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	41'	3
A1 La Playa Cove	A1 Anchorage	8/14/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	50'	3
A1 La Playa Cove	A1 Anchorage	8/13/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	34'	3
A1 La Playa Cove	A1 Anchorage	8/15/2018	WEBSITE	Confirmed	8/17/2018	8/20/2018	44'	3
A1 La Playa Cove	A1 Anchorage	8/1/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	27'	3
A1 La Playa Cove	A1 Anchorage	5/31/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	35'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	8/5/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	40'	3
A1 La Playa Cove	A1 Anchorage	8/7/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	44'	3
A1 La Playa Cove	A1 Anchorage	7/30/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/25/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	45'	3
A1 La Playa Cove	A1 Anchorage	8/1/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	36'	3
A1 La Playa Cove	A1 Anchorage	8/2/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	46'	3
A1 La Playa Cove	A1 Anchorage	8/2/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	34'	3
A1 La Playa Cove	A1 Anchorage	6/29/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	48'	3
A1 La Playa Cove	A1 Anchorage	7/24/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/31/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	37'	3
A1 La Playa Cove	A1 Anchorage	8/9/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	36'	3
A1 La Playa Cove	A1 Anchorage	8/9/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	34'	3
A1 La Playa Cove	A1 Anchorage	8/2/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	35'	3
A1 La Playa Cove	A1 Anchorage	8/5/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/28/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	37'	3
A1 La Playa Cove	A1 Anchorage	8/3/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	42'	3
A1 La Playa Cove	A1 Anchorage	7/27/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	63'	3
A1 La Playa Cove	A1 Anchorage	8/5/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	28'	3
A1 La Playa Cove	A1 Anchorage	8/8/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	36'	3
A1 La Playa Cove	A1 Anchorage	7/22/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/1/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	38'	3
A1 La Playa Cove	A1 Anchorage	7/29/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	30'	3
A1 La Playa Cove	A1 Anchorage	8/7/2018	Moorings	Confirmed	8/10/2018	8/13/2018	35'	3
A1 La Playa Cove	A1 Anchorage	7/27/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	35'	3
A1 La Playa Cove	A1 Anchorage	8/9/2018	Moorings	Confirmed	8/10/2018	8/13/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/28/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	41'	3
A1 La Playa Cove	A1 Anchorage	7/30/2018	Moorings	Confirmed	8/10/2018	8/13/2018	45'	3
A1 La Playa Cove	A1 Anchorage	8/9/2018	Moorings	Confirmed	8/10/2018	8/13/2018		3
A1 La Playa Cove	A1 Anchorage	7/30/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/30/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	44'	3
A1 La Playa Cove	A1 Anchorage	7/27/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	39'	3
A1 La Playa Cove	A1 Anchorage	8/4/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	38'	3
A1 La Playa Cove	A1 Anchorage	8/9/2018	Moorings	Confirmed	8/10/2018	8/13/2018	38'	3
A1 La Playa Cove	A1 Anchorage	8/9/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	36'	3
A1 La Playa Cove	A1 Anchorage	8/4/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	27'	3
A1 La Playa Cove	A1 Anchorage	7/11/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	41'	3
A1 La Playa Cove	A1 Anchorage	7/3/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	35'	3
A1 La Playa Cove	A1 Anchorage	7/3/2018	WEBSITE	Confirmed	8/10/2018	8/13/2018	27'	3
A1 La Playa Cove	A1 Anchorage	7/27/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	27'	3
A1 La Playa Cove	A1 Anchorage	7/3/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/30/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	36'	3
A1 La Playa Cove	A1 Anchorage	6/16/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	36'	3
A1 La Playa Cove	A1 Anchorage	7/31/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	31'	3
A1 La Playa Cove	A1 Anchorage	8/1/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	49'	3
A1 La Playa Cove	A1 Anchorage	7/30/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/30/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	36'	3
A1 La Playa Cove	A1 Anchorage	7/24/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	43'	3
A1 La Playa Cove	A1 Anchorage	7/30/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	48'	3
A1 La Playa Cove	A1 Anchorage	7/30/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/28/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	22'	3
A1 La Playa Cove	A1 Anchorage	7/31/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	38'	3
A1 La Playa Cove	A1 Anchorage	7/31/2018	Moorings	Confirmed	8/3/2018	8/6/2018		3
A1 La Playa Cove	A1 Anchorage	7/25/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/30/2018	Moorings	Confirmed	8/3/2018	8/6/2018	45'	3
A1 La Playa Cove	A1 Anchorage	7/25/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	35'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	7/26/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	52'	3
A1 La Playa Cove	A1 Anchorage	8/1/2018	Moorings	Confirmed	8/3/2018	8/6/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	30'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/31/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	31'	3
A1 La Playa Cove	A1 Anchorage	8/3/2018	Moorings	Confirmed	8/3/2018	8/6/2018	28'	3
A1 La Playa Cove	A1 Anchorage	7/28/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	37'	3
A1 La Playa Cove	A1 Anchorage	7/28/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	32'	3
A1 La Playa Cove	A1 Anchorage	8/1/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/31/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	42'	3
A1 La Playa Cove	A1 Anchorage	7/25/2018	Moorings	Confirmed	8/3/2018	8/6/2018	34'	3
A1 La Playa Cove	A1 Anchorage	1/23/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/31/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	37'	3
A1 La Playa Cove	A1 Anchorage	5/19/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	44'	3
A1 La Playa Cove	A1 Anchorage	8/1/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	42'	3
A1 La Playa Cove	A1 Anchorage	7/30/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	50'	3
A1 La Playa Cove	A1 Anchorage	1/8/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/27/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/31/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	63'	3
A1 La Playa Cove	A1 Anchorage	1/5/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	38'	3
A1 La Playa Cove	A1 Anchorage	7/31/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	8/3/2018	8/6/2018	42'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	Moorings	Confirmed	7/27/2018	7/30/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	47'	3
A1 La Playa Cove	A1 Anchorage	7/24/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/1/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	28'	3
A1 La Playa Cove	A1 Anchorage	7/18/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	30'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	27'	3
A1 La Playa Cove	A1 Anchorage	7/16/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	35'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/9/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/24/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	36'	3
A1 La Playa Cove	A1 Anchorage	5/19/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	44'	3
A1 La Playa Cove	A1 Anchorage	7/22/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	37'	3
A1 La Playa Cove	A1 Anchorage	6/25/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/10/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	42'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	37'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	33'	3
A1 La Playa Cove	A1 Anchorage	7/24/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	28'	3
A1 La Playa Cove	A1 Anchorage	7/22/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	42'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/9/2018	Moorings	Confirmed	7/27/2018	7/30/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/25/2018	Moorings	Confirmed	7/27/2018	7/30/2018	35'	3
A1 La Playa Cove	A1 Anchorage	7/22/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	34'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	Moorings	Confirmed	7/27/2018	7/30/2018	45'	3
A1 La Playa Cove	A1 Anchorage	7/1/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	41'	3
A1 La Playa Cove	A1 Anchorage	4/21/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	36'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/18/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	36'	3
A1 La Playa Cove	A1 Anchorage	7/21/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	38'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	7/21/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	49'	3
A1 La Playa Cove	A1 Anchorage	7/24/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/23/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	45'	3
A1 La Playa Cove	A1 Anchorage	7/24/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	42'	3
A1 La Playa Cove	A1 Anchorage	7/22/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	42'	3
A1 La Playa Cove	A1 Anchorage	7/24/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	35'	3
A1 La Playa Cove	A1 Anchorage	7/3/2018	WEBSITE	Confirmed	7/27/2018	7/30/2018	27'	3
A1 La Playa Cove	A1 Anchorage	7/18/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	36'	3
A1 La Playa Cove	A1 Anchorage	7/14/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/16/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	34'	3
A1 La Playa Cove	A1 Anchorage	7/16/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	38'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	38'	3
A1 La Playa Cove	A1 Anchorage	7/18/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	34'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	38'	3
A1 La Playa Cove	A1 Anchorage	7/11/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	37'	3
A1 La Playa Cove	A1 Anchorage	7/16/2018	Moorings	Confirmed	7/20/2018	7/23/2018	45'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/18/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	25'	3
A1 La Playa Cove	A1 Anchorage	7/16/2018	Moorings	Confirmed	7/20/2018	7/23/2018	26'	3
A1 La Playa Cove	A1 Anchorage	7/17/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	31'	3
A1 La Playa Cove	A1 Anchorage	7/15/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	34'	3
A1 La Playa Cove	A1 Anchorage	7/15/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	33'	3
A1 La Playa Cove	A1 Anchorage	6/15/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	55'	3
A1 La Playa Cove	A1 Anchorage	4/27/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/9/2018	Moorings	Confirmed	7/20/2018	7/23/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/9/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	50'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	Moorings	Confirmed	7/20/2018	7/23/2018	28'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	42'	3
A1 La Playa Cove	A1 Anchorage	7/19/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	37'	3
A1 La Playa Cove	A1 Anchorage	7/17/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	62'	3
A1 La Playa Cove	A1 Anchorage	7/18/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	34'	3
A1 La Playa Cove	A1 Anchorage	7/18/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	35'	3
A1 La Playa Cove	A1 Anchorage	7/18/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	34'	3
A1 La Playa Cove	A1 Anchorage	7/17/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	37'	3
A1 La Playa Cove	A1 Anchorage	7/4/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	49'	3
A1 La Playa Cove	A1 Anchorage	7/16/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	42'	3
A1 La Playa Cove	A1 Anchorage	7/18/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/8/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	46'	3
A1 La Playa Cove	A1 Anchorage	6/29/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	36'	3
A1 La Playa Cove	A1 Anchorage	7/15/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/10/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	40'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	27'	3
A1 La Playa Cove	A1 Anchorage	7/17/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/17/2018	WEBSITE	Confirmed	7/20/2018	7/23/2018	35'	3
A1 La Playa Cove	A1 Anchorage	7/9/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/11/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/10/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	30'	3
A1 La Playa Cove	A1 Anchorage	5/25/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	30'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	27'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/9/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	28'	3
A1 La Playa Cove	A1 Anchorage	5/19/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	44'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	6/7/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	36'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	40'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	35'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	34'	3
A1 La Playa Cove	A1 Anchorage	7/11/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	42'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	45'	3
A1 La Playa Cove	A1 Anchorage	7/10/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	37'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	28'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/11/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	40'	3
A1 La Playa Cove	A1 Anchorage	6/18/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	45'	3
A1 La Playa Cove	A1 Anchorage	4/27/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/8/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	34'	3
A1 La Playa Cove	A1 Anchorage	7/10/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	31'	3
A1 La Playa Cove	A1 Anchorage	7/11/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	25'	3
A1 La Playa Cove	A1 Anchorage	7/1/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	41'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	Moorings	Confirmed	7/13/2018	7/16/2018	45'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/11/2018	Moorings	Confirmed	7/13/2018	7/16/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	Moorings	Confirmed	7/13/2018	7/16/2018		3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	30'	3
A1 La Playa Cove	A1 Anchorage	7/8/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	32'	3
A1 La Playa Cove	A1 Anchorage	7/12/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	27'	3
A1 La Playa Cove	A1 Anchorage	7/1/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	44'	3
A1 La Playa Cove	A1 Anchorage	7/2/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	36'	3
A1 La Playa Cove	A1 Anchorage	7/3/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	27'	3
A1 La Playa Cove	A1 Anchorage	7/6/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	42'	3
A1 La Playa Cove	A1 Anchorage	7/10/2018	WEBSITE	Confirmed	7/13/2018	7/16/2018	22'	3
A1 La Playa Cove	A1 Anchorage	6/5/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	46'	3
A1 La Playa Cove	A1 Anchorage	6/30/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	40'	3
A1 La Playa Cove	A1 Anchorage	6/15/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	36'	3
A1 La Playa Cove	A1 Anchorage	6/23/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	48'	3
A1 La Playa Cove	A1 Anchorage	7/4/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	33'	3
A1 La Playa Cove	A1 Anchorage	6/6/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	47'	3
A1 La Playa Cove	A1 Anchorage	4/16/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	47'	3
A1 La Playa Cove	A1 Anchorage	4/7/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	48'	3
A1 La Playa Cove	A1 Anchorage	4/13/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	40'	3
A1 La Playa Cove	A1 Anchorage	6/23/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	35'	3
A1 La Playa Cove	A1 Anchorage	5/20/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	57'	3
A1 La Playa Cove	A1 Anchorage	5/27/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	38'	3
A1 La Playa Cove	A1 Anchorage	6/15/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	21'	3
A1 La Playa Cove	A1 Anchorage	6/6/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	42'	3
A1 La Playa Cove	A1 Anchorage	6/29/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	50'	3
A1 La Playa Cove	A1 Anchorage	7/1/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	28'	3
A1 La Playa Cove	A1 Anchorage	7/5/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	62'	3
A1 La Playa Cove	A1 Anchorage	6/28/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	34'	3
A1 La Playa Cove	A1 Anchorage	6/23/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	42'	3
A1 La Playa Cove	A1 Anchorage	6/10/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	34'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	38'	3
A1 La Playa Cove	A1 Anchorage	4/16/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	50'	3
A1 La Playa Cove	A1 Anchorage	5/1/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	63'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	4/30/2018	Moorings	Confirmed	7/6/2018	7/9/2018	63'	3
A1 La Playa Cove	A1 Anchorage	4/25/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	41'	3
A1 La Playa Cove	A1 Anchorage	6/10/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	45'	3
A1 La Playa Cove	A1 Anchorage	7/5/2018	WEBSITE	Confirmed	7/6/2018	7/9/2018	30'	3
A1 La Playa Cove	A1 Anchorage	6/25/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	50'	3
A1 La Playa Cove	A1 Anchorage	5/31/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	44'	3
A1 La Playa Cove	A1 Anchorage	4/16/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	50'	3
A1 La Playa Cove	A1 Anchorage	5/31/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	27'	3
A1 La Playa Cove	A1 Anchorage	6/27/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	40'	3
A1 La Playa Cove	A1 Anchorage	6/17/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	48'	3
A1 La Playa Cove	A1 Anchorage	6/7/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	50'	3
A1 La Playa Cove	A1 Anchorage	6/28/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/19/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	25'	3
A1 La Playa Cove	A1 Anchorage	5/27/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	38'	3
A1 La Playa Cove	A1 Anchorage	6/27/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	36'	3
A1 La Playa Cove	A1 Anchorage	4/22/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	37'	3
A1 La Playa Cove	A1 Anchorage	6/27/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	36'	3
A1 La Playa Cove	A1 Anchorage	5/22/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	42'	3
A1 La Playa Cove	A1 Anchorage	6/7/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	60'	3
A1 La Playa Cove	A1 Anchorage	7/10/2017	WEBSITE	Confirmed	6/29/2018	7/2/2018	42'	3
A1 La Playa Cove	A1 Anchorage	7/10/2017	WEBSITE	Confirmed	6/29/2018	7/2/2018	41'	3
A1 La Playa Cove	A1 Anchorage	6/22/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	35'	3
A1 La Playa Cove	A1 Anchorage	6/24/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	50'	3
A1 La Playa Cove	A1 Anchorage	6/12/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	31'	3
A1 La Playa Cove	A1 Anchorage	5/27/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	30'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	28'	3
A1 La Playa Cove	A1 Anchorage	6/21/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	42'	3
A1 La Playa Cove	A1 Anchorage	5/28/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	37'	3
A1 La Playa Cove	A1 Anchorage	6/28/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	42'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	45'	3
A1 La Playa Cove	A1 Anchorage	2/16/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	45'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	34'	3
A1 La Playa Cove	A1 Anchorage	6/24/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	27'	3
A1 La Playa Cove	A1 Anchorage	6/25/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	44'	3
A1 La Playa Cove	A1 Anchorage	6/27/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	27'	3
A1 La Playa Cove	A1 Anchorage	6/28/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	25'	3
A1 La Playa Cove	A1 Anchorage	6/5/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	46'	3
A1 La Playa Cove	A1 Anchorage	6/18/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	49'	3
A1 La Playa Cove	A1 Anchorage	6/15/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	36'	3
A1 La Playa Cove	A1 Anchorage	6/22/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/26/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	30'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	6/29/2018	7/2/2018	50'	3
A1 La Playa Cove	A1 Anchorage	6/4/2018	Moorings	Confirmed	6/29/2018	7/2/2018	45'	3
A1 La Playa Cove	A1 Anchorage	6/22/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	45'	3
A1 La Playa Cove	A1 Anchorage	6/20/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	15'	3
A1 La Playa Cove	A1 Anchorage	6/18/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	34'	3
A1 La Playa Cove	A1 Anchorage	6/17/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/17/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	37'	3
A1 La Playa Cove	A1 Anchorage	5/29/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	53'	3
A1 La Playa Cove	A1 Anchorage	6/20/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	42'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	36'	3
A1 La Playa Cove	A1 Anchorage	5/13/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	30'	3
A1 La Playa Cove	A1 Anchorage	6/20/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	43'	3
A1 La Playa Cove	A1 Anchorage	6/21/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	33'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	6/20/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/21/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	36'	3
A1 La Playa Cove	A1 Anchorage	6/16/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/29/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	40'	3
A1 La Playa Cove	A1 Anchorage	5/29/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	40'	3
A1 La Playa Cove	A1 Anchorage	5/29/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	26'	3
A1 La Playa Cove	A1 Anchorage	6/16/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	42'	3
A1 La Playa Cove	A1 Anchorage	6/20/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/20/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	36'	3
A1 La Playa Cove	A1 Anchorage	6/18/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	47'	3
A1 La Playa Cove	A1 Anchorage	6/12/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	38'	3
A1 La Playa Cove	A1 Anchorage	6/21/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	50'	3
A1 La Playa Cove	A1 Anchorage	6/18/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	30'	3
A1 La Playa Cove	A1 Anchorage	6/20/2018	WEBSITE	Confirmed	6/22/2018	6/25/2018	30'	3
A1 La Playa Cove	A1 Anchorage	6/13/2018	Moorings	Confirmed	6/15/2018	6/18/2018	30'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	25'	3
A1 La Playa Cove	A1 Anchorage	5/21/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	42'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	28'	3
A1 La Playa Cove	A1 Anchorage	6/9/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	50'	3
A1 La Playa Cove	A1 Anchorage	6/13/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	46'	3
A1 La Playa Cove	A1 Anchorage	6/11/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	42'	3
A1 La Playa Cove	A1 Anchorage	6/5/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	36'	3
A1 La Playa Cove	A1 Anchorage	5/24/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/11/2018	Moorings	Confirmed	6/15/2018	6/18/2018	41'	3
A1 La Playa Cove	A1 Anchorage	6/11/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	36'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	37'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	Art Street	Confirmed	6/15/2018	6/18/2018	35'	3
A1 La Playa Cove	A1 Anchorage	6/12/2018	Art Street	Confirmed	6/15/2018	6/18/2018	44'	3
A1 La Playa Cove	A1 Anchorage	6/11/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	50'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	Moorings	Confirmed	6/15/2018	6/18/2018	50'	3
A1 La Playa Cove	A1 Anchorage	6/13/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	26'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	31'	3
A1 La Playa Cove	A1 Anchorage	6/13/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	42'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/3/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	25'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	63'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	28'	3
A1 La Playa Cove	A1 Anchorage	6/8/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	25'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	35'	3
A1 La Playa Cove	A1 Anchorage	6/13/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	37'	3
A1 La Playa Cove	A1 Anchorage	6/12/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	33'	3
A1 La Playa Cove	A1 Anchorage	6/12/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	34'	3
A1 La Playa Cove	A1 Anchorage	6/9/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	41'	3
A1 La Playa Cove	A1 Anchorage	6/11/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	43'	3
A1 La Playa Cove	A1 Anchorage	6/8/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	35'	3
A1 La Playa Cove	A1 Anchorage	6/4/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	41'	3
A1 La Playa Cove	A1 Anchorage	6/13/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	15'	3
A1 La Playa Cove	A1 Anchorage	6/14/2018	WEBSITE	Confirmed	6/15/2018	6/18/2018	50'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	50'	3
A1 La Playa Cove	A1 Anchorage	6/5/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	15'	3
A1 La Playa Cove	A1 Anchorage	6/4/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	41'	3
A1 La Playa Cove	A1 Anchorage	6/6/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	27'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	6/5/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	46'	3
A1 La Playa Cove	A1 Anchorage	6/5/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	35'	3
A1 La Playa Cove	A1 Anchorage	6/7/2018	Art Street	Confirmed	6/8/2018	6/11/2018	30'	3
A1 La Playa Cove	A1 Anchorage	6/5/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/6/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	35'	3
A1 La Playa Cove	A1 Anchorage	6/7/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	34'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	25'	3
A1 La Playa Cove	A1 Anchorage	5/31/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/8/2018	Art Street	Confirmed	6/8/2018	6/11/2018	45'	3
A1 La Playa Cove	A1 Anchorage	6/5/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	28'	3
A1 La Playa Cove	A1 Anchorage	6/1/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	63'	3
A1 La Playa Cove	A1 Anchorage	6/6/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	25'	3
A1 La Playa Cove	A1 Anchorage	5/20/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	36'	3
A1 La Playa Cove	A1 Anchorage	2/25/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	54'	3
A1 La Playa Cove	A1 Anchorage	6/2/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	32'	3
A1 La Playa Cove	A1 Anchorage	5/29/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	40'	3
A1 La Playa Cove	A1 Anchorage	3/19/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	34'	3
A1 La Playa Cove	A1 Anchorage	3/20/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	28'	3
A1 La Playa Cove	A1 Anchorage	6/5/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	30'	3
A1 La Playa Cove	A1 Anchorage	6/6/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	31'	3
A1 La Playa Cove	A1 Anchorage	6/7/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	47'	3
A1 La Playa Cove	A1 Anchorage	6/4/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	37'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	35'	3
A1 La Playa Cove	A1 Anchorage	12/28/2017	WEBSITE	Confirmed	6/8/2018	6/11/2018	38'	3
A1 La Playa Cove	A1 Anchorage	5/21/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	36'	3
A1 La Playa Cove	A1 Anchorage	5/21/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	36'	3
A1 La Playa Cove	A1 Anchorage	6/1/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	40'	3
A1 La Playa Cove	A1 Anchorage	4/27/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	35'	3
A1 La Playa Cove	A1 Anchorage	6/5/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	36'	3
A1 La Playa Cove	A1 Anchorage	6/6/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	36'	3
A1 La Playa Cove	A1 Anchorage	2/4/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/16/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	36'	3
A1 La Playa Cove	A1 Anchorage	5/21/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	42'	3
A1 La Playa Cove	A1 Anchorage	6/7/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	27'	3
A1 La Playa Cove	A1 Anchorage	6/6/2018	Art Street	Confirmed	6/8/2018	6/11/2018	32'	3
A1 La Playa Cove	A1 Anchorage	6/5/2018	WEBSITE	Confirmed	6/8/2018	6/11/2018	30'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/26/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	Art Street	Confirmed	6/1/2018	6/4/2018	30'	3
A1 La Playa Cove	A1 Anchorage	5/29/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	27'	3
A1 La Playa Cove	A1 Anchorage	5/1/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	40'	3
A1 La Playa Cove	A1 Anchorage	2/20/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	35'	3
A1 La Playa Cove	A1 Anchorage	5/21/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	42'	3
A1 La Playa Cove	A1 Anchorage	2/24/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	40'	3
A1 La Playa Cove	A1 Anchorage	5/4/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	36'	3
A1 La Playa Cove	A1 Anchorage	5/8/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	36'	3
A1 La Playa Cove	A1 Anchorage	5/1/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	38'	3
A1 La Playa Cove	A1 Anchorage	4/13/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	40'	3
A1 La Playa Cove	A1 Anchorage	4/30/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	38'	3
A1 La Playa Cove	A1 Anchorage	5/18/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	35'	3
A1 La Playa Cove	A1 Anchorage	5/5/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	37'	3
A1 La Playa Cove	A1 Anchorage	5/29/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	20'	3
A1 La Playa Cove	A1 Anchorage	5/9/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	35'	3
A1 La Playa Cove	A1 Anchorage	5/15/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	60'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	45'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	5/21/2018	Art Street	Confirmed	6/1/2018	6/4/2018	44'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	33'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	Art Street	Confirmed	6/1/2018	6/4/2018	22'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	35'	3
A1 La Playa Cove	A1 Anchorage	12/6/2017	WEBSITE	Confirmed	6/1/2018	6/4/2018	43'	3
A1 La Playa Cove	A1 Anchorage	3/19/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/18/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	30'	3
A1 La Playa Cove	A1 Anchorage	2/26/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	36'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	45'	3
A1 La Playa Cove	A1 Anchorage	2/24/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	65'	3
A1 La Playa Cove	A1 Anchorage	2/26/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	29'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/25/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	27'	3
A1 La Playa Cove	A1 Anchorage	5/21/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	35'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	45'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	41'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	25'	3
A1 La Playa Cove	A1 Anchorage	5/6/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	40'	3
A1 La Playa Cove	A1 Anchorage	5/22/2018	WEBSITE	Confirmed	6/1/2018	6/4/2018	60'	3
A1 La Playa Cove	A1 Anchorage	5/30/2018	Art Street	Confirmed	6/1/2018	6/4/2018	32'	3
A1 La Playa Cove	A1 Anchorage	5/21/2018	Art Street	Confirmed	6/1/2018	6/4/2018		3
A1 La Playa Cove	A1 Anchorage	5/11/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	39'	3
A1 La Playa Cove	A1 Anchorage	5/11/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	49'	3
A1 La Playa Cove	A1 Anchorage	5/17/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	36'	3
A1 La Playa Cove	A1 Anchorage	5/20/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	35'	3
A1 La Playa Cove	A1 Anchorage	5/21/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	40'	3
A1 La Playa Cove	A1 Anchorage	5/21/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	48'	3
A1 La Playa Cove	A1 Anchorage	5/22/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	44'	3
A1 La Playa Cove	A1 Anchorage	5/6/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	38'	3
A1 La Playa Cove	A1 Anchorage	5/6/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	30'	3
A1 La Playa Cove	A1 Anchorage	5/22/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	41'	3
A1 La Playa Cove	A1 Anchorage	4/11/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	43'	3
A1 La Playa Cove	A1 Anchorage	5/22/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018		3
A1 La Playa Cove	A1 Anchorage	5/4/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	45'	3
A1 La Playa Cove	A1 Anchorage	3/27/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	53'	3
A1 La Playa Cove	A1 Anchorage	3/2/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	62'	3
A1 La Playa Cove	A1 Anchorage	5/1/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	40'	3
A1 La Playa Cove	A1 Anchorage	5/18/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	46'	3
A1 La Playa Cove	A1 Anchorage	4/21/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	44'	3
A1 La Playa Cove	A1 Anchorage	5/8/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	38'	3
A1 La Playa Cove	A1 Anchorage	5/14/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/16/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	26'	3
A1 La Playa Cove	A1 Anchorage	5/15/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	60'	3
A1 La Playa Cove	A1 Anchorage	5/22/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	36'	3
A1 La Playa Cove	A1 Anchorage	9/19/2017	WEBSITE	Confirmed	5/25/2018	5/28/2018	32'	3
A1 La Playa Cove	A1 Anchorage	5/18/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	32'	3
A1 La Playa Cove	A1 Anchorage	4/7/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	48'	3
A1 La Playa Cove	A1 Anchorage	5/16/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	39'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	56'	3
A1 La Playa Cove	A1 Anchorage	4/13/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	40'	3
A1 La Playa Cove	A1 Anchorage	11/27/2017	WEBSITE	Confirmed	5/25/2018	5/28/2018	45'	3
A1 La Playa Cove	A1 Anchorage	5/23/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	25'	3
A1 La Playa Cove	A1 Anchorage	4/23/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	46'	3
A1 La Playa Cove	A1 Anchorage	4/30/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	36'	3
A1 La Playa Cove	A1 Anchorage	5/20/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	28'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	5/15/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	45'	3
A1 La Playa Cove	A1 Anchorage	4/24/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	39'	3
A1 La Playa Cove	A1 Anchorage	5/19/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	50'	3
A1 La Playa Cove	A1 Anchorage	4/16/2018	WEBSITE	Confirmed	5/25/2018	5/28/2018	50'	3
A1 La Playa Cove	A1 Anchorage	5/1/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	40'	3
A1 La Playa Cove	A1 Anchorage	5/16/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	27'	3
A1 La Playa Cove	A1 Anchorage	4/29/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	42'	3
A1 La Playa Cove	A1 Anchorage	5/18/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	21'	3
A1 La Playa Cove	A1 Anchorage	5/13/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	37'	3
A1 La Playa Cove	A1 Anchorage	5/11/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/14/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/17/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	35'	3
A1 La Playa Cove	A1 Anchorage	4/13/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	30'	3
A1 La Playa Cove	A1 Anchorage	5/17/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	32'	3
A1 La Playa Cove	A1 Anchorage	5/8/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	35'	3
A1 La Playa Cove	A1 Anchorage	5/17/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/16/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	33'	3
A1 La Playa Cove	A1 Anchorage	5/17/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	25'	3
A1 La Playa Cove	A1 Anchorage	5/2/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	28'	3
A1 La Playa Cove	A1 Anchorage	5/17/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	15'	3
A1 La Playa Cove	A1 Anchorage	5/17/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	45'	3
A1 La Playa Cove	A1 Anchorage	5/12/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/16/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	60'	3
A1 La Playa Cove	A1 Anchorage	5/17/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	50'	3
A1 La Playa Cove	A1 Anchorage	5/17/2018	WEBSITE	Confirmed	5/18/2018	5/21/2018	30'	3
A1 La Playa Cove	A1 Anchorage	5/14/2018	Moorings	Confirmed	5/18/2018	5/21/2018	45'	3
A1 La Playa Cove	A1 Anchorage	5/10/2018	Moorings	Confirmed	5/11/2018	5/14/2018	50'	3
A1 La Playa Cove	A1 Anchorage	5/10/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	15'	3
A1 La Playa Cove	A1 Anchorage	5/10/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	28'	3
A1 La Playa Cove	A1 Anchorage	5/8/2018	Art Street	Confirmed	5/11/2018	5/14/2018	45'	3
A1 La Playa Cove	A1 Anchorage	5/10/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	38'	3
A1 La Playa Cove	A1 Anchorage	5/10/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	25'	3
A1 La Playa Cove	A1 Anchorage	5/2/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	28'	3
A1 La Playa Cove	A1 Anchorage	5/8/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	33'	3
A1 La Playa Cove	A1 Anchorage	5/10/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	63'	3
A1 La Playa Cove	A1 Anchorage	5/10/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	37'	3
A1 La Playa Cove	A1 Anchorage	5/8/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/10/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/4/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	45'	3
A1 La Playa Cove	A1 Anchorage	5/10/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	32'	3
A1 La Playa Cove	A1 Anchorage	5/9/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	43'	3
A1 La Playa Cove	A1 Anchorage	5/9/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	43'	3
A1 La Playa Cove	A1 Anchorage	5/10/2018	Moorings	Confirmed	5/11/2018	5/14/2018	30'	3
A1 La Playa Cove	A1 Anchorage	5/8/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/29/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	42'	3
A1 La Playa Cove	A1 Anchorage	2/20/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	35'	3
A1 La Playa Cove	A1 Anchorage	5/8/2018	WEBSITE	Confirmed	5/11/2018	5/14/2018	27'	3
A1 La Playa Cove	A1 Anchorage	4/30/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	27'	3
A1 La Playa Cove	A1 Anchorage	4/29/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	42'	3
A1 La Playa Cove	A1 Anchorage	5/3/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/25/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/30/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	45'	3
A1 La Playa Cove	A1 Anchorage	4/18/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	36'	3
A1 La Playa Cove	A1 Anchorage	5/2/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	37'	3
A1 La Playa Cove	A1 Anchorage	5/1/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	36'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	5/1/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	32'	3
A1 La Playa Cove	A1 Anchorage	5/3/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	49'	3
A1 La Playa Cove	A1 Anchorage	4/13/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	30'	3
A1 La Playa Cove	A1 Anchorage	5/2/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	35'	3
A1 La Playa Cove	A1 Anchorage	5/3/2018	Art Street	Confirmed	5/4/2018	5/7/2018	24'	3
A1 La Playa Cove	A1 Anchorage	5/3/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	31'	3
A1 La Playa Cove	A1 Anchorage	4/30/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/30/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	32'	3
A1 La Playa Cove	A1 Anchorage	4/30/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	33'	3
A1 La Playa Cove	A1 Anchorage	5/2/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	32'	3
A1 La Playa Cove	A1 Anchorage	5/2/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	34'	3
A1 La Playa Cove	A1 Anchorage	5/1/2018	Moorings	Confirmed	5/4/2018	5/7/2018	40'	3
A1 La Playa Cove	A1 Anchorage	5/2/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	28'	3
A1 La Playa Cove	A1 Anchorage	5/3/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	25'	3
A1 La Playa Cove	A1 Anchorage	4/29/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	52'	3
A1 La Playa Cove	A1 Anchorage	4/29/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	38'	3
A1 La Playa Cove	A1 Anchorage	5/3/2018	WEBSITE	Confirmed	5/4/2018	5/7/2018	15'	3
A1 La Playa Cove	A1 Anchorage	5/3/2018	Art Street	Confirmed	5/4/2018	5/7/2018	22'	3
A1 La Playa Cove	A1 Anchorage	5/3/2018	Art Street	Confirmed	5/4/2018	5/7/2018	25'	3
A1 La Playa Cove	A1 Anchorage	5/2/2018	Art Street	Confirmed	5/4/2018	5/7/2018	50'	3
A1 La Playa Cove	A1 Anchorage	5/1/2018	Art Street	Confirmed	5/4/2018	5/7/2018	26'	3
A1 La Playa Cove	A1 Anchorage	4/23/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	27'	3
A1 La Playa Cove	A1 Anchorage	4/26/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	24'	3
A1 La Playa Cove	A1 Anchorage	4/26/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	41'	3
A1 La Playa Cove	A1 Anchorage	4/23/2018	Art Street	Confirmed	4/27/2018	4/30/2018	45'	3
A1 La Playa Cove	A1 Anchorage	4/25/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	16'	3
A1 La Playa Cove	A1 Anchorage	4/16/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	42'	3
A1 La Playa Cove	A1 Anchorage	4/25/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	36'	3
A1 La Playa Cove	A1 Anchorage	4/24/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	63'	3
A1 La Playa Cove	A1 Anchorage	4/27/2018	Art Street	Confirmed	4/27/2018	4/30/2018	32'	3
A1 La Playa Cove	A1 Anchorage	4/26/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	25'	3
A1 La Playa Cove	A1 Anchorage	4/24/2018	Art Street	Confirmed	4/27/2018	4/30/2018	27'	3
A1 La Playa Cove	A1 Anchorage	4/22/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	38'	3
A1 La Playa Cove	A1 Anchorage	4/26/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	34'	3
A1 La Playa Cove	A1 Anchorage	4/26/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	39'	3
A1 La Playa Cove	A1 Anchorage	4/26/2018	Moorings	Confirmed	4/27/2018	4/30/2018	25'	3
A1 La Playa Cove	A1 Anchorage	4/26/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	41'	3
A1 La Playa Cove	A1 Anchorage	4/26/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	39'	3
A1 La Playa Cove	A1 Anchorage	4/24/2018	Art Street	Confirmed	4/27/2018	4/30/2018	44'	3
A1 La Playa Cove	A1 Anchorage	3/20/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/25/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	43'	3
A1 La Playa Cove	A1 Anchorage	4/16/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	50'	3
A1 La Playa Cove	A1 Anchorage	4/24/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	40'	3
A1 La Playa Cove	A1 Anchorage	4/25/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	55'	3
A1 La Playa Cove	A1 Anchorage	4/3/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/23/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	46'	3
A1 La Playa Cove	A1 Anchorage	4/26/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	49'	3
A1 La Playa Cove	A1 Anchorage	4/18/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	59'	3
A1 La Playa Cove	A1 Anchorage	4/21/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	42'	3
A1 La Playa Cove	A1 Anchorage	4/25/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	36'	3
A1 La Playa Cove	A1 Anchorage	4/23/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	60'	3
A1 La Playa Cove	A1 Anchorage	4/25/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	45'	3
A1 La Playa Cove	A1 Anchorage	4/25/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/18/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/25/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	42'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	4/26/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	48'	3
A1 La Playa Cove	A1 Anchorage	4/24/2018	WEBSITE	Confirmed	4/27/2018	4/30/2018	27'	3
A1 La Playa Cove	A1 Anchorage	4/9/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	42'	3
A1 La Playa Cove	A1 Anchorage	4/16/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	Art Street	Confirmed	4/20/2018	4/23/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/18/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	59'	3
A1 La Playa Cove	A1 Anchorage	4/3/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	42'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	37'	3
A1 La Playa Cove	A1 Anchorage	3/23/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	39'	3
A1 La Playa Cove	A1 Anchorage	4/15/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	49'	3
A1 La Playa Cove	A1 Anchorage	4/13/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	44'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	Art Street	Confirmed	4/20/2018	4/23/2018	32'	3
A1 La Playa Cove	A1 Anchorage	4/17/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	27'	3
A1 La Playa Cove	A1 Anchorage	4/14/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	40'	3
A1 La Playa Cove	A1 Anchorage	3/20/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/17/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	47'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	Art Street	Confirmed	4/20/2018	4/23/2018	50'	3
A1 La Playa Cove	A1 Anchorage	4/18/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	31'	3
A1 La Playa Cove	A1 Anchorage	4/18/2018	Moorings	Confirmed	4/20/2018	4/23/2018	34'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	Moorings	Confirmed	4/20/2018	4/23/2018	45'	3
A1 La Playa Cove	A1 Anchorage	3/2/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	62'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	Art Street	Confirmed	4/20/2018	4/23/2018	26'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	34'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	37'	3
A1 La Playa Cove	A1 Anchorage	4/15/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	42'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	40'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	Moorings	Confirmed	4/20/2018	4/23/2018	28'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	63'	3
A1 La Playa Cove	A1 Anchorage	4/17/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	36'	3
A1 La Playa Cove	A1 Anchorage	3/22/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	44'	3
A1 La Playa Cove	A1 Anchorage	4/17/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	25'	3
A1 La Playa Cove	A1 Anchorage	4/16/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	46'	3
A1 La Playa Cove	A1 Anchorage	4/16/2018	Moorings	Confirmed	4/20/2018	4/23/2018	45'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	Art Street	Confirmed	4/20/2018	4/23/2018	25'	3
A1 La Playa Cove	A1 Anchorage	4/17/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	38'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	WEBSITE	Confirmed	4/20/2018	4/23/2018	34'	3
A1 La Playa Cove	A1 Anchorage	4/19/2018	Art Street	Confirmed	4/20/2018	4/23/2018	32'	3
A1 La Playa Cove	A1 Anchorage	4/11/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	22'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	62'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	25'	3
A1 La Playa Cove	A1 Anchorage	4/11/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	63'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	31'	3
A1 La Playa Cove	A1 Anchorage	4/11/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	28'	3
A1 La Playa Cove	A1 Anchorage	4/11/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	27'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	44'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	40'	3
A1 La Playa Cove	A1 Anchorage	4/13/2018	Art Street	Confirmed	4/13/2018	4/16/2018	38'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	25'	3
A1 La Playa Cove	A1 Anchorage	4/9/2018	Moorings	Confirmed	4/13/2018	4/16/2018	26'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	32'	3
A1 La Playa Cove	A1 Anchorage	4/13/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	45'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	34'	3
A1 La Playa Cove	A1 Anchorage	3/24/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	51'	3
A1 La Playa Cove	A1 Anchorage	4/13/2018	Art Street	Confirmed	4/13/2018	4/16/2018	50'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	3/21/2018	Art Street	Confirmed	4/13/2018	4/16/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/10/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	42'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	40'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	32'	3
A1 La Playa Cove	A1 Anchorage	4/1/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	40'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	60'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	34'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/11/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/9/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	42'	3
A1 La Playa Cove	A1 Anchorage	4/12/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	27'	3
A1 La Playa Cove	A1 Anchorage	4/2/2018	WEBSITE	Confirmed	4/13/2018	4/16/2018	50'	3
A1 La Playa Cove	A1 Anchorage	4/2/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	36'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	27'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	Art Street	Confirmed	4/6/2018	4/9/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/4/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	32'	3
A1 La Playa Cove	A1 Anchorage	3/23/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	36'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	50'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	32'	3
A1 La Playa Cove	A1 Anchorage	4/4/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	40'	3
A1 La Playa Cove	A1 Anchorage	3/19/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/2/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	50'	3
A1 La Playa Cove	A1 Anchorage	4/3/2018	Moorings	Confirmed	4/6/2018	4/9/2018	44'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	31'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	45'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	32'	3
A1 La Playa Cove	A1 Anchorage	3/28/2018	Moorings	Confirmed	4/6/2018	4/9/2018	34'	3
A1 La Playa Cove	A1 Anchorage	4/2/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	35'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	38'	3
A1 La Playa Cove	A1 Anchorage	4/3/2018	Moorings	Confirmed	4/6/2018	4/9/2018	40'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	27'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	28'	3
A1 La Playa Cove	A1 Anchorage	4/3/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	25'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	Art Street	Confirmed	4/6/2018	4/9/2018	37'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	36'	3
A1 La Playa Cove	A1 Anchorage	4/5/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	30'	3
A1 La Playa Cove	A1 Anchorage	4/4/2018	WEBSITE	Confirmed	4/6/2018	4/9/2018	46'	3
A1 La Playa Cove	A1 Anchorage	3/29/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	22'	3
A1 La Playa Cove	A1 Anchorage	3/29/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	41'	3
A1 La Playa Cove	A1 Anchorage	3/25/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	25'	3
A1 La Playa Cove	A1 Anchorage	3/26/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	52'	3
A1 La Playa Cove	A1 Anchorage	3/27/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	34'	3
A1 La Playa Cove	A1 Anchorage	3/27/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	35'	3
A1 La Playa Cove	A1 Anchorage	3/29/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	25'	3
A1 La Playa Cove	A1 Anchorage	3/29/2018	Art Street	Confirmed	3/30/2018	4/2/2018	27'	3
A1 La Playa Cove	A1 Anchorage	3/28/2018	Moorings	Confirmed	3/30/2018	4/2/2018	38'	3
A1 La Playa Cove	A1 Anchorage	3/29/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	35'	3
A1 La Playa Cove	A1 Anchorage	3/29/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	28'	3
A1 La Playa Cove	A1 Anchorage	3/22/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/28/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	31'	3
A1 La Playa Cove	A1 Anchorage	3/29/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/29/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	32'	3
A1 La Playa Cove	A1 Anchorage	2/28/2018	Art Street	Confirmed	3/30/2018	4/2/2018	30'	3
A1 La Playa Cove	A1 Anchorage	2/20/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	34'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	3/29/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	58'	3
A1 La Playa Cove	A1 Anchorage	3/26/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/21/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	36'	3
A1 La Playa Cove	A1 Anchorage	3/29/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	32'	3
A1 La Playa Cove	A1 Anchorage	3/26/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	38'	3
A1 La Playa Cove	A1 Anchorage	3/29/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	35'	3
A1 La Playa Cove	A1 Anchorage	3/28/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	42'	3
A1 La Playa Cove	A1 Anchorage	3/16/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	38'	3
A1 La Playa Cove	A1 Anchorage	3/27/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	49'	3
A1 La Playa Cove	A1 Anchorage	3/26/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	32'	3
A1 La Playa Cove	A1 Anchorage	3/27/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	56'	3
A1 La Playa Cove	A1 Anchorage	3/24/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	34'	3
A1 La Playa Cove	A1 Anchorage	3/23/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	40'	3
A1 La Playa Cove	A1 Anchorage	3/21/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	40'	3
A1 La Playa Cove	A1 Anchorage	3/25/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/28/2018	Art Street	Confirmed	3/30/2018	4/2/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/27/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/29/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	46'	3
A1 La Playa Cove	A1 Anchorage	3/23/2018	WEBSITE	Confirmed	3/30/2018	4/2/2018	27'	3
A1 La Playa Cove	A1 Anchorage	3/27/2018	Art Street	Confirmed	3/30/2018	4/2/2018	42'	3
A1 La Playa Cove	A1 Anchorage	3/4/2018	WEBSITE	Confirmed	3/23/2018	3/26/2018	38'	3
A1 La Playa Cove	A1 Anchorage	3/16/2018	WEBSITE	Confirmed	3/23/2018	3/26/2018	37'	3
A1 La Playa Cove	A1 Anchorage	3/22/2018	WEBSITE	Confirmed	3/23/2018	3/26/2018	60'	3
A1 La Playa Cove	A1 Anchorage	3/18/2018	WEBSITE	Confirmed	3/23/2018	3/26/2018	39'	3
A1 La Playa Cove	A1 Anchorage	3/22/2018	WEBSITE	Confirmed	3/23/2018	3/26/2018	47'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	WEBSITE	Confirmed	3/23/2018	3/26/2018	50'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	WEBSITE	Confirmed	3/23/2018	3/26/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/22/2018	WEBSITE	Confirmed	3/23/2018	3/26/2018	35'	3
A1 La Playa Cove	A1 Anchorage	3/22/2018	WEBSITE	Confirmed	3/23/2018	3/26/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/22/2018	Art Street	Confirmed	3/23/2018	3/26/2018	26'	3
A1 La Playa Cove	A1 Anchorage	3/22/2018	Art Street	Confirmed	3/23/2018	3/26/2018	38'	3
A1 La Playa Cove	A1 Anchorage	3/22/2018	WEBSITE	Confirmed	3/23/2018	3/26/2018	25'	3
A1 La Playa Cove	A1 Anchorage	3/22/2018	Moorings	Confirmed	3/23/2018	3/26/2018	40'	3
A1 La Playa Cove	A1 Anchorage	3/22/2018	Moorings	Confirmed	3/23/2018	3/26/2018	24'	3
A1 La Playa Cove	A1 Anchorage	3/11/2018	WEBSITE	Confirmed	3/23/2018	3/26/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/22/2018	WEBSITE	Confirmed	3/23/2018	3/26/2018	25'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	25'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	38'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	Art Street	Confirmed	3/16/2018	3/19/2018	37'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	28'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	39'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	Art Street	Confirmed	3/16/2018	3/19/2018	38'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	34'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	31'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	34'	3
A1 La Playa Cove	A1 Anchorage	3/13/2018	Moorings	Confirmed	3/16/2018	3/19/2018	44'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	47'	3
A1 La Playa Cove	A1 Anchorage	3/14/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	42'	3
A1 La Playa Cove	A1 Anchorage	3/14/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	35'	3
A1 La Playa Cove	A1 Anchorage	3/9/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	40'	3
A1 La Playa Cove	A1 Anchorage	2/9/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	35'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/3/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	42'	3
A1 La Playa Cove	A1 Anchorage	3/15/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	27'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	2/25/2018	WEBSITE	Confirmed	3/16/2018	3/19/2018	40'	3
A1 La Playa Cove	A1 Anchorage	3/5/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	27'	3
A1 La Playa Cove	A1 Anchorage	3/3/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	42'	3
A1 La Playa Cove	A1 Anchorage	3/12/2018	Art Street	Confirmed	3/9/2018	3/12/2018	43'	3
A1 La Playa Cove	A1 Anchorage	3/5/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	44'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	32'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	30'	3
A1 La Playa Cove	A1 Anchorage	2/28/2018	Art Street	Confirmed	3/9/2018	3/12/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	32'	3
A1 La Playa Cove	A1 Anchorage	3/6/2018	Moorings	Confirmed	3/9/2018	3/12/2018	44'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	35'	3
A1 La Playa Cove	A1 Anchorage	3/5/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	47'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	34'	3
A1 La Playa Cove	A1 Anchorage	3/5/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	32'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	34'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	45'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	39'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	24'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	32'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	25'	3
A1 La Playa Cove	A1 Anchorage	3/4/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	38'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	28'	3
A1 La Playa Cove	A1 Anchorage	3/8/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	63'	3
A1 La Playa Cove	A1 Anchorage	3/5/2018	Moorings	Confirmed	3/9/2018	3/12/2018	38'	3
A1 La Playa Cove	A1 Anchorage	3/7/2018	WEBSITE	Confirmed	3/9/2018	3/12/2018	37'	3
A1 La Playa Cove	A1 Anchorage	3/1/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	37'	3
A1 La Playa Cove	A1 Anchorage	2/27/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	38'	3
A1 La Playa Cove	A1 Anchorage	2/27/2018	Moorings	Confirmed	3/2/2018	3/5/2018	28'	3
A1 La Playa Cove	A1 Anchorage	2/27/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	38'	3
A1 La Playa Cove	A1 Anchorage	2/21/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	46'	3
A1 La Playa Cove	A1 Anchorage	2/27/2018	Moorings	Confirmed	3/2/2018	3/5/2018	34'	3
A1 La Playa Cove	A1 Anchorage	2/3/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	42'	3
A1 La Playa Cove	A1 Anchorage	3/1/2018	Moorings	Confirmed	3/2/2018	3/5/2018	28'	3
A1 La Playa Cove	A1 Anchorage	2/20/2018	Moorings	Confirmed	3/2/2018	3/5/2018	34'	3
A1 La Playa Cove	A1 Anchorage	3/1/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	35'	3
A1 La Playa Cove	A1 Anchorage	2/27/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	47'	3
A1 La Playa Cove	A1 Anchorage	3/1/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	32'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	30'	3
A1 La Playa Cove	A1 Anchorage	3/1/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	30'	3
A1 La Playa Cove	A1 Anchorage	2/27/2018	Moorings	Confirmed	3/2/2018	3/5/2018	32'	3
A1 La Playa Cove	A1 Anchorage	3/1/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	30'	3
A1 La Playa Cove	A1 Anchorage	2/10/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	40'	3
A1 La Playa Cove	A1 Anchorage	2/6/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	61'	3
A1 La Playa Cove	A1 Anchorage	2/9/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	35'	3
A1 La Playa Cove	A1 Anchorage	1/22/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	48'	3
A1 La Playa Cove	A1 Anchorage	3/1/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	37'	3
A1 La Playa Cove	A1 Anchorage	2/6/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	56'	3
A1 La Playa Cove	A1 Anchorage	1/23/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	38'	3
A1 La Playa Cove	A1 Anchorage	2/6/2018	WEBSITE	Confirmed	3/2/2018	3/5/2018	59'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	WEBSITE	Confirmed	2/25/2018	2/26/2018	60'	1
A1 La Playa Cove	A1 Anchorage	2/20/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	38'	3
A1 La Playa Cove	A1 Anchorage	2/21/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	37'	3
A1 La Playa Cove	A1 Anchorage	12/8/2017	WEBSITE	Confirmed	2/23/2018	2/26/2018	40'	3
A1 La Playa Cove	A1 Anchorage	2/21/2018	Moorings	Confirmed	2/23/2018	2/26/2018	25'	3
A1 La Playa Cove	A1 Anchorage	2/3/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	42'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	2/7/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	36'	3
A1 La Playa Cove	A1 Anchorage	2/21/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	30'	3
A1 La Playa Cove	A1 Anchorage	2/19/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	50'	3
A1 La Playa Cove	A1 Anchorage	1/14/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	30'	3
A1 La Playa Cove	A1 Anchorage	2/22/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	32'	3
A1 La Playa Cove	A1 Anchorage	2/20/2018	Moorings	Confirmed	2/23/2018	2/26/2018	44'	3
A1 La Playa Cove	A1 Anchorage	2/21/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	31'	3
A1 La Playa Cove	A1 Anchorage	2/19/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	36'	3
A1 La Playa Cove	A1 Anchorage	2/21/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	32'	3
A1 La Playa Cove	A1 Anchorage	2/21/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	47'	3
A1 La Playa Cove	A1 Anchorage	1/12/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	36'	3
A1 La Playa Cove	A1 Anchorage	12/13/2017	WEBSITE	Confirmed	2/23/2018	2/26/2018	32'	3
A1 La Playa Cove	A1 Anchorage	2/8/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	49'	3
A1 La Playa Cove	A1 Anchorage	2/22/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	37'	3
A1 La Playa Cove	A1 Anchorage	7/13/2017	WEBSITE	Confirmed	2/23/2018	2/26/2018	35'	3
A1 La Playa Cove	A1 Anchorage	2/21/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	42'	3
A1 La Playa Cove	A1 Anchorage	2/13/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	36'	3
A1 La Playa Cove	A1 Anchorage	2/10/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	36'	3
A1 La Playa Cove	A1 Anchorage	2/22/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	60'	3
A1 La Playa Cove	A1 Anchorage	2/22/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	34'	3
A1 La Playa Cove	A1 Anchorage	2/22/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	30'	3
A1 La Playa Cove	A1 Anchorage	2/20/2018	WEBSITE	Confirmed	2/23/2018	2/26/2018	32'	3
A1 La Playa Cove	A1 Anchorage	2/8/2018	Moorings	Confirmed	2/16/2018	2/19/2018	32'	3
A1 La Playa Cove	A1 Anchorage	2/5/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	30'	3
A1 La Playa Cove	A1 Anchorage	2/14/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	27'	3
A1 La Playa Cove	A1 Anchorage	2/6/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	35'	3
A1 La Playa Cove	A1 Anchorage	2/10/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	47'	3
A1 La Playa Cove	A1 Anchorage	1/1/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	37'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	48'	3
A1 La Playa Cove	A1 Anchorage	2/10/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	46'	3
A1 La Playa Cove	A1 Anchorage	2/12/2018	Art Street	Confirmed	2/16/2018	2/19/2018	38'	3
A1 La Playa Cove	A1 Anchorage	2/8/2018	Moorings	Confirmed	2/16/2018	2/19/2018	34'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	Art Street	Confirmed	2/16/2018	2/19/2018	32'	3
A1 La Playa Cove	A1 Anchorage	2/14/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	40'	3
A1 La Playa Cove	A1 Anchorage	1/14/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	30'	3
A1 La Playa Cove	A1 Anchorage	2/14/2018	Art Street	Confirmed	2/16/2018	2/19/2018	49'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	34'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	36'	3
A1 La Playa Cove	A1 Anchorage	2/12/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	41'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	41'	3
A1 La Playa Cove	A1 Anchorage	2/3/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	42'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	Art Street	Confirmed	2/16/2018	2/19/2018	39'	3
A1 La Playa Cove	A1 Anchorage	2/14/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	34'	3
A1 La Playa Cove	A1 Anchorage	2/12/2018	Art Street	Confirmed	2/16/2018	2/19/2018	37'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	60'	3
A1 La Playa Cove	A1 Anchorage	2/15/2018	WEBSITE	Confirmed	2/16/2018	2/19/2018	28'	3
A1 La Playa Cove	A1 Anchorage	2/7/2018	WEBSITE	Confirmed	2/9/2018	2/12/2018	28'	3
A1 La Playa Cove	A1 Anchorage	2/8/2018	WEBSITE	Confirmed	2/9/2018	2/12/2018	31'	3
A1 La Playa Cove	A1 Anchorage	2/8/2018	Moorings	Confirmed	2/9/2018	2/12/2018	38'	3
A1 La Playa Cove	A1 Anchorage	2/8/2018	WEBSITE	Confirmed	2/9/2018	2/12/2018	34'	3
A1 La Playa Cove	A1 Anchorage	2/3/2018	WEBSITE	Confirmed	2/9/2018	2/12/2018	40'	3
A1 La Playa Cove	A1 Anchorage	2/8/2018	Moorings	Confirmed	2/9/2018	2/12/2018	28'	3
A1 La Playa Cove	A1 Anchorage	2/8/2018	Moorings	Confirmed	2/9/2018	2/12/2018	46'	3
A1 La Playa Cove	A1 Anchorage	2/8/2018	Moorings	Confirmed	2/9/2018	2/12/2018	45'	3
A1 La Playa Cove	A1 Anchorage	2/8/2018	Moorings	Confirmed	2/9/2018	2/12/2018	49'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	2/8/2018	WEBSITE	Confirmed	2/9/2018	2/12/2018	47'	3
A1 La Playa Cove	A1 Anchorage	1/31/2018	Art Street	Confirmed	2/9/2018	2/12/2018	30'	3
A1 La Playa Cove	A1 Anchorage	2/7/2018	WEBSITE	Confirmed	2/9/2018	2/12/2018	32'	3
A1 La Playa Cove	A1 Anchorage	2/8/2018	Art Street	Confirmed	2/9/2018	2/12/2018	36'	3
A1 La Playa Cove	A1 Anchorage	2/5/2018	WEBSITE	Confirmed	2/9/2018	2/12/2018	40'	3
A1 La Playa Cove	A1 Anchorage	2/8/2018	WEBSITE	Confirmed	2/9/2018	2/12/2018	27'	3
A1 La Playa Cove	A1 Anchorage	1/21/2018	WEBSITE	Confirmed	2/9/2018	2/12/2018	42'	3
A1 La Playa Cove	A1 Anchorage	2/7/2018	Moorings	Confirmed	2/9/2018	2/12/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/31/2018	Art Street	Confirmed	2/2/2018	2/5/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/30/2018	Moorings	Confirmed	2/2/2018	2/5/2018	32'	3
A1 La Playa Cove	A1 Anchorage	1/31/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/21/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	42'	3
A1 La Playa Cove	A1 Anchorage	2/1/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	28'	3
A1 La Playa Cove	A1 Anchorage	1/30/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	27'	3
A1 La Playa Cove	A1 Anchorage	1/31/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	39'	3
A1 La Playa Cove	A1 Anchorage	1/29/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	37'	3
A1 La Playa Cove	A1 Anchorage	1/30/2018	Moorings	Confirmed	2/2/2018	2/5/2018	34'	3
A1 La Playa Cove	A1 Anchorage	1/21/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	31'	3
A1 La Playa Cove	A1 Anchorage	2/1/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	47'	3
A1 La Playa Cove	A1 Anchorage	2/1/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	49'	3
A1 La Playa Cove	A1 Anchorage	1/31/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	40'	3
A1 La Playa Cove	A1 Anchorage	2/1/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	46'	3
A1 La Playa Cove	A1 Anchorage	2/2/2018	Moorings	Confirmed	2/2/2018	2/5/2018	34'	3
A1 La Playa Cove	A1 Anchorage	2/1/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	37'	3
A1 La Playa Cove	A1 Anchorage	1/30/2018	Moorings	Confirmed	2/2/2018	2/5/2018	34'	3
A1 La Playa Cove	A1 Anchorage	1/31/2018	Art Street	Confirmed	2/2/2018	2/5/2018	27'	3
A1 La Playa Cove	A1 Anchorage	2/2/2018	Moorings	Confirmed	2/2/2018	2/5/2018	32'	3
A1 La Playa Cove	A1 Anchorage	1/30/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	28'	3
A1 La Playa Cove	A1 Anchorage	1/31/2018	WEBSITE	Confirmed	2/2/2018	2/5/2018	38'	3
A1 La Playa Cove	A1 Anchorage	2/2/2018	Moorings	Confirmed	2/2/2018	2/5/2018	35'	3
A1 La Playa Cove	A1 Anchorage	1/25/2018	Moorings	Confirmed	1/26/2018	1/29/2018	28'	3
A1 La Playa Cove	A1 Anchorage	1/21/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018	63'	3
A1 La Playa Cove	A1 Anchorage	1/24/2018	Art Street	Confirmed	1/26/2018	1/29/2018	41'	3
A1 La Playa Cove	A1 Anchorage	1/24/2018	Art Street	Confirmed	1/26/2018	1/29/2018	34'	3
A1 La Playa Cove	A1 Anchorage	1/25/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018	32'	3
A1 La Playa Cove	A1 Anchorage	1/25/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018	27'	3
A1 La Playa Cove	A1 Anchorage	1/16/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018	25'	3
A1 La Playa Cove	A1 Anchorage	1/21/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018	42'	3
A1 La Playa Cove	A1 Anchorage	1/25/2018	Moorings	Confirmed	1/26/2018	1/29/2018	49'	3
A1 La Playa Cove	A1 Anchorage	12/19/2017	WEBSITE	Confirmed	1/26/2018	1/29/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/22/2018	Art Street	Confirmed	1/26/2018	1/29/2018	34'	3
A1 La Playa Cove	A1 Anchorage	1/25/2018	Moorings	Confirmed	1/26/2018	1/29/2018	44'	3
A1 La Playa Cove	A1 Anchorage	1/25/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018		3
A1 La Playa Cove	A1 Anchorage	1/25/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018	37'	3
A1 La Playa Cove	A1 Anchorage	1/23/2018	Moorings	Confirmed	1/26/2018	1/29/2018	60'	3
A1 La Playa Cove	A1 Anchorage	10/18/2017	WEBSITE	Confirmed	1/26/2018	1/29/2018	35'	3
A1 La Playa Cove	A1 Anchorage	1/25/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018	55'	3
A1 La Playa Cove	A1 Anchorage	1/23/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018	46'	3
A1 La Playa Cove	A1 Anchorage	1/25/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018	50'	3
A1 La Playa Cove	A1 Anchorage	1/20/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018	27'	3
A1 La Playa Cove	A1 Anchorage	1/21/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018	42'	3
A1 La Playa Cove	A1 Anchorage	1/23/2018	Moorings	Confirmed	1/26/2018	1/29/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	1/26/2018	1/29/2018	32'	3
A1 La Playa Cove	A1 Anchorage	1/25/2018	Moorings	Confirmed	1/26/2018	1/29/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/19/2018	Art Street	Confirmed	1/19/2018	1/22/2018	32'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	37'	3
A1 La Playa Cove	A1 Anchorage	1/13/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	40'	3
A1 La Playa Cove	A1 Anchorage	1/18/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	36'	3
A1 La Playa Cove	A1 Anchorage	1/14/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	48'	3
A1 La Playa Cove	A1 Anchorage	1/8/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	59'	3
A1 La Playa Cove	A1 Anchorage	12/24/2017	WEBSITE	Confirmed	1/19/2018	1/22/2018	38'	3
A1 La Playa Cove	A1 Anchorage	12/9/2017	WEBSITE	Confirmed	1/19/2018	1/22/2018	60'	3
A1 La Playa Cove	A1 Anchorage	12/8/2017	WEBSITE	Confirmed	1/19/2018	1/22/2018	56'	3
A1 La Playa Cove	A1 Anchorage	1/5/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	35'	3
A1 La Playa Cove	A1 Anchorage	1/1/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	50'	3
A1 La Playa Cove	A1 Anchorage	12/30/2017	WEBSITE	Confirmed	1/19/2018	1/22/2018	34'	3
A1 La Playa Cove	A1 Anchorage	7/13/2017	WEBSITE	Confirmed	1/19/2018	1/22/2018	35'	3
A1 La Playa Cove	A1 Anchorage	12/11/2017	Moorings	Confirmed	1/19/2018	1/22/2018	42'	3
A1 La Playa Cove	A1 Anchorage	1/5/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	36'	3
A1 La Playa Cove	A1 Anchorage	1/14/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	37'	3
A1 La Playa Cove	A1 Anchorage	12/31/2017	WEBSITE	Confirmed	1/19/2018	1/22/2018	48'	3
A1 La Playa Cove	A1 Anchorage	1/3/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	48'	3
A1 La Playa Cove	A1 Anchorage	12/30/2017	WEBSITE	Confirmed	1/19/2018	1/22/2018	30'	3
A1 La Playa Cove	A1 Anchorage	12/8/2017	WEBSITE	Confirmed	1/19/2018	1/22/2018	42'	3
A1 La Playa Cove	A1 Anchorage	1/16/2018	Moorings	Confirmed	1/19/2018	1/22/2018	44'	3
A1 La Playa Cove	A1 Anchorage	1/17/2018	Moorings	Confirmed	1/19/2018	1/22/2018	50'	3
A1 La Playa Cove	A1 Anchorage	1/19/2018	Art Street	Confirmed	1/19/2018	1/22/2018	34'	3
A1 La Playa Cove	A1 Anchorage	1/17/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	32'	3
A1 La Playa Cove	A1 Anchorage	1/18/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	40'	3
A1 La Playa Cove	A1 Anchorage	12/29/2017	WEBSITE	Confirmed	1/19/2018	1/22/2018	52'	3
A1 La Playa Cove	A1 Anchorage	1/18/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	39'	3
A1 La Playa Cove	A1 Anchorage	1/9/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	32'	3
A1 La Playa Cove	A1 Anchorage	1/14/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	46'	3
A1 La Playa Cove	A1 Anchorage	1/14/2018	WEBSITE	Confirmed	1/19/2018	1/22/2018	46'	3
A1 La Playa Cove	A1 Anchorage	12/30/2017	WEBSITE	Confirmed	1/19/2018	1/22/2018	45'	3
A1 La Playa Cove	A1 Anchorage	12/8/2017	WEBSITE	Confirmed	1/19/2018	1/22/2018	60'	3
A1 La Playa Cove	A1 Anchorage	12/9/2017	WEBSITE	Confirmed	1/19/2018	1/22/2018	50'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	37'	3
A1 La Playa Cove	A1 Anchorage	12/28/2017	WEBSITE	Confirmed	1/12/2018	1/15/2018	25'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	60'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	Moorings	Confirmed	1/12/2018	1/15/2018	26'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	28'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	Moorings	Confirmed	1/12/2018	1/15/2018	35'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	Moorings	Confirmed	1/12/2018	1/15/2018	34'	3
A1 La Playa Cove	A1 Anchorage	1/10/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	35'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	35'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	25'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	41'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	Art Street	Confirmed	1/12/2018	1/15/2018	41'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	28'	3
A1 La Playa Cove	A1 Anchorage	1/8/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	27'	3
A1 La Playa Cove	A1 Anchorage	12/18/2017	WEBSITE	Confirmed	1/12/2018	1/15/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	Art Street	Confirmed	1/12/2018	1/15/2018	49'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	32'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	Art Street	Confirmed	1/12/2018	1/15/2018	34'	3
A1 La Playa Cove	A1 Anchorage	1/7/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	41'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	Moorings	Confirmed	1/12/2018	1/15/2018	35'	3
A1 La Playa Cove	A1 Anchorage	1/5/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	47'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	50'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	46'	3

Marina	Mooring	Date Reservation Made	Made At	Status	Arrival Date	Departure Date	Boat Length	Length of Stay (Nights)
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	27'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	29'	3
A1 La Playa Cove	A1 Anchorage	12/25/2017	WEBSITE	Confirmed	1/12/2018	1/15/2018	42'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	Moorings	Confirmed	1/12/2018	1/15/2018	50'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	32'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	33'	3
A1 La Playa Cove	A1 Anchorage	1/11/2018	WEBSITE	Confirmed	1/12/2018	1/15/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	Art Street	Confirmed	1/5/2018	1/8/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	32'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/2/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	41'	3
A1 La Playa Cove	A1 Anchorage	12/25/2017	WEBSITE	Confirmed	1/5/2018	1/8/2018	42'	3
A1 La Playa Cove	A1 Anchorage	1/5/2018	Art Street	Confirmed	1/5/2018	1/8/2018	44'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	34'	3
A1 La Playa Cove	A1 Anchorage	1/2/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	27'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	Art Street	Confirmed	1/5/2018	1/8/2018	50'	3
A1 La Playa Cove	A1 Anchorage	1/1/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	50'	3
A1 La Playa Cove	A1 Anchorage	1/1/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	34'	3
A1 La Playa Cove	A1 Anchorage	1/1/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	36'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	41'	3
A1 La Playa Cove	A1 Anchorage	1/3/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	47'	3
A1 La Playa Cove	A1 Anchorage	1/2/2018	Art Street	Confirmed	1/5/2018	1/8/2018	34'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	32'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	Art Street	Confirmed	1/5/2018	1/8/2018	49'	3
A1 La Playa Cove	A1 Anchorage	12/18/2017	WEBSITE	Confirmed	1/5/2018	1/8/2018	30'	3
A1 La Playa Cove	A1 Anchorage	1/2/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	32'	3
A1 La Playa Cove	A1 Anchorage	1/5/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	40'	3
A1 La Playa Cove	A1 Anchorage	1/3/2018	Moorings	Confirmed	1/5/2018	1/8/2018	27'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	34'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	Art Street	Confirmed	1/5/2018	1/8/2018	35'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	28'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	26'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	Art Street	Confirmed	1/5/2018	1/8/2018	41'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	60'	3
A1 La Playa Cove	A1 Anchorage	1/1/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	37'	3
A1 La Playa Cove	A1 Anchorage	1/4/2018	WEBSITE	Confirmed	1/5/2018	1/8/2018	25'	3
A1 La Playa Cove	A1 Anchorage	12/28/2017	WEBSITE	Confirmed	1/5/2018	1/8/2018	25'	3

DATA FOR SIYB MARINAS AND YACHT CLUBS

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Facility	Slip/Mooring	Percent of Tir	Vessel Type (	Vessel Length	Vessel Beam	Paint Type Cc	Paint Product	Product Num	Boatyard Na	Painting Date	Painting Date	% Copper	Category 1 reg #
SDYC	2600	100	Sail	36.4	11.9	Copper	Interlux Ultra	2779N	Shelter Island	Jan	2017	66.5	
SDYC	2599	91	Sail	36.6	13.1	Low Copper	Interluc Ultra	Y3779F	Shelter Island	May	2017	55	2693-212-AA
SDYC	2598	100	Sail	32	6	Low Copper	Interlux Bottc	10397	Shelter Island	Jun	2014	42.75	
SDYC	2597	94	Sail	33.2	10	Copper	Boat Purchased in 2016		purchase		2016	67	
SDYC	2596		Power			Copper						67	
SDYC	2595	98	Power	28	8	Low Copper	Interlux Inter	BQA659/5GL	Shelter Island	Oct	2014	38	2693-176-ZB
SDYC	2594	100	Power	36	13	Copper	Interlux Ultra	2779N	Shelter Island	Oct	2017	66.5	
SDYC	2593	98	Electric	23.3	7.11	Copper	Purchased 2016		purchase		2016	67	
SDYC	2592	100	Electric	19	7	Copper	Purchased Feb 2017		purchase	Feb	2017	67	
SDYC	2591	98	Sail	33	11	Low Copper	Interlux Bottc	79	Driscoll	Sept	2017	22	
SDYC	2590	95	Power	36	13.6	Copper						67	
SDYC	2589	100	Power	50	15	Low Copper	Proline 1088-	A1088G	Shelter Island	Nov	2014	60	
SDYC	2588	96	Sail	44.2	14.5	Low Copper	Interlux Ultra	Y3779F	Svendsens Bc	Apr	2015	67	2693-212-AA
SDYC	2587	91	Sail	43	11	Low Copper	Interlux Calif	YBA143	Koehler	Apr	2015	35	2693-18-ZA
SDYC	2586	98	Sail	28.2	8.2	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr	2014	55	2693-212-AA
SDYC	2585	0	vacant			Non Copper						0	
SDYC	2584	100	Power	27	8	Low Copper	Pettit Vivid W	11161	Nielsen Beau	Aug	2017	25	60061-116-AA
SDYC	2583	98	Power	38	12	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr	2018	55	2693-212-AA
SDYC	2582	97	Sail	52	13.6	Low Copper	Trinidad SR	A1877G	Shelter Island	Jun	2015	60	60061-94-ZD
SDYC	2581	100	Sail	34.5	11	Low Copper	Proline 1088-	A1088G	Shelter Island	Aug	2017	60	60061-94-ZB
SDYC	2580	100	Sail	55	16	Low Copper	Pettit Hydrac	1840	Nielsen Beau	Feb	2016	40.43	60061-87-ZI
SDYC	2579	90	Power	35.5	13.3	Non Copper	Pettit Ultima	1808	Driscoll	Jun	2018	0	#N/A
SDYC	2577	75	Sail	22	8	Non Copper	Boat is on Hydrolift - No bottom paint					0	
SDYC	2576	100	Sail	26	7	Low Copper	Super KL-6	K93	Driscoll	May	2010	70.2	
SDYC	2575	81	Sail	40.9	12.9	Low Copper	Pettit Z-Spar	B-94	Driscoll	Mar	2015	65	
SDYC	2574	98	Sail	40.2	12	Low Copper	Pettit Z-Spar	B-94	Driscoll	May	2013	65	
SDYC	2573	94	Power	36.3	11.9	Low Copper	Interlux Ultra	2779N	Shelter Island	Apr	2016	66.5	
SDYC	2572	97	Sail	39	12	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Mar	2017	55	2693-212-AA
SDYC	2571	0	vacant			Non Copper						0	
SDYC	2570	99	Power	25	8.6	Copper						67	
SDYC	2569	95	Sail	40	12	Low Copper	Proline 1088-	A1088G	Shelter Island	Jul	2017	60	60061-94-ZB
SDYC	2568	100	Power	43	13.6	Low Copper	Proline 1088	A10886	Shelter Island	Apr	2015	60	60061-94-ZB
SDYC	2567	98	Power	31.7	11.4	Low Copper	Woolsey Defe	4901	Nielsen Beau	Jul	2017	40	60061-117-ZA
SDYC	2566	100	Sail	32	9	Low Copper	Pettit Z-Spar	411187706	Driscoll	Jul	2012	65	60061-94-ZE
SDYC	2565	69	Sail	59	18	Low Copper	Interlux Ultra	Y3779F	Koehler	Oct	2014	55	2693-212-AA
SDYC	2564	99	Power	32.9	12	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Dec	2017	55	2693-212-AA
SDYC	2563	95	Sail	35.7	12.6	Non Copper	Intersleek 90	FXA979/A	Shelter Island	Nov	2013	0	
SDYC	2562	96	Power	33.5	11.6	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Mar	2018	55	2693-212-AA
SDYC	2561	100	Power	21	8	Low Copper	Interlux Ultra	Y3779F	Driscoll Missi	Aug	2016	55	2693-212-AA
SDYC	2560	100	Sail	46	14	Low Copper	Proline 1088-	A10886	Shelter Island	Jun	2014	60	60061-94-ZB
SDYC	2559	100	Power	30	10.3	Low Copper	Interlux Ultra	Y3449F	Knight Carver	May	2010	55	2693-212-AA
SDYC	2558	70	Power	63	15.8	Low Copper	Interlux Ultra	Y3779F	Nielsen Beau	Jun	2015	55	2693-212-AA
SDYC	2557	96	Power	28.2	9.5	Low Copper	Pettit Vivid W	11161	Shelter Island	Nov	2017	25	60061-116-AA
SDYC	2556	100	Power	32	11	Low Copper	Purchased Oct 2013		purchase	Oct	2013	67	
SDYC	2555	97	Sail	42	12.9	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jul	2015	55	2693-212-AA
SDYC	2554	99	Power	59.5	16.5	Copper	Interlux Ultra	3669	Shelter Island	Jul	2018	55	
SDYC	2553	100	Sail	30	10	Copper	Purchased Oct 2017		Private Party	Oct	2017	67	
SDYC	2552	98	Power	35.6	12	Low Copper	Hydrocoat	1840	Nielsen Beau	Jul	2015	40.43	60061-87-ZI
SDYC	2551	100	Sail	29.9	11.3	Low copper	Pettit Z-Spar	B-94	Driscoll	Jun	2016	65	
SDYC	2550	93	Sail	48	11.6	Copper	Pettit Z-Spar	B-94	Driscoll	Mar	2016	65	
SDYC	2549	78	Power	47	15	Low Copper	Interlux Bottc	79	Nielsen Beau	Jun	2016	22	
SDYC	2548	96	Sail	39	13.6	Copper	Purchased Jun 2016		purchase	Jun	2016	67	
SDYC	2547	40	Sail	47	14.8	Low Copper	Proline 1088-	A1088G	Shelter Island	Jul	2015	60	60061-94-ZB
SDYC	2546	96	Sail	44.2	13	Low Copper	Proline 1088-	A1088G	Shelter Island	Mar	2013	60	60061-94-ZB
SDYC	2545	100	Power	33.1	9.7	copper						67	
SDYC	2544	99	Sail	33	9	Low Copper	Pettit Vivid	1861	Driscoll	Jun	2015	25	60061-116-AA
SDYC	2543	100	Power	36.3	16.5	Non Copper	Intersleek 90	FXA979/A	Shelter Island	Jun	2013	0	
SDYC	2542	95	Power	32	9	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jul	2018	55	2693-212-AA

SDYC	2541	79	Power	44	13.7	Non Copper	Bluewater Sh	8202	Shelter Island	Apr	2011	0	
SDYC	2540	98	Power	38	13.3	Copper	Nautical Pro (	NAU993	Marine Grou	May	2017	41.97	
SDYC	2539	96	Power	47	14	Low Copper	Interlux Botto	10397	Driscoll	Apr	2015	42.75	
SDYC	2538	73	Power	22	8	Low Copper	Interlux Ultra	Y3779F	Shelter Island	May	2016	55	2693-212-AA
SDYC	2537	99	Sail	44	9.1	Copper	NFU 993 40%	NAU993	Nielsen Beau	Jun	2016	41.97	
SDYC	2536	75	Power	20	6	Non Copper	No Bottom Paint					0	
SDYC	2535	94	Power	45.9	12	Copper	Interlux Ultra	Y3449U	Shelter Island	Mar	2016	57	
SDYC	2534	100	Power	38	13	Low Copper	Proline 1088-	A1088G	Shelter Island	Jun	2017	60	60061-94-ZB
SDYC	2533	9	Sail	33	12	Low Copper	Interlux Ultra	Y3779F	Driscoll	Jun	2013	55	2693-212-AA
SDYC	2532	77	Power	23.6	7	Low Copper	Interlux Ultra	Y3779F	Koehler	Jul	2016	55	2693-212-AA
SDYC	2531	100	Sail	45	13.5	Low Copper	Zspar Bottom	411127906	Driscoll	Oct	2018	40	60061-117-ZE
SDYC	2530	100	Sail	43	13	Low Copper	Zspar Bottom	411187706	Shelter island	Feb	2016	65	60061-94-ZE
SDYC	2529	99	Sail	26	8.6	Low Copper	Z Spar Botton	411127906	Driscoll	Feb	2018	40	60061-117-ZE
SDYC	2528	81	Power	22	8	Low Copper	ABC3-2	ABC3-92	SD Boatyard	Oct	2006	47.99	
SDYC	2527	95	Power	40	14	Copper	Pettit Z-Spar	B-94	Driscoll	Jul	2016	65	
SDYC	2526	92	Power	58	16	Low Copper	Interlux Ultra	Y3779U	Shelter Island	Aug	2017	57	
SDYC	2525	98	Sail	46.4	9.9	Copper	Interlux Ultra	2779N	Shelter Island	Apr	2017	66.5	
SDYC	2524	100	Sail	40	12	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2015	55	2693-212-AA
SDYC	2523	94	Sail	37	11.4	Low Copper	Pettit Vivid-3	1861	Windward Bo	Jul	2012	25	60061-116-AA
SDYC	2522	100	Power	40	12.1	Low Copper	SeaHawk Sma	4705	Driscoll	Jun	2005	0	
SDYC	2521	97	Sail	49.5	14.8	Copper	Interlux Botto	10397	Shelter Island	Apr	2016	42.75	
SDYC	2520	99	Power	21	8	Low Copper	Pettit Copper	1048	Shelter Island	Nov	2015	33.26	
SDYC	2519	95	Power	36	13	Copper	Pettit Z-Spar	B-94	Driscoll	Jul	2017	65	
SDYC	2518		Sail	49	12	Low Copper	Trinidad Pro-	A1877G	Shelter Island	Feb	2017	60	60061-94-ZD
SDYC	2517	95	Power	26	8	Copper	Interlux Ultra	Y3779U	Marine Grou	May	2016	57	
SDYC	2516	92	Sail	32	10	Low Copper	Pettit Z-spar	B-94	Shelter Island	May	2012	65	
SDYC	2514	95	Sail	62	35.7	Copper	VC Offshore E	V118	New England	July	2016	41.19	
SDYC	2513	99	Sail	37	14	Copper						67	
SDYC	2512	88	Sail	50	13.1	Low Copper	Pettit Vivid W	11161	Shelter Island	Nov	2017	25	60061-116-AA
SDYC	2511	97	Power	38.4	13.8	Low Copper	Interlux Ultra	2779N	Shelter Island	Nov	2015	66.5	
SDYC	2510	100	Sail	28.5	9.2	Copper	Interlux Ultra	2779N	Shelter Island	Aug	2017	66.5	
SDYC	2508	75	Power	51	14.4	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2018	55	2693-212-AA
SDYC	2507	100	Sail	25	8	Copper	Purchased 2016		Purchased Ap	Apr	2016	67	
SDYC	2506	99	power	36	13	Low Copper	Bluewater Co	8101	Shelter Island	oct	2015	67	
SDYC	2505	65	Sail	45	13	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2017	55	2693-212-AA
SDYC	2504	89	Sail	32	6.7	Copper	Interlux Inter	BZA646	Driscoll	Jun	2015	0	
SDYC	2503	98	Power	47.9	15.5	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Nov	2017	55	2693-212-AA
SDYC	2502	92	Power	38.2	13.4	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Nov	2015	55	2693-212-AA
SDYC	2501	84	Power	45	13.7	Low Copper	Interlux Botto	10397	Nielsen Beau	May	2015	42.75	
SDYC	2500	94	Sail	50	13.8	Low Copper	SeaHawk AF3	3345	Shelter Island	Apr	2006	33	44891-12-AA
SDYC	2499	95	Electric	30	9	Low Copper	Pettit Z-spar	B-94	Driscoll	Dec	2009	65	
SDYC	2498	99	Sail	32	7	Non Copper	Coppercoat	85396-1-AA	Driscoll	May	2012	0	#N/A
SDYC	2497	98	sail	32.5	11.75	Copper	Boat Purchased Apr 2017		purchase	Apr	2017	67	
SDYC	2496	78	Power	22	8	Low Copper	Woolsey Defe	4801	Nielsen Beau	Jul	2017	47.5	60061-101-ZA
SDYC	2495	98	Sail	32	6.7	Copper	Interlux Ultra	3779	Koehler	Oct	2016	55	
SDYC	2494	99	Sail	29	7	Low Copper	Proline 1088-	A1088G	Shelter Island	Jan	2015	60	60061-94-ZB
SDYC	2493	94	Sail	59	10	Low Copper	Interlux Ultra	Y3779F	Koehler	Apr	2018	55	2693-212-AA
SDYC	2492	99	Power	48	15.1	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2015	55	2693-212-AA
SDYC	2491	92	Sail	34	11.5	Low Copper	Pettit Z-Spar	411167906	South Coast S	Sept	2017	40	60061-117-ZE
SDYC	2490	100	Power	35	10	Copper	Interlux Ultra	2779N	Shelter Island	Jun	2016	66.5	
SDYC	2489	99	Sail	18	6	Low Copper	Pettit Z-Spar	B-94	Driscoll	Mar	2012	65	
SDYC	2488	80	Electric	23	7.2	Low Copper	Interlux Ultra	Y3779F	Driscoll	Apr	2017	55	2693-212-AA
SDYC	2487	98	Power	35.7	12.6	Low Copper	Proline 1088-	A1088G	Shelter Island	Apr	2017	60	60061-94-ZB
SDYC	2486	97	Sail	50	14	Low Copper	Proline 1088-	A1088G	Shelter Island	Oct	2016	60	60061-94-ZB
SDYC	2485	95	Power	37	13	Copper	Ultrakote-6	Y3669U	Koehler	Jun	2017	57	
SDYC	2484	100	Power	52	15	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2015	55	2693-212-AA
SDYC	2483	98	Sail	34	10.6	Low Copper	Pettit Vivid Bl	1261	Driscolls	Mar	2018	25	60061-116-AA
SDYC	2482	99	Power	18.5	7	Low Copper	SeaHawk AF3	3345	Shelter Island	Apr	2006	33	44891-12-AA
SDYC	2481	99	Power	35	12	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2018	55	2693-212-AA

SDYC	2480	97	Power	46	14	Copper	Pettit Protect	B-94	Marine Grou	Jul	2018	65	
SDYC	2479	80	Sail	31	7	Copper	Intersleek-8	FXA979/A	Driscoll	Jun	2012	0	
SDYC	2478	100	Power	24	9	Low Copper	Proline 1088-	A1088G	Shelter Island	Nov	2018	67	60061-94-ZB
SDYC	2477	84	Power	17	6.1	Copper	Cukote	3442	Driscoll	Aug	2016	47	
SDYC	2476	92	Sail	41.8	12.5	Low Copper	Pettit-Vivid 3	1861	Driscoll	Mar	2018	25	60061-116-AA
SDYC	2474		Power	50	14.8	Low Copper	Interlux Ultra	Y3779F	Driscoll Missi	Nov	2016	55	2693-212-AA
SDYC	2473	0	vacant			Non Copper						0	
SDYC	2471	94	Sail	35	11	Low Copper	Interlux Ultra	Y3779F	SD Boatyard	Jul	2004	55	2693-212-AA
SDYC	2469	82	Sail	41.8	13.8	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Nov	2015	55	2693-212-AA
SDYC	2468	99	Sail	29	11	Copper						0	
SDYC	2467	86	Sail	32.7	9.15	Low Copper	Interlux Ultra	Y3779F	Koehler Kraft	Jul	2018	55	2693-212-AA
SDYC	2466	96	Sail	52	10	Low Copper	Interlux Ultra	Y3779F	Driscolls	Aug	2014	55	2693-212-AA
SDYC	2465	99	Sail	36	11.9	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Dec	2015	55	2693-212-AA
SDYC	2464	96	Power	47	14.3	Copper	Purchased December 2017		purchase	Dec	2017	67	
SDYC	2463	92	Power	65	17	Low Copper	Seaguard-2	P30BQ12	Driscoll	Jul	2015	48	
SDYC	2462	99	Power	33	11	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jul	2016	55	2693-212-AA
SDYC	2461	92	Sail	50	12	Low Copper	Zspar Bottom	411187706	Driscoll	Feb	2016	65	60061-94-ZE
SDYC	2460	98	Power	32	10.6	Low Copper	Interlux Bott	79	Driscoll	Jan	2016	22	
SDYC	2459	99	Power	46	15.5	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr	2015	67	2693-212-AA
SDYC	2458	90	Power	36	12.6	Copper	Purchased Aug 2016		purchase	Aug	2016	67	
SDYC	2457	100	Sail	33.3	10	Low Copper	Ceram-kote	99M	Shelter Island	Oct	2014	0	
SDYC	2456	98	Sail	40	12	Low Copper	Woolsey Def	4901	Nielsen Beau	Nov	2017	40	60061-117-ZA
SDYC	2455	96	Power	55	16	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Feb	2015	55	2693-212-AA
SDYC	2454	100	Power	39.1	11.9	Copper	Purchased may 2017		purchase	May	2017	67	
SDYC	2453	83	Sail	29	9.3	Low Copper	Sharksin-7	6145	Shelter Island	Jul	2014	45	44891-11-AA
SDYC	2452	100	Power	53	16	Low Copper	Interlux Ultra	Y3779F	Marine Grou	Nov	2014	55	2693-212-AA
SDYC	2451	100	Sail	31.1	6	Low Copper	Pettit Vivid Bl	1261	Driscoll	Nov	2017	25	60061-116-AA
SDYC	2450	99	Power	35	12	Low Copper	Interlux Calif	YBA143	Koehler	May	2015	35	2693-18-ZA
SDYC	2449	100	Sail	37	12.3	Low Copper	Pettit Copper	1048	Nielsen Beau	Jun	2015	33.26	
SDYC	2448	89	Power	63.5	16.6	Low Copper	Interlux Ultra	Y3779F	Driscoll	Mar	2017	55	2693-212-AA
SDYC	2447	95	Power	68	18	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr	2016	55	2693-212-AA
SDYC	2446	83	Power	42	13.3	Low Copper	Interlux Ultra	Y3669F	Shelter Island	Mar	2016	55	2693-212-AA
SDYC	2445	98	Power	35	11	Low Copper	Interlux Bott	10397	Koehler	Nov	2016	42.75	
SDYC	2444	98	Power	42	12.8	Copper	Purchased April 2017		purchase	Apr	2017	67	
SDYC	2443	99	Power	36	14	Low Copper	Interlux Ultra	Y3779F	Shelter Island	May	2017	55	2693-212-AA
SDYC	2442	99	Sail	31.1	7.6	Low Copper	Pettit Vivid-3	1861	Driscoll - Mss	May	2016	25	60061-116-AA
SDYC	2441	100	Sail	30	9.6	Copper	Hard Coat Ex	V127/A	Driscoll	Oct	2016	67	
SDYC	2440	97	Power	23	6	Copper	Interlux Bott	10397	Shelter Island	Jan	2017	42.75	
SDYC	2439	97	Sail	43.8	13.6	Low Copper	Black Widow	1862	Shelter Island	Aug	2016	25	
SDYC	2438	98	Sail	35	11.7	Low Copper	Trinidad-6	A1088G	Driscoll	Jun	2017	60	60061-94-ZB
SDYC	2437	99	Power	42	13.5	Low Copper	Interlux Ultra	Y3669F	Shelter Island	Jul	2017	55	2693-212-AA
SDYC	2436	84	Sail	20	4	Non Copper	No bottom paint					0	
SDYC	2435	100	Power	27.1	9.2	Low Copper	Pettit Ultima	1038	Nielsen Beau	Jul	2017	60	
SDYC	2434	100	Sail	79	16.4	Low Copper	Proline 1088-	A1088G	Ventura Harb	Nov	2014	60	60061-94-ZB
SDYC	2433	95	Power	42	14.5	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Mar	2016	55	2693-212-AA
SDYC	2432	81	Sail	34.5	11	Low Copper	Interlux VC O	V118	Driscoll	Aug	2015	41.19	
SDYC	2431	88	Sail	52	14.8	Low Copper	Proline 1088-	A1088G	Shelter Island	Jul	2005	60	60061-94-ZB
SDYC	2430	96	Power	75	21	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Mar	2018	55	2693-212-AA
SDYC	2429	98	Power	38	13	Copper						67	
SDYC	2428	100	Sail	20	7	Low Copper	Interlux Ultra	Y3779F	Driscoll	Jul	2016	55	2693-212-AA
SDYC	2427	100	Sail	32	6.7	Low Copper	Pettit Z-Spar	B-94	Driscoll	Aug	2015	65	
SDYC	2426	100	Sail	41.8	13.8	Low Copper	Interlux Ultra	Y3779F	Shelter island	Jul	2016	55	2693-212-AA
SDYC	2425	98	Power	31	10	Low Copper	Interlux Bott	79	Shelter Island	May	2014	22	
SDYC	2424	98	Power	25.3	9.5	Low Copper	Pettit Vivid-3	1861	Driscoll	Jan	2014	25	60061-116-AA
SDYC	2423	91	Sail	35	10.6	Low Copper	Trinidad SR	A1277Q	Driscoll	Oct	2018	60	60061-94-ZD
SDYC	2422	0	vacant			Non Copper						0	
SDYC	2421	98	Sail	26.4	5.11	Low Copper	Interlux Ultra	Y3779F	Koehler	Nov	2016	55	2693-212-AA
SDYC	2420	94	Sail	39.6	12	Low Copper	Ultrakote-6	Y3669U	Shelter Island	Jan	2014	57	
SDYC	2419	80	Sail	30	7	Low Copper	Pettit Black 1	A1088G	Driscoll Missi	Jun	2017	60	60061-94-ZB

SDYC	2418	100	Sail		34.5	11	Copper	Epoxy non to:	V127/A	Driscoll	Nov	2013	0	
SDYC	2417	99	Sail	37'		13.5	Low Copper	Zspar Interlu›	B-94	Charleston Ci	Aor	2015	65	
SDYC	2416	99	Sail		40	13	Non Copper	VC Performar	V127/A	Shelter Island	Jan	2018	0	
SDYC	2415	100	Sail		36	12.5	Copper	Ultrakote-6	Y3669U	Shelter Island	Feb	2016	57	
SDYC	2414		Power		44	15		Seaguard Bla	P30BQ12	Driscoll	Feb	2017		
SDYC	2413	99	Sail		46	14.4	Copper	Purchased June 2018		JK3 Alameda	Jun	2018	67	
SDYC	2412	97	Electric		25	8	Low Copper	Proline 1088-	A1088G	Shelter Island	Nov	2016	60	60061-94-ZB
SDYC	2411	98	Sail		36	12.5	Copper	Interlux Fiber	YBA579	Shelter Island	Oct	2016	46	
SDYC	2410	95	Power		21.3	8.4	Low Copper	Bottomshield	411186606	Cogswell Mar	Aug	2015	28.86	60061-129-AA
SDYC	2409	87	Power		39	12	Low Copper	Pettit Copper	1048	Shelter Island	Feb	2016	33.26	
SDYC	2408	90	Power		31	10	Low Copper	Interlux Bottc	10397	Shelter Island	Jun	2018	42.75	
SDYC	2407	98	Power		36	12	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Oct	2015	55	2693-212-AA
SDYC	2406	98	Power		47	14.8	Copper	Purchased Mar 2016		purchase	Mar	2016	67	
SDYC	2405	97	Power		40	12	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Mar	2016	55	2693-212-AA
SDYC	2403	100	Sail		46	18.6	Copper	Z-Spar Bottor	A411187706	Driscoll	Aug	2017	65	
SDYC	2402	99	Power		36.4	10	Low Copper	Pettit-Pro	16471732	Driscoll	May	2015	65	
SDYC	2401	99	Power		61	16	Copper	Pettit Z-Spar I	B-94	Shelter Island	Oct	2018	65	
SDYC	2400	72	Sail		30	10.1	Low Copper	Proline 1088-	A1088G	Shelter Island	Jan	2012	60	60061-94-ZB
SDYC	2399	96	Power		26.5	8.5	Low Copper	Pettit-Vivid 3	1861	Driscoll	Jul	2016	25	60061-116-AA
SDYC	2398	86	Sail		30	11	Low Copper	Proline 1088-	A10886	Shelter Island	Aug	2015	60	60061-94-ZB
SDYC	2397	97	Sail		37	12	Copper	Interlux Ultra	Y3779F	Shelter Island	Oct	2017	55	
SDYC	2396	100	Power		32	12.5	Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2016	55	
SDYC	2395	100	Power		33	10.8	Low Copper	Interlux Inter:	BQA659/5GL	Koehler	Feb	2017	38	2693-176-ZB
SDYC	2394	30	Sail		25.5	8	Copper	Purchased Aug 2017		purchase	Aug	2017	67	
SDYC	2393	100	Sail		32	6.7	Low Copper	Proline 1088-	A1088G	Shelter Island	Apr	2011	60	60061-94-ZB
SDYC	2392	100	Power		35	11	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Mar	2018	55	2693-212-AA
SDYC	2391	91	Sail		47	14.8	Low Copper	Zspar Bottom	411187706	Driscoll	May	2017	65	60061-94-ZE
SDYC	2390	88	Power		26	8.6	Copper	Purchased Jun 2018		Purchased Ju	Jun	2018	67	
SDYC	2389	98	Power		32.5	12.3	Low Copper	Interlux Ultra	Y3779F	Koehler	Feb	2011	55	2693-212-AA
SDYC	2388	97	Power		42	13.6	Low Copper	Proline 1088-	A1088G	Shelter Island	Aug	2017	60	60061-94-ZB
SDYC	2387	100	Power		42	14	Low Copper	Pettit Hydroc	1640	Driscoll	Feb	2017	40.43	60061-87-ZL
SDYC	2386	100	Sail		43	13.7	Low Copper	Interlux Ultra	Y3669F	Shelter Island	Oct	2018	55	2693-212-AA
SDYC	2385	99	Sail		39	12	Low Copper	Interlux Ultra	Y3779F	Marine Grou	Nov	2015	55	2693-212-AA
SDYC	2384	100	Sail		45.9	14	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr	2015	55	2693-212-AA
SDYC	2383	100	Power		40	13.5	Copper	N/A		N/A			67	
SDYC	2382	100	Sail		33	11	Copper	Nautical Prog	NAU990	Nielsen Beau	Jul	2017	41.97	
SDYC	2381	98	Power		24	8.5	Low Copper	Interlux Ultra	Y3779F	Driscolls Miss	Jan	2016	55	2693-212-AA
SDYC	2380	97	Power		48	15.2	Copper	Interlux Bottc	10397	Driscoll	Jul	2016	42.75	
SDYC	2379	98	Power		30	11.5	Copper	Pettit Z-Spar I	B-94		May	2016	65	
SDYC	2378	98	Sail		35	11	Non Copper	No paint					0	
SDYC	2377	93	Sail		48.4	14.8	Low Copper	Nautical Prog	NAU993	Nielsen Beau	Feb	2015	41.97	
SDYC	2376	97	Sail		37	11.8	Copper	Interlux Ultra	Y3779U	Driscoll Missi	Feb	2017	57	
SDYC	2375	98	Power		30	9.6	Low Copper	Interlux Fiber	YBA579	Driscoll	Jan	2015	46	
SDYC	2374	100	Sail		35	11	Non Copper	Interlux Epox	V127/A	Applied by m	Sept	2001	0	
SDYC	2373	0	vacant				Non Copper						0	
SDYC	2372	100	Sail		32	7	Low Copper	Interlux Ultra	Y3779F	Koehler	Jun	2015	55	2693-212-AA
SDYC	2371	99	Power		40	13.5	Low Copper	Interlux Ultra	Y3779F	Pacific Marin	Jan	2018	55	2693-212-AA
SDYC	2370	100	Sail		26	8.5	Low Copper	Trinidad VOC	1678	Driscoll	Jan	2013	75.8	
SDYC	2369	96	Sail		31.8	10.6	Low Copper	Pettit Vivid-3	1861	Shelter Island	Jul	2017	25	60061-116-AA
SDYC	2367	99	Sail		38.3	11.6	Low Copper	Proline 1088-	A1088G	Shelter Island	May	2012	60	60061-94-ZB
SDYC	2366	79	Sail		67.6	19.2	Low Copper	Pettit Z-spar I	B-94	Driscoll	Oct	2015	65	
SDYC	2365	100	Sail		29	9.6	Low Copper	Interlux Ultra	Y3779F	Driscoll - Mis	Dec	2016	55	2693-212-AA
SDYC	2364	96	Power		32.2	10.2	Low Copper	Interlux Ultra	Y3779F	Shelter Island	May	2015	55	2693-212-AA
SDYC	2363	83					Copper						67	
SDYC	2362	95	Sail		34.9	11.11	Low Copper	Pettit Vivid-3	1861	Shelter Island	Jun	2016	25	60061-116-AA
SDYC	2360	98	Power		50	15.8	Low Copper	Proline 1088-	A1088G	Shelter Island	Aug	2017	60	60061-94-ZB
SDYC	2359	100	Power		33	9.6	Low Copper	Interlux Ultra	Y3779F	Nielsen Beau	Jun	2013	55	2693-212-AA
SDYC	2358	100	Sail		42	13	Low Copper	Proline 1088-	A1088G	Shelter Island	Dec	2013	60	60061-94-ZB
SDYC	2357	99	Power		47.3	14.9	Non Copper	Coppercoat	85396-1-AA	Nielsen Beau	Jun	2015	0	#N/A

SDYC	2356	100	Power	73.3	21	Low Copper	Z-Spar Bottor	411187706	Driscoll	Mar	2017	65	60061-94-ZE
SDYC	2355	78	Sail	40	12.8	Non Copper	Pacifica Plus	YBB263	Shelter Island	Mar	2013	0	#N/A
SDYC	2354	92	Sail	44.5	13.3	Low Copper		Y3779F	Driscoll	Mar	2017	55	2693-212-AA
SDYC	2353	98	Sail	52	14	Low Copper	Interlux Ultra	Y3779F	Driscoll	Jun	2017	55	2693-212-AA
SDYC	2352	0	vacant			Non Copper						0	
SDYC	2351	97	Sail	34	9.3	Copper						67	
SDYC	2350	100	Power	31	10	Non Copper	Epoxy Botton	V127/A	Shelter Island	Sept	2014	0	
SDYC	2349	92	Sail	30	7	Low Copper	Interlux Ultra	Y3779F	Koehler	Aug	2011	55	2693-212-AA
SDYC	2348	100	Power	42	13.5	Low Copper	Trinidad Pro-	A1877G	Driscoll	Aug	2014	60	60061-94-ZD
SDYC	2347	93	Power	20.5	8	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2016	55	2693-212-AA
SDYC	2346	100	Sail	39.2	10.8	Copper	Pettit Z-Spar	B-94	Driscoll Missi	Aug	2017	65	
SDYC	2345	97	Sail	34.5	11	Low Copper	Interlux Ultra	YBA472	Shelter Island	May	2018	35	2693-187-ZE
SDYC	2344	100	Sail	30	21.2	Low Copper	Pettit Vivid Fr	1361	Marine Grou	Jul	2014	25	60061-116-AA
SDYC	2343	100	Sail	28.5	10	Low Copper	Proline 1088	A1088G	Shelter Island	Aug	2016	60	60061-94-ZB
SDYC	2342	95	Power	47.3	14.3	Low Copper	Purchased January 2015		purchase	Jan	2015	67	
SDYC	2341	99	Power	34	11.5	Low Copper	Nautical, Sup	NK52	Nielsen Beau	Oct	2016	33.4	2693-70-ZA
SDYC	2340	99	Power	57	15	Low Copper	Interlux Ultra	Y3779F	Shelter Island	May	2013	55	2693-212-AA
SDYC	2339	94	Sail	27	7.5	Non Copper	Epoxy bottom		Shelter Island	Dec	2017	0	
SDYC	2338	99	Power	36	11.8	Low Copper	Interlux Bottc	10397	Koehler	Apr	2010	42.75	
SDYC	2337	100	Sail	49	11.5	Copper						67	
SDYC	2336	99	Sail	43.8	12.8	Low Copper	Proline 1088	A1088G	Shelter Island	Jun	2015		60061-94-ZB
SDYC	2335	100	Power	33	12	Copper						67	
SDYC	2334	97	Sail	62	14	Copper	Interlux Ultra	YBC772	New Zealand	Mar	2016	50	
SDYC	2333	96	Sail	29	11	Low Copper	Z-Spar Bottor	411127906	Driscoll	Jan	2018	40	60061-117-ZE
SDYC	2332	100	Power	38	13.5	Low Copper	Purchased June 2014		purchase	June	2014	67	
SDYC	2331	95	Sail	42	13	Low Copper	Interlux Aqua	YBA579	Shelter Island	Jun	2015	46	
SDYC	2330	100	Power	52	16	Low Copper	Interlux Ultra	Y3449U	Shelter Island	Feb	2015	57	
SDYC	2329	99	Sail	40	12	Low Copper	Interlux Ultra	Y3779F	Koehler	May	2018	55	2693-212-AA
SDYC	2328	95	Power	41	12.5	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Feb	2015	55	2693-212-AA
SDYC	2325	94	Sail	28	7	Low Copper	Purchased Feb 2016		purchase	Feb	2016	67	
SDYC	2324	0	vacant			Non Copper						0	
SDYC	2323	100	Power	33	12.5	Copper	Interlux Ultra	2779N	Koehler	Jun	2017	66.5	
SDYC	2322	90	Power	46	15	Low Copper	Interlux Inter	B-94	Shelter Island	Jun	2015	65	
SDYC	2321	0	vacant			Non Copper						0	
SDYC	2320	100	Sail	36	12	Low Copper	Trinidad SR	A1877G	Driscoll	Feb	2016	60	60061-94-ZD
SDYC	2319	95	Sail	35	11	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2015	55	2693-212-AA
SDYC	2318	93	sail	32.8	9.25	Copper	Interlux Ultra	Y3669U	Shelter Island	May	2016	57	
SDYC	2317	96	Sail	68	14	Copper	SeaHawk Sma	4705	Windward Bo	Mar	2015	0	
SDYC	2316	100	Power	47.6	14.4	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Sep	2015	55	2693-212-AA
SDYC	2315	99	Power	48	14.8	Low Copper	Trinidad-6	A1088G	Driscoll	Oct	2017	60	60061-94-ZB
SDYC	2314	95	Power	17	6	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2016	55	2693-212-AA
SDYC	2313	100	Sail	36.3	11.8	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2015	55	2693-212-AA
SDYC	2312	71	Sail	41	11	Non Copper	Ceramkote	99M	Shelter Island	May	2014	0	
SDYC	2311	0	vacant			Non Copper						0	
SDYC	2310	96	Power	27.5	9.5	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Dec	2011	55	2693-212-AA
SDYC	2309	96	Power	21	8.3	Copper	Proline 1088-	1088C-01	Other	Apr	2018	66.9	
SDYC	2308	97	Sail	40.1	12	Copper	Interlux VC O	V118	Shelter Island	Jun	2017	41.19	
SDYC	2307	99	Sail	29.11	10.1	Low Copper	Pettit Z-Spar	B-94	Driscoll	Jun	2010	65	
SDYC	2306	100	Sail	31.6	9.3	Low Copper	Proline 1088	A10886	Shelter Island	Mar	2016	60	60061-94-ZB
SDYC	2305	90	Power	70	19	Low Copper	SeaHawk AF3	3345	Marine Grou	Feb	2017	33	44891-12-AA
SDYC	2304	90	Sail	45	13.1	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr	2014	55	2693-212-AA
SDYC	2303	99	Sail	47	14	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Oct	2018	55	2693-212-AA
SDYC	2302	100	Sail	28	9.5	Low Copper	Ceram-kote	99M	Self applied	Jun	2010	0	
SDYC	2301	93	Sail	48	14.75	Low Copper	Interlux Ultra	Y3779F	Driscoll	Jun	2017	55	2693-212-AA
SDYC	2300	98	Sail	40	12.5	Low Copper	Pettit Vivid-3	1861	Driscoll	Jun	2016	25	60061-116-AA
SDYC	2299	86	Power	40.9	12.4	Non Copper	Hydro Hoist					0	
SDYC	2298	98	Sail	27	9	Low Copper	Proline 1088-	A1088G	Shelter Island	Jan	2015	60	60061-94-ZB
SDYC	2297	100	Power	36	13	Low Copper	Proline 1088-	A1088G	Shelter Island	Nov	2018	67	60061-94-ZB
SDYC	2296	100	Power	33.6	10.3	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2015	55	2693-212-AA

SDYC	2295	100	Sail	45.6	14.1	Low Copper	Interlux Ultra	Y3779F	Driscoll	Jun	2015	55	2693-212-AA
SDYC	2294	92	Sail	33.6	11.8	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr	2014	55	2693-212-AA
SDYC	2293		Power	36	12	Copper			Purchased	Dec	2017	67	
SDYC	2292	98	Power	57	14.5	Low Copper	Interlux Bottc	10397	Shelter Island	Sep	2010	42.75	
SDYC	2291	91	Sail	34.4	11.6	Non Copper	Purchased Feb 2017		purchase	Feb	2017	67	
SDYC	2290	86	Power	21	8	Low Copper	Sharkskin-7	6145	Shelter island	Jun	2013	45	44891-11-AA
SDYC	2289	99	Sail	32	11.2	Low Copper	Purchased Dec 2015		purchase	Dec	2015	67	
SDYC	2288	97	Sail	28	9.3	Non Copper	Coppercoat	85396-1-AA	Driscoll	Apr	2013	0	#N/A
SDYC	2287	99	Power	31	10.3	Low Copper	Interlux Ultra	Y3779F	SD Boatyard	May	2016	55	2693-212-AA
SDYC	2286	95	Power	42	11	Low Copper	Interlux Fiber	YBA579	Driscoll	Jan	2015	46	
SDYC	2285	99	Sail	33	11.4	Low Copper	Trinidad SR	A1877G	Old Kettenbe	Jun	2006	60	60061-94-ZD
SDYC	2284	75	Power	46	14.6	Low Copper	Pettit Trinida	A1088G	Self Applied	Aug	2017	60	60061-94-ZB
SDYC	2283	97	Power	45.3	14.3	Copper	Interlux Ultra	2779N	Shelter Island	Mar	2017	66.5	
SDYC	2282	99	Power	42	24	Low Copper	Proline 1088-	A1088G	Driscoll	Apr	2016	60	60061-94-ZB
SDYC	2281	96	Sail	30	10	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Oct	2013	55	2693-212-AA
SDYC	2280	95	Sail	30	10.5	Copper	Pro-Line 1088	1088C-01	Shelter Island Boatyard			66.9	
SDYC	2279	99	Power	17	5	Copper	Monterey	5445	Self Applied	Sept	2016	58	
SDYC	2278	86	Sail	36	13	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Feb	2014	55	2693-212-AA
SDYC	2277	98	Power	48.6	16	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Feb	2017	55	2693-212-AA
SDYC	2276	98	Power	28	7	Low Copper	Interlux Bottc	79	Driscoll	Mar	2015	22	
SDYC	2275	95	Sail	36	6	Low Copper	Trinidad VOC	1378	Koehler	May	2013	65	
SDYC	2274	85	Sail	47	13.2	Low Copper	Micron Extra	5793	Driscoll	Nov	2013	38.6	2693-190-ZJ
SDYC	2273	100	Power	45.7	14.5	Copper	Pettit Z-Spar I	B-94	Driscoll	Aug	2016	65	
SDYC	2271	99	Power	23.5	8.5	Low Copper	Zspar Bottom	411127906	Driscoll	Aug	2018	40	60061-117-ZE
SDYC	2270	87	Sail	32	6.7	Copper	Interlux Ultra	2779N	Shelter Island	Oct	2016	66.5	
SDYC	2269	99	Power	34	12.6	Copper	Purchased Jun 2017		purchase	Jun	2017	67	
SDYC	2268	100	Sail	34	11	Non Copper	Bluewater Sh	8202	Shelter Island	Apr	2015	0	
SDYC	2265	100	Sail	39	13	Copper	Interlux Ultra	2669N	Balboa Boat Y	Jul	2016	66.5	
SDYC	2264	90	Sail	35	13	Low Copper	Trilux 33-3	YBA063	Driscoll	Nov	2009	16.95	2693-203-ZB
SDYC	2263	99	Sail	35.6	10.4	Low Copper	Interlux Ultra	Y3779F	Driscoll	Jan	2007	55	2693-212-AA
SDYC	2262	100	Power	52	14	Low Copper	Interlux Calif	YBA143	Driscoll	Jul	2017	35	2693-18-ZA
SDYC	2261	98	Power	32	11.5	Copper	Interlux Bottc	10397	Koehler	Jan	2017	42.75	
SDYC	2259	93	Power	30.4	11.5	Copper	Interlux Ultra	Y3669U	Shelter Island	Feb	2016	57	
SDYC	2258	99	Power	33	11.3	Low Copper	Proline 1088-	A1088G	Driscoll	Dec	2013	60	60061-94-ZB
SDYC	2257	99	Sail	36	11	Non Copper	No Bottom Paint					0	
SDYC	2256	99	Sail	36.3	11.9	Copper	Pettit Z-Spar I	B-94	Driscoll	Jul	2017	65	
SDYC	2255	99	Sail	52	15.4	Low Copper	Pettit Ultima	1038	Driscolls	Apr	2016	60	
SDYC	2254	92	Sail	48	13.2	Low Copper	VC Offshore I	V117	Driscoll	Feb	2013	41.19	
SDYC	2253	93	Electric	21	6	Copper	Interlux Ultra	Y3779F	Shelter Island	Oct	2018	55	
SDYC	2252	100	Sail	40	12	Copper						0	
SDYC	2251	100	Sail	28	6	Low Copper	Proline	A10886	Driscoll Missi	Oct	2010	60	60061-94-ZB
SDYC	2250	99	Sail	34	11	Low Copper	Purchased 2015		purchase		2015	67	
SDYC	2249	100	Sail	35	11	Low Copper	Proline 1088-	Y3779F	Shelter Island	Jul	2017	55	2693-212-AA
SDYC	2248	96	Sail	34.5	11	Non Copper	VC Performar	V127/A	Driscoll			0	
SDYC	2247	70	Sail	34.4	11.9	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr	2015	55	2693-212-AA
SDYC	2246	87	Power	39	12	Low Copper	Ultrakote-6	Y3559U	Shelter Island	Nov	2015	57	
SDYC	2245	98	Power	44	13.5	Low Copper	Interlux Aqua	YBA579	Nielsen Beau	Apr	2015	46	
SDYC	2244	100	Power	47	14.6	Low Copper	Interlux Ultra	Y3669F	Shelter Island	Mar	2015	55	2693-212-AA
SDYC	2243	49	Power	54.6	16.2	Non Copper	Intersleek 90	FXA979/A	Driscoll	Mar	2013	0	
SDYC	2242	80	Sail	35	11.3	Low Copper	Proline 1088-	A10886	Koehler	Apr	2016	60	60061-94-ZB
SDYC	2241	95	Power	41	14.6	Low Copper	Interlux Ultra	Y3779U	Shelter Island	Jul	2017	57	
SDYC	2240	0	vacant			Non Copper						0	
SDYC	2239	99	Power	47.2	14.3	Copper	Purchased Feb 2017		purchase	Feb	2017	67	
SDYC	2238	100	Power	25	8	Low Copper	Interlux Ultra	Y3779F	Driscoll	July	2017	55	2693-212-AA
SDYC	2237	99	Sail	38	13.2	Non Copper	SeaHawk Sma	4002	Driscoll	Mar	2016	0	
SDYC	2236	99	Power	26	9.2	Copper	Purchased Mar 2017		Purchased M	Mar	2017	67	
SDYC	2235	100	Power	39.5	13.8	Low Copper	Interlux Micro	5693	KKMI and Sau	Aug	2015	35	
SDYC	2234	83	Sail	37	22.4	Low Copper	International	Y3779F	Painted in Th	Jan	2018	55	2693-212-AA
SDYC	2233	100	Sail	34.5	11	Non Copper	VP Performar	V127/A	Driscoll Missi	Apr	2011	0	

SDYC	2232	97	Sail	47	14	Low Copper	SeaHawk AF3	3345	Shelter Island	Aug	2015	33	44891-12-AA
SDYC	2231	100	Sail	31	10	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2015	55	2693-212-AA
SDYC	2230	99	Sail	39.7	11.8	Low Copper	Pettit Vivid W	11161	Shelter Island	Jan	2011	25	60061-116-AA
SDYC	2229	96	Sail	35	9	Low Copper	Interlux Bott	10397	Shelter Island	Jun	2012	42.75	
SDYC	2228	0	vacant			Non Copper						0	
SDYC	2227	88	Sail	57	16	Low Copper	Pro-line 1088	1088C-01	Shelter Island	Dec	2015	66.9	
SDYC	2226	66	Sail	35	11	Low Copper	Interlux Ultra	Y3779F	Koehler	Oct	2016	55	2693-212-AA
SDYC	2225	0	vacant			Non Copper						0	
SDYC	2224	70	Power	40	12.5	Copper	Pettit Z-Spar	B-94	Driscoll	Oct	2016	65	
SDYC	2223	100	Sail	39	13.6	Low Copper	Interlux Epox	NK52	Nielsen Beau	May	2015	33.4	2693-70-ZA
SDYC	2222	99	Power	54	14	Copper	Interlux Ultra	Y3779U				57	
SDYC	2221	100	Power	33	12.8	Copper	Pettit Z-Spar	B-94	Sunset Aquat	Mar	2017	65	
SDYC	2220	100	Power	33.1	10.8	Low Copper	Pettit Z-Spar	B-94	Driscoll	Oct	2015	65	
SDYC	2219	59	Power	47.3	14.9	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr	2015	55	2693-212-AA
SDYC	2218	100	Power	32	11	Copper	Interlux Ultra	Y3669U	Shelter Island	Jun	2018	57	
SDYC	2217	97	Power	44.8	14.4	Non Copper	Intersleek 90	FXA979/A	Shelter Island	Jun	2015	0	
SDYC	2216	81	Sail	37.5	13	Low Copper	Hydrocoat	1840	Nielsen Beau	Jul	2015	40.43	60061-87-ZI
SDYC	2215	96	Power	40	14	Non Copper	Interlux Bott	10397	Driscoll	Jun	2016	42.75	
SDYC	2214	100	Power	50	16.8	Low Copper	Interlux Ultra	Y3779F	Shelter Island	May	2015	55	2693-212-AA
SDYC	2212	86	Sail	39.8	12.3	Low Copper	Interlux Ultra	Y3779F	Driscoll Missi	Jun	2014	55	2693-212-AA
SDYC	2211	63	Power	42	15	Low Copper	Proline 1088-	A1088G	Driscoll	Mar	2014	60	60061-94-ZB
SDYC	2210	100	Power	48	15.1	Low Copper	Proline 1088-	A1088G	Shelter Island	Jan	2015	60	60061-94-ZB
SDYC	2209	94	Power	42	15	Low Copper	Interlux Calif	YBA143	Shelter Island	Jan	2012	35	2693-18-ZA
SDYC	2207	100	Sail	44.11	13	Copper	Ultra Kote Bla	Y3779u	SIBY	Oct	2017	57	
SDYC	2206	99	Sail	41	10.5	Low Copper	Trinidad SR	A1877G	Driscoll	Jun	2010	60	60061-94-ZD
SDYC	2205	100	Power	34.7	13	Copper	Interlux Fiber	YBA579	Shelter Island	Nov	2016	46	
SDYC	2204	100	Sail	35	10	Low Copper	Interlux Ultra	Y3779F	Koehler	Aug	2017	55	2693-212-AA
SDYC	2203	100	Sail	25	8.3	Low Copper	Interlux Bott	10397	Driscoll	Jun	2015	42.75	
SDYC	2202	99	Sail	28	9.6	Low Copper	Pettit Vivid W	11161	Shelter Island	Jan	2015	25	60061-116-AA
SDYC	2201	97	Power	30	20.5	Copper	Purchased November 2016		purchase			67	
SDYC	2200	98	Sail	30	6.5	Low Copper	Interlux Ultra	Y3779F	Koehler	Mar	2015	55	2693-212-AA
SDYC	2199	0	vacant			Non Copper						0	
SDYC	2198	100	Power	38	14	Low Copper	Interlux Fiber	YBA579	Driscoll	May	2013	46	
SDYC	2197	99	Sail	49.2	15.11	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Dec	2016	55	2693-212-AA
SDYC	2196	96	Sail	42.5	14	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2016	55	2693-212-AA
SDYC	2195	96	Power	24	8.3	Low Copper	Zspar Bottom	411187706	Driscoll	Mar	2015	65	60061-94-ZE
SDYC	2194	97	Sail	30	10	Low Copper	Intersleek 90	FXA979/A	Driscoll Missi	Apr	2017	0	
SDYC	2193	98	Sail	59	10.6	Low Copper	Interlux Bott	79	Koehler	Aug	2015	22	
SDYC	2192	98	Sail	31.1	9.8	Low Copper	Interlux Bott	10397	Shelter Island	Jun	2014	42.75	
SDYC	2191	90	Power	42	13.5	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr	2017	55	2693-212-AA
SDYC	2190	97	Sail	43.2	12.9	Low Copper	Woolsey Def	4801	Nielsen Beau	Aug	2016	47.5	60061-101-ZA
SDYC	2189	0	vacant			Non Copper						0	
SDYC	2188	86	Power	35	9.5	Low Copper	Interlux VC O	V118	Driscoll	May	2016	41.19	
SDYC	2187	98	Sail	39.1	12.3	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Nov	2017	55	2693-212-AA
SDYC	2186	100	Sail	46.9	11.1	Low Copper	Proline 1088-	A1088G	Shelter Island	Apr	2016	60	60061-94-ZB
SDYC	2185	98	Sail	32	6.7	Copper						0	
SDYC	2184	99	Sail	32	7	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jul	2011	55	2693-212-AA
SDYC	2183	100	Sail	46.6	14.7	Low Copper	Nautical Prog	NAU993	Nielsen Beau	Feb	2015	41.97	
SDYC	2182	100	Sail	31	7.3	Low Copper	VC Performa	V127/A	Other - Manu	Jun	2015	0	
SDYC	2181	100	Power	36	12.5	Copper	Nautical Prog	NAU993	Nielsen Beau	Nov	2016	41.97	
SDYC	2180	95	Sail	40	13	Low Copper	Pettit Unepo	6077549	Shelter Island	Aug	2018	33	
SDYC	2179	67	Sail	34.1	10	Low Copper	Pettit-Vivid-3	1861	Koehler	May	2015	25	60061-116-AA
SDYC	2178	96	Power	78	20	Low Copper	Interlux Micr	YBC582	Shelter Island	Mar	2017	33.4	2693-225-AA
SDYC	2177	97	Power	35	10.6	Low Copper	Pettit Z-Spar	B-94	Driscoll	Jan	2015	65	
SDYC	2176	100	Sail	35	11.9	Low Copper	Proline 1088-	A1088G	Shelter Island	Feb	2016	60	60061-94-ZB
SDYC	2175	90	Power	23	8	Low Copper	Proline 1088-	A1088G	Shelter Island	Oct	2015	60	60061-94-ZB
SDYC	2174	100	Power	39	12.5	Low Copper	Interlux Ultra	Y3779F	Mountain Ma	Jun	2015	55	2693-212-AA
SDYC	2173	98	Sail	41	10.3	Copper	Ultrakote - 6	Y3669U	Koehler Kraft	Mar	2017	57	
SDYC	2172	92	Power	17	6	Low Copper	Interlux Ultra	Y3779F	Marine Grou	Oct	2016	55	2693-212-AA

SDYC	2171	100	Sail	39.5	12.6	Low Copper	Ultrakote-6	Y3669U	Shelter Island	Oct		2015	57	
SDYC	2170	83	Sail	34.5	11	Low Copper	Proline 1088-	A1088G	Driscoll	Aug		2015	60	60061-94-ZB
SDYC	2169	90	power	32	12	Low Copper	Pettit Hydroc	1340	Driscoll	Dec		2018	40.43	60061-87-ZJ
SDYC	2168	100	Power	50	15.7	Low Copper	Interlux Ultra	Y3779F	Driscoll Missi	May		2017	55	2693-212-AA
SDYC	2167	100	Sail	32	6.7	Low Copper	Interlux Ultra	Y3449F	SIBY	Sep		2016	55	2693-212-AA
SDYC	2166	96	Power	56	16	Low Copper	Ultra Black	Y3779U	Shelter Island	Oct		2017	57	
SDYC	2165	90	Power	47.5	13	Low Copper	Pettit Horizo	B-94	Shelter island	May		2013	65	
SDYC	2164	100	Sail	32	6.7	Low Copper	Z-Spar Protec	B-94	Driscoll	Feb		2015	65	
SDYC	2163	98	Sail	35	10.25	Low Copper	Petit 1088-6	A10886	Shelter Island	Aug		2013	60	60061-94-ZB
SDYC	2162	98	Sail	32	6.7	Low Copper	Interlux Bott	10397	Other	May		2011	42.75	
SDYC	2161	78	Power	48	14	Low Copper	Interlux Bott	79	Nielsen Beau	Aug		2016	22	
SDYC	2160	92	Sail	36	12	Non Copper	Ceram-kote	99M	Shelter Island	May		2018	0	
SDYC	2159	100	Power	34	11	Low Copper	Interlux Ultra	Y3779F	Outside SD C	Jul		2016	55	2693-212-AA
SDYC	2158	97	Power	43	14	Low Copper	Pettit Z-Spar	B-94	Shelter Island	Aug		2015	65	
SDYC	2157	100	Sail	32	6.7	Low Copper	Interlux Calif	YBA143	Koehler	Jul		2016	35	2693-18-ZA
SDYC	2156	97	Power	42	13.6	Copper	Interlux Ultra	Y3449U	Koehler	Nov		2018	57	
SDYC	2154	100	Sail	37	12	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Sept		2011	55	2693-212-AA
SDYC	2153	92	Sail	51	15	Low Copper	Pettit Vivid W	11161	Driscoll	Oct		2014	25	60061-116-AA
SDYC	2152	95	Power	36	12	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Aug		2018	55	2693-212-AA
SDYC	2151	96	Power	42	15	Low Copper	Pettit Ultima	411187706	Huntington H	Oct		2015	65	60061-94-ZE
SDYC	2150	94	Power	21	9	Copper	Interlux Bott	10397	Shelter Island	Jan		2017	42.75	
SDYC	2149	0	vacant			Non Copper							0	
SDYC	2147	99	power	30	10	Low Copper	Interlux Bott	10397	Driscoll	Jan		2012	42.75	
SDYC	2146	86	Sail	43	13	Low Copper	Interlux Epox	NK51	Other	Mar		2016	33.4	2693-70-ZA
SDYC	2145	100	Electric	18	6	Low Copper	Interlux Bott	79	Shelter Island	Jun		2017	22	
SDYC	2144	97	Sail	38	20	Copper	Pettit z-Spar	B-94	Driscoll	Mar		2017	65	
SDYC	2143	94	Power	31	25	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Dec		2017	55	2693-212-AA
SDYC	2142	100	Sail	33.9	11.3	Low Copper	Pettit-Z Spar	411187706	Marine Grou	Jun		2013	65	60061-94-ZE
SDYC	2140	95	Power	42	13.9	Non Copper	Interlux Inter	BZA646	Shelter Island	Aug		2014	0	
SDYC	2139	89	Power	32	11.5	Low Copper	Interlux	Y3779F	Koehler	Jul		2018	55	2693-212-AA
SDYC	2138	78	Power	50	16.5	Copper							67	
SDYC	2137	99	Sail	36.7	10	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun		2016	55	2693-212-AA
SDYC	2136	95	Sail	46.3	13.8	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Mar		2017	55	2693-212-AA
SDYC	2135	95	Sail	38	12	Low Copper	Trinidad-6	A1088G	Shelter Island	Jun		2015	60	60061-94-ZB
SDYC	2134	92	Sail	32	11	Copper	Pettit Z-Spar	B-94	Shelter Island	May		2016	65	
SDYC	2133	100	Power	35	10	Copper							67	
SDYC	2132	100	Power	49	14.2	Low Copper	Proline 1088-	A1088G	Shelter Island	Apr		2015	60	60061-94-ZB
SDYC	2131	98	Sail	40	12	Low Copper	Pettit Z-Spar	B-94	Driscoll	Oct		2018	65	
SDYC	2130	84	Sail	36	11.9	Low Copper	Proline 1088	Y1088C-01	Shelter Island	Jan		2014	67	
SDYC	2129	0	vacant			Non Copper			Cruising				0	
SDYC	2128	100	Sail	32.6	10.1	Low Copper	Interlux Ultra	Y3779F	Shelter Island	May		2012	55	2693-212-AA
SDYC	2127	98	Sail	40	11.11	Low Copper	Proline 1088-	A1088G	Endurance M	Apr		1991	60	60061-94-ZB
SDYC	2126	100	Sail	39	12.6	Low Copper	Proline 1088-	A1088G	Shelter Island	Oct		2017	60	60061-94-ZB
SDYC	2125	95	Power	24	9	Copper	Interlux Bott	10397	Driscoll	Oct		2016	42.75	
SDYC	2124	84	Power	47.3	15.6	Non Copper	Pacifica Plus	YBB263	Marine Grou	Apr		2016	0	#N/A
SDYC	2123	100	Sail	15	5	Low Copper	Proline 1088	1088C-02	Driscoll Missi		6	2010	55.7	
SDYC	2122	100	Sail	34	11.5	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Feb		2017	55	2693-212-AA
SDYC	2121	98	Power	30.1	11	Low Copper	Interlux Ultra	3669	Shelter Island	Jan		2015	55	
SDYC	2120	99	Power	36	12.5	Low Copper	Pettit Z-Spar	B-94	Shelter Island	Mar		2015	65	
SDYC	2119	100	Sail	32	6	Low Copper	Proline 1088-	A1088G	Shelter Island	Mar		2015	60	60061-94-ZB
SDYC	2118	100	Sail	35	13	Low Copper	Nautical Supe	NAU770	Nielsen Beau	Sept		2016	55	23566-20-ZR
SDYC	2117	98	Power	45.1	13.8	Copper	Interlux Ultra	Y3779F	Shelter Island	Oct		2017	55	
SDYC	2116	0	vacant			Non Copper							0	
SDYC	2115	98	Sail	57.3	15.3	Low Copper	Trilux 33-3	YBA060	Driscoll	Jul		2017	17	2693-203-AA
SDYC	2114	76	Sail	43.8	12	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Nov		2017	55	2693-212-AA
SDYC	2113	98	Power	23	8.5	Low Copper	Interlux Calif	YBA143	Driscoll	Dec		2015	35	2693-18-ZA
SDYC	2112	100	Electric	31	11.3	Low Copper	Pettit Z-Spar	411187706	Driscoll	Dec		2011	65	60061-94-ZE
SDYC	2111	100	Sail	36.4	12.5	Copper	Pettit Z-Spar	B-94	Shelter Island	Mar		2017	65	
SDYC	2110	98	Power	36	12.8	Low Copper	Proline 1088-	A1088G	Shelter Island	Jul		2016	60	60061-94-ZB

SDYC	2109	99	Sail	44.9	13	Low Copper	Interlux Bott	79	Nielsen Beau	Feb	2017	22	
SDYC	2108	96	Sail	30	10	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jul	2015	55	2693-212-AA
SDYC	2107	99	Power	38	13	Low Copper	Inuterlux Ultr	Y3669F	Shelter Island	Sept	2018	55	2693-212-AA
SDYC	2106	95	Sail	45	12	Low Copper	Prline 1088-6	A1088G	Shelter Island	Oct	2016	60	60061-94-ZB
SDYC	2105	100	Sail	34	10.8	Low Copper	Micron	5584G				37.2	
SDYC	2104	97	Power	52.8	15	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Feb	2014	55	2693-212-AA
SDYC	2103	96	Power	39	15	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jul	2018	55	2693-212-AA
SDYC	2102	95	Power	21	6	Copper	Pettit Z-Spar	B-94	Driscoll	Jul	2017	65	
SDYC	2101	99	Sail	34	11.6	Low Copper	Pettit Z-Spar	411187706	Driscoll	Dec	2017	65	60061-94-ZE
SDYC	2100	100	Power	40	12.6	Copper	Pettit Z-Spar	B-94	Port Salerno	Jul	2017	65	
SDYC	2099	100	Power	46.4	11.6	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jul	2017	55	2693-212-AA
SDYC	2098	99	Sail	36.1	10.1	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr	2018	55	2693-212-AA
SDYC	2096	95	Power	25	6.5	Low Copper	Nautical Supe	NAU770	Nielsen Beau	Mar	2017	55	23566-20-ZR
SDYC	2095	100	Sail	32	11	Low Copper	Proline 1088-	A1088G	Shelter Island	Jun	2010	60	60061-94-ZB
SDYC	2094	98	Power	65	18	Low Copper	Interlux Ultra	Y3779F	Marine Grou	Jun	2018	55	2693-212-AA
SDYC	2093	100	Sail	27	9	Low Copper	Proline 1088-	A1088G	Shelter Island	Mar	2014	60	60061-94-ZB
SDYC	2092	98	Sail	35.3	11.5	Low Copper	Micron 66-2	YBA473	Nielsen Beau	Jul	2014	35	2693-187-ZG
SDYC	2091	96	Power	30.3	10.3	Copper	Interlux Ultra	2779N	Shelter Island	Mar	2017	66.5	
SDYC	2090	93	Sail	41.7	13	Low Copper	Pettit Hydroc	1847G	Nielsen Beau	Jun	2017	25.25	
SDYC	2089	96	Sail	53	15.4	Low Copper	Proline 1088-	A1088G	Shelter Island	Jun	2012	60	60061-94-ZB
SDYC	2088	100	Sail	30	11	Low Copper	West Marine	411127906	Shelter Island	Jun	2018	40	60061-117-ZE
SDYC	2086	72	Power	34	11	Low Copper	Pettit Horizo	1850	Driscoll	Jul	2016	40.5	60061-101-AA
SDYC	2084	98	Sail	30	10.8	Low Copper	Pettit Zspar B	411187706	Driscoll	Oct	2017	65	60061-94-ZE
SDYC	2083	92	Power	43.9	14.6	Low Copper	Interlux Micr	YBA472	Driscoll Shelt	May	2017	35	2693-187-ZE
SDYC	2082	92	Power	48	15.5	Low Copper	Proline 1088-	A10886	Driscoll	Aug	2018	60	60061-94-ZB
SDYC	2080	100	Power	33	10.2	Copper	Interlux Inter	BZA646	Driscoll	Aug	2015	0	
SDYC	2079	76	Power	42	14	Copper	Interlux Aqua	YBA579	Driscoll	Jan	2018	46	
SDYC	2078	97	Sail	35.3	11.6	Copper	Purchased July 2017		purchase	Jul	2017	67	
SDYC	2077	98	Power	38	13	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr	2016	67	2693-212-AA
SDYC	2076	98	Sail	42	13.6	Low Copper	Zspar Bottom	411187706	Driscoll	Jun	2014	65	60061-94-ZE
SDYC	2075	100	Power	34	12.3	Low Copper	Nautical Supe	NAU770	Nielsen Beau	Jun	2016	55	23566-20-ZR
SDYC	2074	99	Sail	31	10.5	Non Copper	Has not painted since befo		Has not painted since before 2007			0	
SDYC	2073	100	Power	36	13.6	Low Copper	Interlux Aqua	YBA549	Driscoll	May	2014	46	
SDYC	2072	99	Sail	53	14	Low Copper	Interlux VC O	V118	Shelter Island	Nov	2016	41.19	
SDYC	2071	93	Power	64.3	18	Low Copper	Interlux Micr	5693	Shelter Island	Oct	2011	35	
SDYC	2070	100	Power	38.6	12.3	Low Copper	Interlux Ultra	Y3559F	Shelter Island	Nov	2017	55	2693-212-AA
SDYC	2069	99	Power	26	9	Low Copper	Trinidad VOC	1878	The Boat Yar	Jan	2013	75.8	
SDYC	2068	100	Electric	18	6	Low Copper	SeaHawk AF3	3345	Driscoll	Jun	2015	33	44891-12-AA
SDYC	2067	98	Sail	27	8	Low Copper	Interlux VC O	V118	Shelter Island	Jun	2015	41.19	
SDYC	2066	100	Electric	18	7	Copper	Interlux Ultra	Y3669F	Shelter Island	May	2018	55	2693-212-AA
SDYC	2065	100	Power	20	7	Low Copper	Proline 1088-	A1088G	Unknown	Jun	2010	60	60061-94-ZB
SDYC	2064		Sail	53	14	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Aug	2018	55	2693-212-AA
SDYC	2063	97	Power	25	8	Low Copper	Interlux Ultra	YBA472	Self Applied	Jan	2017	35	2693-187-ZE
SDYC	2062	92	Power	40	13.8	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2016	55	2693-212-AA
SDYC	2061	95	Power	33	10	Copper	Z-Spar Protec	B-94				65	
SDYC	2060	98	Power	59	16	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Nov	2018	55	2693-212-AA
SDYC	2059	99	Sail	37	11.6	Low Copper	Pettit Z-Spar	B-94	Driscoll	Apr	2012	65	
SDYC	2058	100	Electric	20	7	Low Copper	Hempels Antifouling Olymp		Shelter Island	Jun	2018	25	https://www.hempel.com/en/products/hempels-antifouling-olympic-86900
SDYC	2057	99	Sail	43.1	13.1	Low Copper	Proline 1088	A1088G	Shelter Island	Feb	2013	60	60061-94-ZB
SDYC	2056	100	Sail	33.1	9.7	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Mar	2013	55	2693-212-AA
SDYC	2055	100	Power	25.5	7	Non Copper	No Bottom Paint					0	
SDYC	2053	75	Sail	35	11	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2014	55	2693-212-AA
SDYC	2052	95	Sail	40	12	Low Copper	Proline 1088-	A1088G	Driscoll	May	2016	60	60061-94-ZB
SDYC	2051	95	Power	62	16.8	Copper	Interlux Aqua	YBA579	Driscoll	Mar	2016	46	
SDYC	2050	84	Power	17	6	Low Copper	Pettit B-94 Pr	B-94	Driscoll Boat	Oct	2015	65	
SDYC	2049	98	Sail	29.11	10.1	Copper	Interlux Bott	10397	Shelter Island	May	2018	42.75	
SDYC	2048	97	Sail	32	5.1	Low Copper	Inerlux Ultra	2669N	Koehler Kraft	Jul	2016	66.5	
SDYC	2047	100	Sail	72	15	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jul	2016	55	2693-212-AA
SDYC	2046	100	Sail	39.3	13	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jun	2014	55	2693-212-AA

SDYC	2045	96	Sail	25	8.6	Copper	Purchased Apr 2017		purchase	Apr		2017	67	
SDYC	2044	91	Sail	39.2	10.8	Low Copper	Interlux Ultra	Y3779F	Koehler	Jun		2013	55	2693-212-AA
SDYC	2043	100	Power	63.1	17.3	Low Copper	Interlux Ultra	Y3779F	Balboa Boat Y	Jun		2015	55	2693-212-AA
SDYC	2042	98	Power	19	7	Low Copper	Trinidad SR	A1877G	Shelter Island	Jun		2011	60	60061-94-ZD
SDYC	2041	97	Power	22	8	Low Copper	Interlux K91	K91	Driscoll		3	2007	70.2	
SDYC	2040	90	Sail	40	9	Low Copper	Pettit Z-Spar	B-94	Driscoll	Mar		2015	65	
SDYC	2039	100	Sail	38	11.7	Low Copper	Proline 1088-	A1088G	Shelter Island	Mar		2015	60	60061-94-ZB
SDYC	2038	97	Power	73	16.4	Copper	Pettit Z-Spar	B-94	Driscoll	Nov		2018	65	
SDYC	2036	94	Power	48	14	Low Copper	Interlux Ultra	Y3669F	Shelter Island	Jan		2018	55	2693-212-AA
SDYC	2035	97	Sail	50	11	Low Copper	Interlux Ultra	Y3779F	Koehler	Nov		2018	55	2693-212-AA
SDYC	2034	95	Power	26.7	9.5	Low Copper	Interlux Botto	10397	Knight &Carv	Jun		2009	42.75	
SDYC	2033	93	Sail	39.3	12.1	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Aug		2014	55	2693-212-AA
SDYC	2032	93	Sail	29.2	6.4	Copper							67	
SDYC	2031	84	Sail	50	12.2	Low Copper	Seaguard-2	P30BQ12	Driscoll	Mar		2017	48	
SDYC	2030	100	Power	31.9	11.5	Low Copper	Interlux Ultra	Y3669F	Shelter Island	Jun		2015	55	2693-212-AA
SDYC	2029	99	Sail	32	6.7	Non Copper	Coppercaot	85396-1-AA	Self applied	Jan		2013	0	#N/A
SDYC	2028	95	Sail	40	13	Non Copper	Intersleek -8	FXA979/A	Shelter Island	Mar		2013	0	
SDYC	2027	67	Power	32.4	12.3	Non Copper	Ceramcoat	99M	Shelter Island	Jun		2008	0	
SDYC	2026	98	Power	47.1	15.6	Low Copper	Sharkskin-7	6145	SD Boatyard	May		2012	45	44891-11-AA
SDYC	2025	100	Electric	30	8.5	Low Copper	Ceramcote	99M	Shelter Island	Jun		2002	0	
SDYC	2024	100	Power	28	9.6	Low Copper	Interlux Aqua	YBA579	Driscoll	Apr		2015	46	
SDYC	2023	100	Power	25	8	Low Copper	Pettit Vivid-3	1861	Driscoll - Miss	Apr		2016	25	60061-116-AA
SDYC	2021	100	Sail	46	14	Copper	Pettit Z-Spar	B-94	Shelter Island	Apr		2016	65	
SDYC	2020	74	Power	48	14	Low Copper	Purchased M	A1088G	purchase	mar		2017	60	60061-94-ZB
SDYC	2019	100	Sail	33.8	11.5	Non Copper	Hydrolift						0	
SDYC	2018	94	Power	42	14	Low Copper	Woolsey Defe	4901	Neilsen Beau	Nov		2016	40	60061-117-ZA
SDYC	2017	96	Sail	30	19	Low Copper	Pettit Vivid-3	1861	Shelter Island	Aug		2015	25	60061-116-AA
SDYC	2016	90	Power	38	13.5	Low Copper	Interlux Ultra	Y3779F	Koehler Kraft	Feb		2016	55	2693-212-AA
SDYC	2015	97	Power	25	8	Copper	Interlux Ultra	2779N	Shelter Island	Mar		2017	66.5	
SDYC	2014	98	Power	37	13.5	Low Copper	Proline	A1088G	Driscoll Missi	Dec		2014		60061-94-ZB
SDYC	2012	100	Power	33	11.6	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Mar		2018	55	2693-212-AA
SDYC	2011	100	Power	80	23.5	Low Copper	Interspeed 64	BQA679/5GL	Driscoll	Jan		2017	38	2693-132-ZY
SDYC	2010	100	Power	30.5	10.6	Low Copper	Interlux Botto	79	Shelter Island	Aug		2014	22	
SDYC	2009	89	Power	30	10	Copper	Purchased Jan 2018		purchase	Jan		2018	67	
SDYC	2008		Sail	42.5	13.5	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Apr		2018	55	2693-212-AA
SDYC	2007	100	Sail	38	8	Low Copper	Interlux Botto	10397	Nielsen Beau	Jun		2014	42.75	
SDYC	2006	92				Copper							67	
SDYC	2005	91	Sail	43	13	Low Copper	Interlux Ultra	Y3779F	Shelter Island	Jul		2012	55	2693-212-AA
SDYC	2004	99	Power	38	13	Low Copper	Super Progua	NAU773	Nielsen Beau	Mar		2018	55	23566-20-ZT
SDYC	2003	82	Sail	35	11.6	Non Copper	Interlux Whit	V127/A	Driscoll	Apr		2017	0	
SDYC	2002	100	Power	32.2	12	Copper	Interlux Ultra	2779N	Shelter Island	Feb		2017	66.5	
SDYC	2001	97	Power	36.8	12.7	Non Copper	Pacifica Plus	YBB263	Outside San D	Nov		2015	0	#N/A

Facility	Slip/Mooring	Percent of Ti	Vessel Type (	Vessel Lengt	Vessel Beam	Paint Type C	Paint Product	Product Num	Boatyard Na	Painting Date	Painting Date	% Copper	Category 1 reg #
SGYC	3005	95	S	32.5	11.75	COPPER	PETTIT Z-SPA	B-91	KOHLER KRA	04	2018	65	
SGYC	3010	50	S	44	12.6	LOW	COMEX	30	FONATUR YA	03	2015		
SGYC	3013	100	S	31.3	10.9	LOW	INTERLUX	Y3779F	SHELTER ISLA	11	2018	55	2693-212-AA
SGYC	3014	99	S	36	12	LOW	INTERLUX	Y3669F	SHELTER ISLA	05	2013	55	2693-212-AA
SGYC	3028	100	S	27	9	COPPER	INTERLUX UL	3669	SHELTER ISLA	07	2017	55	
SGYC	3030	100	S	36	12	LOW	INTERLEX ULT	3669	SHELTER ISLA	04	2015	55	
SGYC	3031	vacant										0	
SGYC	3033	100	P	43	13.7	COPPER	Z-SPAR	B-91	KOEHLER KR	01	2017	65	
SGYC	3034	99	S	33	8.6	NON	SLIP LINER					0	
SGYC	3036	90	S	36	12	LOW	INTERLUX UL	3669	KOEHLER KR	11	2014	55	
SGYC	3039	100	S	35	12	LOW	INTERLUX UL	Y3669F	SHELTER ISLA	11	2014	65	2693-212-AA
SGYC	3040	90	S	32.5	11.9	COPPER	PETIT ZSPAR	B-91	DRISCOLL BO	11	2016	65	
SGYC	3041	100	S	30	10.8	LOW	Z-SPAR BOTT	41127706	DRISCOLL	09	2017	65	60061-94-ZE
SGYC	3045	100	P	48	15	LOW	INTERLUX UL	A10886	SHELTER ISLA	03	2015	60	60061-94-ZB
SGYC	3047	100	S	38	12				SHELTER ISLA	01	2012		
SGYC	3049	100	S	39.5	13	COPPER	PROLINE	Y1088C-01	MARINE GRO	03	2017	67	
SGYC	3050	99	S	34	10					06	1995		
SGYC	3051	75	P	59	18	COPPER	INTERLUX UL	Y3779U	SHELTER ISLA	01	2016	55	
SGYC	3055	99	S	32	11	COPPER	PETITT SR 60	1032	SHELTER ISLA	10	2017	60	
SGYC	3058	100	P	43	15	LOW	INTERLUX UL	Y3669U	DRISCOLLS M	07	2006	55	
SGYC	3062	90	S	39.8	12.6	LOW	INTERLUX UL	411167706	MARINE GRO	12	2014	60	60061-94-ZE
SGYC	3073	98	S	32	10	COPPER	PETITT	B-91	DRISCOLL	04	2016	65	
SGYC	3078	95	P	50.3	15.7	COPPER	INTERLUX UL	3669	SHELTER ISLA	01	2017	55	
SGYC	3080	95	S	32	10.9	COPPER	PETTIT PROT	B-91	DRISCOLL	03	2016	65	
SGYC	3082	vacant										0	
SGYC	3088	95	S	35	12	LOW	INTERLUX MI	5692	DRISCOLL	05	2014	67	
SGYC	3092	90	S	33.3	10	LOW	PRO LINE	Y1088C-01	SHELTER ISLA	12	2014	67	
SGYC	3094	90	S	32	9.1	LOW	INTERLUX UL	Y3559F	SHELTER ISLA	07	2017	55	2693-212-AA
SGYC	3099	95	S	42	13	LOW	INTERLUX UL	Y3669F	SHELTER ISLA	02	2017	55	2693-212-AA
SGYC	3101	90	S	34	11	LOW	INTERLUX UL	Y3669F	SHELTER ISLA	07	2017	55	2693-212-AA
SGYC	3102	100	S	43	14.5					01	2009		
SGYC	3103	99	S	26	8	NON	SLIP LINER					0	
SGYC	3104	100	S	31	10.6	LOW	PRO LINE	Y1088C-01	SHELTER ISLA	07	2015	67	
SGYC	3108	100	P	30	10	NON						0	
SGYC	3110	97	S	36	12.5	COPPER	Z SPAR BOTT	B-91	DRISCOLL	07	2018	65	
SGYC	3111	100	S	32	11						2003		
SGYC	3113	100	S	34.6	11.9	COPPER	INTERLUX UL	Y3669U	SHELTER ISLA	06	2016	55	
SGYC	3116	90	S	38	12	COPPER	PETTIT TRINI	A1108206	DRISCOLLS	09	2016	65	
SGYC	3123	90	S	38	13	LOW	INTERLUX UL	3669	SHELTER ISLA	07	2015	55	
SGYC	3128	100	S	11.6	10.8	COPPER	INTERLUX	2449H	SHELTER ISLA	05	2016	76	
SGYC	3133	95	S	45	15	COPPER	PETTIT PROT	B-91	DRISCOLLS	12	2016	65	
SGYC	3135	100	P	42	15.7	LOW	PROLINE	Y1088C-01	SHELTER ISLA	06	2015	67	
SGYC	3136	100	P	36	13								
SGYC	3140	100	P	30	10								
SGYC	3142	100	S	44	14.5	COPPER	INTERLEX ULT	3669	SHELTER ISLA	06	2017	55	
SGYC	3146	100	S	37.7	12.8	COPPER	PROLINE	1088C-02	SHELTER ISLA	03	2016	67	

SGYC	3148	100	S	30	10	LOW	INTERLUX NA	3432	DRISCOLLS M	01	2006	47	
SGYC	3150	90	S	42	11	LOW	PROLINE	Y1088C-01	SHELTER ISLA	06	2014	67	
SGYC	3162	99	S	29.11	10.6	LOW	MICRON CSC	5580G	SHELTER ISLA	08	2012	33.4	
SGYC	3163	98	S	37	11.8	LOW	PETIT TRINID	1875	MARINA DEL	05	2015	67	
SGYC	3164	100	S	30	10.3	LOW	PRO-LINE	1088C-02	SHELTER ISLA	08	2015	56	
SGYC	3166	90	P	57	14.5	LOW				01	2013	67	
SGYC	3167	95	S	35	12	LOW	INTERLUX UL	Y3669F	SHELTER ISLA	04	2016	55	2693-212-AA
SGYC	3168	99	S	30	10	LOW	INTERSLEEK	FXA972/A	SHELTER ISLA	03	2009	65	
SGYC	3178	100	P	31.6	12	COPPER	INTERLUX UL	Y3559U	SHELTER ISLA	06	2017	57	
SGYC	3179	98	P	43	14	COPPER	PRO LINE	Y3779U	SHELTER ISLA	09	2017	55	
SGYC	3181	95	P	46.8	14.1	LOW	INERLUX ULT	Y3559U	NIELSON BEA	07	2014	57	
SGYC	3182	99	S	36	11.11	LOW			SHELTER ISLA	03	2007	67	
SGYC	3185	100	S	40	13.8	LOW	Z SPAR	Y3669F	SHELTER ISLA	05	2018	55	2693-212-AA
SGYC	3187	95	S	28	9.6	LOW	INTERLUX UL	Y3669U	SHELTER ISLA	07	2013	55	
SGYC	3192	85	S	36	12	LOW	INTERLUX UL	3669	SHELTER ISLA	02	2013	55	
SGYC	3202	75	P	28	10	LOW	PROLINE	Y1088C-01	SHELTER ISLA	08	2014	67	
SGYC	3204	100	S	30	10	LOW	INTERLUX UL	Y3669F	SHELTER ISLA	01	2013	55	2693-212-AA
SGYC	3207	100	S	39.8	12.8	LOW	INTERLUX	Y3559F	SHELTER ISLA	11	2014	55	2693-212-AA
SGYC	3212	100	S	37	12.5	LOW	PRO LINE 108	Y1088C-01	KNIGHT & CA	08	2012	67	
SGYC	3215	90	S	30	10.1	NON	INTERSLEEK	FXA970/A	SHELTER ISLA	05	2014	0	
SGYC	3216	98	S	38	12.6	LOW	INTERLUX UL	Y3669F	SHELTER ISLA	2	2018	55	2693-212-AA
SGYC	3217	95	S	31	10.3	LOW	Z-SPAR PRO	411187706	DRISCOLL	02	2018	65	60061-94-ZE
SGYC	3221	95	S	34	11.6	LOW	INTERLUX SU	K90B	SHELTER ISLA	11	2011	70	
SGYC	3224	75	P	42	15	LOW	PROLINE 108	Y1088C-01	SHELTER ISLA	05	2011	67	
SGYC	3225	90	S	37	10.1	LOW	PRO LINE	Y1088C-01	SHELTER ISLA	05	2015	67	
SGYC	3226	98	S	39.25	12.5	LOW	PROLINE	1088C-02	SHELTER ISLA	11	2015	56	
SGYC	3229	100	S	40	7	LOW	INTERLUX UL	Y3449F	KOEHLER KR	3	2018	55	2693-212-AA
SGYC	3239	90	S	46	14	COPPER	INTERLUX EX	Y3669U	SHELTER ISLA	04	2016	57	
SGYC	3240	100	P	50	16	LOW	INTERLUX UL	Y3449U	SHELTER ISLA	10	2015	55	
SGYC	3244	100	P	40	12.2					11	2010		
SGYC	3248	90	S	41	12.6	COPPER	PROLINE	1088C-01	SHELTER ISLA	11	2016	67	
SGYC	3250	100	P	37	12	LOW	MICRON CSC	YBC583	NIELSON BEA	03	2009	33.4	2693-225-AA
SGYC	3254	100	P	45.5	13.8	LOW	INTERLUX UL	Y3779F	SHELTER ISLA	02	2014	55	2693-212-AA
SGYC	3256	80	P	29.8	9.6								
SGYC	3257	90	S	30	10.1								
SGYC	3259	90	S	39	12.1	LOW	INTERLUX	Y3669F	SHELTER ISLA	07	2015	55	2693-212-AA
SGYC	3265	50	S	42	12	LOW	INTERLUX UL	Y3779F	KOHLER	2	2018	55	2693-212-AA
SGYC	3270	100	S	34	10						2003	0	
SGYC	3278	94.5	S	34	11.9								
SGYC	3279	98.5	S	46.9	14.2								
SGYC	3286	98	S	25.11	8	COPPER	INTERLUX UL	Y3449U	KOHLER KRA	06	2018	57	
SGYC	3296	100	P	43	14.6	COPPER	PROLINE 108	Y1088C-01	SHELTER ISLA	01	2016	67	
SGYC	3297	95	S	41.1	13.1	COPPER	INTERNATION	Y3669U	SHELTER ISLA	10	2017	57	
SGYC	3298	100	S	30	10								
SGYC	3299	90	S	40	11.8	COPPER	INTERLUX UL	Y3779U	SHELTER ISLA	07	2016	57	
SGYC	3302	90	S	40	10	LOW	INTERLUX UL	Y3669F	SHELTER ISLA	01	2017	55	2693-212-AA
SGYC	3304	99	P	28	10	LOW	INTERLUX UL	Y3779F	SHELTER ISLA	02	2017	55	2693-212-AA

SGYC	3308	100	S	32	10.6					05	2007		
SGYC	3309	100	P	30	12	LOW	INTERLUX UL	Y3779F	SHELTER ISLA	04	2015	55	2693-212-AA
SGYC	3313	96	S	34.6	11.9	LOW	PETTIT	1281	SHELTER ISLA	04	2017	37	60061-71-ZA
SGYC	3315	100	S	38	13.5	COPPER	INTERLUX UL	3669	SHELTER ISLA	04	2017	55	
SGYC	3316	98	P	42	14	COPPER	PROLINE 108	Y1088C-01	NIELSON BEA	09	2016	67	
SGYC	3317	95	S	42.8	13.7	COPPER	ZSPAR BP GO	3669	SHELTER ISLA	07	2016	55	
SGYC	3320	100	S	43	12.5	COPPER	PROLINE	Y1088C-01	SHELTER ISLA	11	2016	67	
SGYC	3333	98	P	27	8.6	LOW	WEST MARIN	411127906	LONG BEACH	09	2016	40	60061-117-ZE
SGYC	3339	90	S	36	6	LOW	TRINIDAD	1875	DRISCOLLS	03	2015	70	
SGYC	3343	90	P	50	16	COPPER	INTERLUX UL	Y3449U	KOEHLER KRA	09	2017	57	
SGYC	3352	100	S	30	10.1	LOW	INTERLUX UL	3669	SHELTER ISLA	10	2009	55	
SGYC	3353	99	S	30	11	NON	COPPER COA	85396	DRICOLLS	03	2016	0	
SGYC	3354	98	S	36.3	11.9	LOW	INTERLUX MI	Y3669F	KOEHLER KRA	01	2015	55	2693-212-AA
SGYC	3355	100	P	42	13.6	LOW				01	2011	67	
SGYC	3357	100	S	34	11	LOW	INTERLUX UL	3669	NIELSON BEA	04	2013	55	
SGYC	3362	100	P	35	12.9	LOW	INTERLUX UL	3779	SHELTER ISLA	09	2015	55	
SGYC	3368	100	P	54	14	LOW	INTERLUX UL	Y3779F	SHELTER ISLA	07	2017	55	2693-212-AA
SGYC	3370	99	S	27	8	COPPER	INTERLUX UL	Y3669U	SHELTER ISLA	11	2016	57	
SGYC	3371	100	P	38	12	COPPER	PROLINE 108	Y1088C-01	SHELTER ISLA	7	2016	70	
SGYC	3372	90	S	49	13	NON	INTERLUX	YBA168	SHELTER ISLA	11	2017	0	#N/A
SGYC	3373	80	S	35	12	LOW	INTERLUX	Y3669F	SHELTER ISLA	08	2015	55	2693-212-AA
SGYC	3376	100	P	42	13.7	LOW	INTERLUX UL	Y3449F	SHELTER ISLA	06	2015	55	2693-212-AA
SGYC	3380	100	S	30	12	LOW	INTERLUX UL	Y3669F	SHELTER ISLA	02	2018	55	2693-212-AA
SGYC	3383	98	S	27	8.1	LOW	INTERLUX UL	3669	SHELTER ISLA	04	2014	55	
SGYC	3384	85	S	30	10.5	NON	INTERLUX	YBA168	SHELTER ISLA	01	2014	0	
SGYC	3386	90	S	34	11	COPPER	INTERLUX UL	Y3669U	SHELTER ISLA	07	2017	57	
SGYC	3387	100	S	32	6.8	LOW	PETTIT VIVID	1861	KOHLER KRA	04	2018	25	60061-116-AA
SGYC	3389	100		35	13.5								
SGYC	3397	90	S	49.5	14.8	COPPER	INTERLUX UL	Y3779U	SHELTER ISLA	01	2017	55	
SGYC	3401	100	P	36	12.6								
SGYC	3402	90	S	41	12	LOW	INERLUX ULT	Y3779F	SHELTER ISLA	10	2018	55	2693-212-AA
SGYC	3404	95	S	38	12	LOW	PRO LINE	1088C-01	SHELTER ISLA	03	2015	67	
SGYC	3407	100	S	33	12.6	LOW	INTERLUX UL	Y3779F	SHELTER ISLA	04	2014	55	2693-212-AA
SGYC	3410	95	S	51.6	15.3	LOW	UNTERLUX U	Y3779F	SHELTER ISLA	11	2017	55	2693-212-AA
SGYC	3411	100	S	42.6	13	COPPER	PRO LINE 108	Y1088C-02	SHELTER ISLA	01	2018	67	
SGYC	3413	100	S	38	14.2	LOW	SUPER INTER	K90B	SHELTER ISLA	07	2008	70	
SGYC	3419	100	S	44	14.6	COPPER	INTERLUXE U	Y3669U	SHELTER ISLA	06	2018	57	
SGYC	3425	100	S	34.5	12	COPPER	INTERLUX UL	3669	SHELTER ISLA	03	2017	55	
SGYC	3431	99	S	42	13.9	LOW	PETTIT TRINI	A1088G	DRISCOLLS	07	2013	55	60061-94-ZB
SGYC	3432	90	S	37	11.6	LOW	INTERLUX	Y3669F	SHELTER ISLA	07	2016	55	2693-212-AA
SGYC	3434	87	S	44	13.6	COPPER	PETTIT PROT	B-91	DRISCOLLS	12	2016	57	
SGYC	3436	99	S	32	11.9	LOW	INTERLUX UL	3669	SHELTER ISLA	03	2015	55	
SGYC	3438	vacant											
SGYC	3440	98	S	30	10	LOW	INTERLUX UL	Y3559F	KOEHLER KRA	11	2017	55	2693-212-AA
SGYC	3441	100	S	30	10.6								
SGYC	3449	100	S	30	9								
SGYC	3451	90	P	30	10.6	COPPER	INTERLUX	3432	DRICOLLS	07	2017	47	

SGYC	3459	100	S	30	9.6	COPPER			SHELTER ISLA	03		2016	67
SGYC	3483	99	S	27	8.9	NON	SLIP LINER		AQUARIUS B	06	2015		0
SGYC	3497	100	S	30	11	LOW	INTERLUX	3779	SHELTER ISLA	06		2015	55
SGYC	3536	99	S	32.8	9.15	NON	SLIP LINER						0
SGYC	3598	98	S	30	10.9	LOW	INTERLUX UL	Y3559F	SHELTER ISLA	04		2014	55

Facility	Slip/Mooring	Percent of Ti	Vessel Type (	Vessel Length	Vessel Beam	Paint Type Co	Paint Product	Product Num	Boatyard Na	Painting Date	Painting Date	% Copper	Category 1 reg #
SWYC	4599	8	SAIL	25	8	Cu	Interlux Ultra	3779	KK	1	2018	55	
SWYC	4598	100	SAIL	40	13	Low	Interlux Ultra	Y3669F	SI	4	2015	55	2693-212-AA
SWYC	4597	8	POWER	18	8	Low			purch	2	2014	67	
SWYC	4596	100	SAIL	47	11	Low	Proline 1088	Y1088C-02	self	10	2012	67	
SWYC	4595	100	SAIL	20	5	Low	Interlux Ultra	Y3669F	self	2	2011	55	2693-212-AA
SWYC	4594	96	SAIL	33	10	Cu	Proline 1088	1088c-01	Self	7	2018	67	
SWYC	4593	90	POWER	45	14	Cu	Interlux Ultrak	2669N	SI	5	2017	57	
SWYC	4592	100	SAIL	40	13	Low	Interlux Ultra	Y3779F	SI	2	2016	55	2693-212-AA
SWYC	4591	100	POWER	47	15	Low			SI	4	2012	67	
SWYC	4590	100	SAIL	41	14	Low	Proline 1088	Y1088C-01	SI	10	2010	67	
SWYC	4589	100	POWER	38	14	Low	Interlux Ultra	Y3669F	SI	2	2015	55	2693-212-AA
SWYC	4588	vacant				Non			vacant			0	
SWYC	4587	75	SAIL	34	11	Low	Pettit Trinidad	A1877G	SI	7	2014	60	
SWYC	4586	100	POWER	42	14	Low	Interlux Ultra	Y3669F	SI	2	2010	55	2693-212-AA
SWYC	4585	100	SAIL	27	8	Low	Proline 1088	Y1088C-01	SI	5	2010	67	
SWYC	4584	100	POWER	34	10	Low	Interlux Ultra	Y3669F	SI	11	2015	55	2693-212-AA
SWYC	4583	100	POWER	41	13	Cu							
SWYC	4582	100	SAIL	34	11	Low	Z-Spar Protect	B90VOC	Dr SI	12	2015	76	
SWYC	4581	58	DINGY	11	6	Cu							
SWYC	4580	100	SAIL	43	14	Cu	Ultra-Kote	2669N	SI	6	2016	67	
SWYC	4579	25	SAIL	38	13.08	Cu	Proline 1088	1088C-02	SI	7	2017	56	
SWYC	4578	92	SAIL	37	11.92	Low	Interlux Ultra	Y3779F	SI	5	2018	55	
SWYC	4577	100	SAIL	35	12.17	Low			purch	5	2014	67	
SWYC	4576	100	POWER	44	14	Low			Dr SI	8	2011	67	
SWYC	4575	100	SAIL	62	19	Cu							
SWYC	4574	82	SAIL	44	13	Low	Interlux Ultra	Y3669F	SI	4	2018	55	
SWYC	4573	100	POWER	25	8	Non	Bluewater Ma	8204	SI	5	2012	0	
SWYC	4572	100	SAIL	31	10.83	Cu			purch	6	2017	67	
SWYC	4571	33	POWER	31	9	Cu	PLM Marine RC		NB	11	2016	67	
SWYC	4570	8	SAIL	36	12.5	Cu	Pro-line 1088	1088C-01	SI	3	2017	67	
SWYC	4569	25	SAIL	31	10	Low	Interlux Ultra	Y3669F	SI	1	2014	55	2693-212-AA
SWYC	4568	100	SAIL	30	11	Low	Interlux Ultra	Y3669F	SI	7	2014	55	2693-212-AA
SWYC	4567	100	POWER	32	10	Cu	Interlux Ultrak	Y3779U	SI	5	2016	57	
SWYC	4565	25	POWER	37	12	Cu	Pro Guard Abl	NAU990	NB	12	2016	42	
SWYC	4564	100	SAIL	29	10	Low	Interlux Ultra	Y3669F	SI	6	2015	55	2693-212-AA
SWYC	4563	100	SAIL	24	7	Low	Interlux Ultra	Y3669F	Self	4	2014	55	2693-212-AA
SWYC	4562	100	POWER	45.33	13	Cu	Interlux Ultra	2779N	SI	4	2016	67	
SWYC	4561	58	SAIL	40	12	Low	Vivid by Pettit	11161	SI	1	2018	25	
SWYC	4560	vacant				Non			vacant			0	
SWYC	4559	100	SAIL	27	8	Low	Interlux Ultra	Y3669F	SI	11	2012	55	2693-212-AA
SWYC	4558	100	SAIL	33	11	Low	ACT WITH SLIN	2693-227-AA	Dr	3	2007	30	2693-227-AA
SWYC	4557	17	POWER	24	8	Low	Interlux Ultra	Y3779F	SI	2	2014	55	2693-212-AA
SWYC	4556	100	SAIL	34	11	Non	CeRam-Kote 9	99M	Dr	10	2011	0	
SWYC	4555	100	SAIL	56	16	Cu	Interlux UltraK	2449H	SI	2	2017	57	

SWYC	4554	100	SAIL	35	10	Low	Z-spar Bottom Pro Gold	41127706	DrSI	11	2014	65	
SWYC	4553	50	POWER	24	8	Low	Z-Spar Protect	B-91	Aquarius Yacht	2	2015	65	
SWYC	4552	100	POWER	41	12	Low	Interlux Ultra	Y3779F	SI	2	2016	55	2693-212-AA
SWYC	4551	33	POWER	11	5	Cu							
SWYC	4550	100	POWER	32	9.83	Low	Interlux Ultra	Y3669F	SI	6	2017	55	2693-212-AA
SWYC	4549	75	SAIL	29	9	Cu	Interlux UltraK	Y3669U	DrMB	2	2018	57	
SWYC	4548	vacant				Non			vacant			0	
SWYC	4547	100	SAIL	24	9.5	Low	VC-17	YBA060	self	1	2016	17	
SWYC	4546	94	POWER	43	13	Low	Proline 1088	1088C-01	SI	3	2015	67	
SWYC	4545	100	SAIL	28	10	Cu							
SWYC	4544	100	SAIL	34	11.42	Cu	Pettit Protecto	B-91	DrSI	9	2016	60	
SWYC	4543	85	POWER	34	10.83	Cu	Woolsey Defer	4901	NB	5	2017	45	60061-117-ZA
SWYC	4542	90	POWER	46	13	Low	Trinidad SR	A1877G	self	11	2017	60	
SWYC	4541	100	POWER	27	8	Low			SI	11	2012	67	
SWYC	4540	8	POWER	13	8.5	non	no paint		none			0	
SWYC	4539	100	POWER	30	10	Low	Z-Spar Protect	B-91	Dr	2	2014	65	
SWYC	4538	85	SAIL	44	12.9	Cu	Interlux Ultra	3779	SI	1	2018	55	
SWYC	4537	100	SAIL	41	13	Cu	Z-Spar Protect	B-94	DrSI	3	2017	65	
SWYC	4536	100	SAIL	37	12	Low	Interlux Ultra	Y3779F	SI	2	2015	55	2693-212-AA
SWYC	4535	100	SAIL	36	9.3	Cu							
SWYC	4534	100	POWER	46	15	Low	Proline 1088	1088C-01	KK	8	2015	67	
SWYC	4533	100	POWER	29	9	Low	Trilux 33	YBA063	Kulick Rpair	5	2016	33	
SWYC	4532	92	POWER	43	13	Low	Proline 1088	Y1088C-01	SI	6	2015	67	
SWYC	4531	100	POWER	30	11	Low	Trinidad Pro	16471757	Ireland Yacht S	11	2015	60	
SWYC	4530	100	POWER	48	14	Low	Interlux Ultra	Y3669F	KK	1	2016	55	
SWYC	4528	100	POWER	41	13	Low	Interlux Ultra	Y3669F	SI	6	2014	55	2693-212-AA
SWYC	4527	92	SAIL	23	8	Low	Interlux Califor	YBA143	SI	8	2017	35	
SWYC	4526	100	SAIL	30	11	Cu			purch	6	2018		
SWYC	4525	100	SAIL	38	13	Low			Dr	2	2011	67	
SWYC	4524	92	POWER	41	12.25	Low	Interlux UltraK	Y3669F	SI	8	2017	57	
SWYC	4523	100	SAIL	32	8	Cu							
SWYC	4522	25	SAIL	32	6	Cu							
SWYC	4521	100	SAIL	34	12	Low	Interlux Ultra	Y3779F	SI	2	2015	55	2693-212-AA
SWYC	4520	100	POWER	27	8.42	Low	Interlux UltraK	Y3669U	SI	11	2015	57	
SWYC	4519	50	SAIL	29	8.42	Cu	Interlux Ultrak	2669N	SI	3	2017	57	
SWYC	4518	100	POWER	36	12	Low			purch	9	2014	67	
SWYC	4517	100	SAIL	42	12	Cu	Ultra-Kote	2669N	KK	2	2017	67	
SWYC	4516	100	SAIL	46	13	Low	Trinidad SR	A1277Q	Dr	8	2014	60	
SWYC	4515	100	SAIL	40	13	Low	ABC 3 PPG	ABC3-41	Basin Marine	12	2014	70	
SWYC	4513	100	POWER	41	12	Low	Interlux Ultra	Y3779F	SI	6	2013	55	2693-212-AA
SWYC	4512	100	POWER	42	13.75	Low	Interlux Ultra	Y3779F	Dr MB	3	2014	55	2693-212-AA
SWYC	4511	100	SAIL	34	10.67	Cu	Interlux Ultrak	2779N	purch	6	2016	67	
SWYC	4510	100	SAIL	25	8.83	Low	Micron 66	YBA470	self	3	2014	35	2693-187-ZD
SWYC	4509	100	SAIL	34	11.83	Cu	Interlus UltraK	2669N	SI	8	2016	67	
SWYC	4508	8	SAIL	32	10.33	Cu							

SWYC	4507	100	SAIL	30	11	Low	Interlux Ultra	Y3669F	SI	6	2014	55	2693-212-AA
SWYC	4506	100	POWER	43	13	Low	Interlux Ultra	Y3779F	SI	1	2013	55	2693-212-AA
SWYC	4505	8	POWER	29	9	Low	Proline 1088	Y1088C-02	SI	9	2017	56	
SWYC	4504	100	POWER	41	15	Low	Z-Spar Protect	B-91	Dr SI	7	2015	65	
SWYC	4503	94	POWER	46	14.08	Low	Interlux Califor	YBA142	purchased	12	2015	35	
SWYC	4502	8	SAIL	33	11.41	Cu							
SWYC	4501	100	SAIL	28	10	Low			SI	6	2012	67	
SWYC	4500	100	SAIL	25	8	Low	Z-Spar Bottom	41127706	SI	11	2015	65	
SWYC	4499	100	SAIL	43	12	Low	Interlux Ultra	Y3779F	SI	8	2015	55	2693-212-AA
SWYC	4498	100	POWER	44	14	Cu			purch	1	2016	67	
SWYC	4497	8	POWER	12	12	Cu	Pro-line 1088	1088c-01	Self	1	2018	67	
SWYC	4496	100	SAIL	41	12	Low	Interlux Ultra	Y3669F	SI	5	2013	55	2693-212-AA
SWYC	4495	100	SAIL	31	9.42	Low	Interlux Ultra	Y3779F	SI	1	2014	55	2693-212-AA
SWYC	4494	100	SAIL	49	13	Low	Proline 1088	Y1088C-02	SI	4	2015	56	
SWYC	4493	92	SAIL	43	13	Low	Z-Spar Protect	B-94	Dr SI	7	2015	65	
SWYC	4492	100	SAIL	30	12	Low	Proline 1088	Y1088C-01	SI	1	2015	67	
SWYC	4491	100	SAIL	40	12.67	Low	Interlux UltraK	Y3669F	KK	5	2016	55	
SWYC	4490	100	SAIL	35	10	Low	Super KL K90	K90	DR SI	4	2006	70	
SWYC	4489	94	SAIL	33	11	Low	Interlux Ultra	Y3669F	SI	3	2018	55	2693-212-AA
SWYC	4488	100	SAIL	40	13	Cu	Proline 1088	Y1088C-02	MG	4	2017	56	
SWYC	4487	100	SAIL	37	12.67	Low	Interlux Ultra	Y3669F	SI	1	2014	55	2693-212-AA
SWYC	4486	17	SAIL	36	12	Low	Interlux Ultra	Y3669F	SI	5	2014	55	2693-212-AA
SWYC	4485	100	SAIL	26	8	Non	EP2000	EP-401	SI	8	2008	0	
SWYC	4484	100	SAIL	48	13	Low	Interlux Ultra	Y3669F	SI	9	2013	55	2693-212-AA
SWYC	4483	100	SAIL	32	10.5	Low	Interlux Ca Bot	YBA140	Dr	2	2010	35	2693-18-ZA
SWYC	4482	25	SAIL	44	14	Low	Interlux Ultra	Y3669F	KK	11	2014	55	2693-212-AA
SWYC	4481	100	POWER	39	14	Low	Interlux Ultra	Y3669F	KK	5	2014	55	2693-212-AA
SWYC	4480	90	POWER	23	7	Low	Interlux Ultra	Y3669F	SI	10	2016	55	2693-212-AA
SWYC	4479	100	POWER	31	10.5	Low	Interlux Ultra	Y3779F	SI	3	2011	55	2693-212-AA
SWYC	4478	100	SAIL	25	9	Low	Z-spar bottom	41127706	Dr SI	6	2015	65	
SWYC	4477	100	SAIL	32	8.5	Low	Vivid by Pettit	11161	Bellingham, W	4	2017	25	
SWYC	4476	97	SAIL	27	9.5	Low	Zspar Bottom	41127706	Dr	12	2018	65	
SWYC	4474	100	SAIL	35	11	Low	Interlux Ultra	Y3779F	NB	1	2015	55	2693-212-AA
SWYC	4473	100	SAIL	25	8	Cu			purch	9	2018	67	
SWYC	4472	100	SAIL	31	11	Low	Interlux Ultra	Y3779F	SI	9	2014	55	2693-212-AA
SWYC	4471	100	POWER	36	12	Low	Interlux Ultra	Y3779F	Dr MB	12	2012	55	2693-212-AA
SWYC	4470	100	SAIL	41	12	Low	Proline 1088	Y1088C-01	SI	8	2013	67	
SWYC	4469	100	POWER	28	9	Low	Interlux Ultra	Y3779F	KK	10	2015	55	2693-212-AA
SWYC	4468	100	OTHER	43	14	P	Z-Spar Bottom	411187706	Dr SI	9	2014	45	
SWYC	4467	100	POWER	25	9	Low	Interlux Ultra	Y3669F	MG	9	2014	55	2693-212-AA
SWYC	4466	67	SAIL	43	13	Low	Interlux Ultra	Y3779F	SI	4	2013	55	2693-212-AA
SWYC	4465	100	SAIL	34	11	Low			Dr	7	2011	67	
SWYC	4464	100	SAIL	30	11	Low	Interlux Ultra	Y3669F	SI	5	2010	55	2693-212-AA
SWYC	4463	100	POWER	36	12	Cu	Proline 1088	Y1088C-01	MG	7	2016	67	
SWYC	4462	92	POWER	41	14	Low	Z-Spar Protect	B-91	MG	1	2015	65	
SWYC	4461	100	POWER	40	13	Low	Interlux Ultra	Y3669F	SI	7	2015	55	2693-212-AA
SWYC	4460	vacant				Non			vacant			0	

SWYC	4459	100	POWER	43	13	Low	Interlux Ultra	3669	SI	5	2014	55	
SWYC	4458	100	POWER	40	13	Low	Interlux Ultra	Y3779F	SI	8	2015	55	2693-212-AA
SWYC	4457	100	SAIL	39	11	Low	Interlux Ultra	Y3779F	SI	6	2016	55	2693-212-AA
SWYC	4456	100	SAIL	32	8	Low	Interlux Ultra	Y3669F	SI	10	2013	55	2693-212-AA
SWYC	4455	33	SAIL	42	13	Low			purch	2	2014	67	
SWYC	4454	100	POWER	39	13.17	Low	Pettit Z-spar Protector	B-94	Marina del Rey BY	3	2010	60	
SWYC	4453	100	POWER	38	12	Low	Z-Spar Protect	B-91	SI	2	2013	65	
SWYC	4452	100	SAIL	42	13	Cu							
SWYC	4451	100	SAIL	42	13.17	Low	Interlux Ultra	Y3779F	SI	1	2015	55	2693-212-AA
SWYC	4450	8	POWER	34	11	Low	Pettit Trinidad	A10882	SI	3	2013	60	
SWYC	4449	25	SAIL	31	10	Low	Interlux Ultra	Y3669F	SI	6	2013	55	2693-212-AA
SWYC	4441	100	SAIL	36	12	Low	Interlux Ultra	Y3669F	SI	9	2006	55	2693-212-AA
SWYC	4440	92	SAIL	38	12	Cu	Interlux UltraK	2669N	SI	4	2017	55	
SWYC	4439	100	SAIL	58	20	Low	Proline 1088	Y1088C-01	KC	2	2012	67	
SWYC	4438	100	POWER	38	13	Low	Interlux Ultra	Y3779F	SI	2	2014	55	2693-212-AA
SWYC	4436	100	SAIL	31	10	Low	West Marine B	411128006	Oxnard Boat Y	12	2011	28	60061-135-AA
SWYC	4434	17	SAIL	43	12	Cu	Interlux Ultra	Y3669F	Self	2	2017	67	
SWYC	4432	100	POWER	18	6	Cu			purch	4	2016	67	
SWYC	4431	17	POWER	35	10.3	Cu							
SWYC	4427	8	POWER	20.5	7.3	Low	Interlux - Inter	BRA570	SI	7	2017	27	
SWYC	4425	100	POWER	33	10	Cu			purch	10	2016		
SWYC	4424	100	SAIL	34	11	Cu	Ultra-Kote	3779	SI	7	2016	55	
SWYC	4419	100	POWER	30	8.75	Low	Interlux Ultra	Y3779F	SI	1	2014	55	2693-212-AA
SWYC	4417	97	POWER	47	16.75	Low	Interlux Ultra	Y3779F	SI	8	2018	55	
SWYC	4416	100	POWER	39	13	Low	Interlux Ultra	Y3779F	SI	12	2017	55	2693-212-AA
SWYC	4413	100	SAIL	35	11	Low	Interlux Ultra	Y3779F	SI	3	2011	55	2693-212-AA
SWYC	4411	92	SAIL	31	10.67	Low	Interlux Ultra	Y3669F	SI	5	2017	55	2693-212-AA
SWYC	4410	94	SAIL	37	12	Low	Interspeed 62	BQA659/5GL	SI	7	2017	38	2693-176-ZB
SWYC	4407	100	SAIL	41	13	Cu	Ultra-Kote	2669N	SI	7	2016	67	
SWYC	4405	100	POWER	30	11	Non	Intersleek 900	FXA970/A	SI	1	2013	0	
SWYC	4404	100	SAIL	37	12.17	Low	Interlux Ultra	Y3669F	SI	1	2015	55	2693-212-AA
SWYC	4403	100	POWER	21	9	Low				3	2014	67	
SWYC	4402	100	POWER	22	9.5	Cu							
SWYC	4401	75	SAIL	34	10.83	Cu	Interlux Ultra-	2449H	SI	1	2016	76	
SWYC	4397	100	SAIL	41	13.25	Low	Trinidad Pro	A1088G	purch	3	2016	60	
SWYC	4395	8	POWER	53	15	Cu	Woolsey Defer	4901	NB	6	2017	45	60061-117-ZA
SWYC	4393	100	SAIL	38	12.5	Low	Micron Extra-V	5794	KK	6	2011	35	2693-190-ZK
SWYC	4391	100	SAIL	44	12	Low	Z-Spar Protect	B-91	KK	7	2010	65	
SWYC	4390	100	POWER	38	13	Low	Interlux Ultra	Y3779F	SI	6	2014	55	2693-212-AA
SWYC	4389	100	POWER	27	9.5	Low	California bottomkote	YBA143	Dr	2	2013	35	2693-18-ZA
SWYC	4387	94	POWER	27	8	Cu			purch	2	2017		
SWYC	4386	100	POWER	34	10	Low	Interlux Ultrak	2669N	SI	3	2015	67	
SWYC	4384	100	SAIL	36	12.58	Cu							
SWYC	4383	100	SAIL	38	11	Cu	Z-spar bottom	411187706	SI	5	2017	65	
SWYC	4380	100	SAIL	20	5	Low	Interlux Ultra	Y3669F	self	2	2011	55	2693-212-AA

SWYC	4376	100	SAIL	51	14	Low	Interlux Ultra	Y3779F	SI	3	2015	55	2693-212-AA
SWYC	4374	100	POWER	48	16	Low	Proline 1088	Y1088C-01	SI	5	2015	67	
SWYC	4373	100	SAIL	39	12	Low	Z-Spar Protect	B-94	Dr	3	2014	65	
SWYC	4372	100	POWER	28	8.75	Cu	Ultrakote	2669N	SI	7	2017	69	
SWYC	4371	94	SAIL	39	12	Low	Interlux Ultra	Y3669F	SI	1	2018	55	2693-212-AA
SWYC	4370	100	SAIL	33	6	Low	Trinidad VOC	1278	SI	6	2015	76	
SWYC	4369	94	POWER	34	10.75	Cu	Interlux Ultra	Y3779U	SIBY	11	2017	57	
SWYC	4368	vacant				Non			vacant			0	
SWYC	4367	100	POWER	41	12.67	Cu	Ultra-Kote	2669N	SI	5	2016	67	
SWYC	4364	42	SAIL	30	10.5	Cu							
SWYC	4363	100	SAIL	45	12	Low	Interlux Ultra	Y3669F	SI	2	2014	55	2693-212-AA
SWYC	4362	100	POWER	38	12	Non	Aquacote	non toxic test	Dr SI	8	2015	0	
SWYC	4361	98	SAIL	50	14.17	Cu				3	2016	67	
SWYC	4360	100	SAIL	24	9	Low	Micron Extra V	5490	self	8	2016	35	2693-190-ZG
SWYC	4359	100	POWER	39	13	Low	Interlux Ultra	Y3669F	SI	6	2012	55	2693-212-AA
SWYC	4358	100	SAIL	30	10.5	Low	Interlux Ultra	Y3669F	Oceanside Ma	3	2015	55	2693-212-AA
SWYC	4357	100	SAIL	38	11.75	Cu	Interlux UltraK	Y3669U	SI	8	2016	57	
SWYC	4356	100	POWER	62	16	Low	Pettit Trinidad	1878	KK	4	2015	70	
SWYC	4355	8	POWER	39	13	Low	Proline 1088	Y1088C-02	MG	12	2015	67	
SWYC	4354	100	SAIL	35	11	Low	Aquaguard Bot	10103	SI	11	2011	26	9339-19-AA-70383
SWYC	4352	25	POWER	25	9.5	Cu							
SWYC	4347	100	POWER	41	13	Low	Interlux Ultra	Y3779F	SI	11	2014	55	2693-212-AA
SWYC	4344	100	SAIL	31	12	Cu			SI	9	2018		
SWYC	4343	100	SAIL	20	5	Low	Interlux Ultra	Y3669F	self	2	2011	55	2693-212-AA
SWYC	4342	100	SAIL	47	13	Low	Interlux Ultra	Y3669F	KK	4	2015	55	2693-212-AA
SWYC	4339	100	SAIL	42	13	Low	Interlux Ultra	Y3449F	DrMB	9	2012	55	2693-212-AA
SWYC	4337	100	POWER	53	13	Low	Proline 1088	Y1088C-02	SI	1	2011	67	
SWYC	4333	100	POWER	29	9.5	Low	Interlux Ultra	Y3779F	SI	4	2016	55	2693-212-AA
SWYC	4331	94	POWER	43	14	Cu	Proline 1088	1088C-01	KK	5	2017	56	
SWYC	4327	100	POWER	37	11.92	Cu							
SWYC	4324	100	SAIL	27	9	Low			purch	9	2014	67	
SWYC	4323	100	SAIL	49	16	Low	California Bott	YBA143	SI	10	2016	35	2693-18-ZA
SWYC	4321	25	POWER	38	10.58	low	West Marine C	411181108	SI	5	2017	24	60061-71-ZD
SWYC	4320	100	SAIL	29	8	Low	Interlux Ultra	Y3669F	SI	7	2016	55	2693-212-AA
SWYC	4317	100	POWER	40	13	Low	Interlux Ultra	Y3669F	SI	11	2013	55	2693-212-AA
SWYC	4316	100	SAIL	38	11	Low	Interlux UltraK	Y3669U	SI	8	2010	57	
SWYC	4315	25	POWER	39.11	13.4	Low	Interlux Ultra	Y3779F	SI	7	2018	55	
SWYC	4312	100	SAIL	34	11	Low	International		SI	1	2011	67	
SWYC	4309	80	POWER	48	15	Low	Interlux Ultra	Y3779F	SI	11	2017	55	2693-212-AA
SWYC	4308	100	SAIL	34	11	Low	Z-Spar Bottom	41127706	Dr	6	2015	65	
SWYC	4306	100	POWER	38	10	Low	Pettit Vivid	1861	Embree Marin	12	2014	25	
SWYC	4304	vacant				Non			vacant			0	
SWYC	4302	100	POWER	25	7	Low	Interspeed 640	BQA659/5GL	self	9	2015	38	
SWYC	4299	100	SAIL	36	9	Low	UltraKote	2669N	DrSI	1	2018	69	
SWYC	4298	100	POWER	24	8.5	Cu							
SWYC	4297	100	SAIL	23	9	Non	no paint		none			0	
SWYC	4296	100	POWER	24	10.5	Low			purch	5	2014	67	

SWYC	4294	100	POWER	33	10	Low			Dr MB	3	2012	67	
SWYC	4293	100	POWER	38	13	Non	no paint		none			0	
SWYC	4292	88	SAIL	34	11	Low	Z-Spar Bottom	411187706	SI	4	2012	65	
SWYC	4288	100	POWER	62	17	Low	Interlux Ultra-I	Y3779U	SI	10	2015	57	
SWYC	4286	100	SAIL	38	12	Low	Interlux UltraK	Y3669U	SI	12	2015	57	
SWYC	4281	100	SAIL	34	11	Low	Proline 1088	Y1088C-01	KC	9	2010	67	
SWYC	4279	8	POWER	32	9.75	Cu			purch	12	2018		
SWYC	4278	100	SAIL	44	13	Low	Interlux Ultra	Y3669F	SI	7	2015	55	2693-212-AA
SWYC	4277	87	POWER	41	11.5	Cu			NB	3	2016	67	
SWYC	4272	100	SAIL	32	8	Cu							
SWYC	4270	90	SAIL	37	12	Low	Interlux UltraK	Y3669F	SI	4	2016	57	
SWYC	4267	17	POWER	35	12.33	Cu							
SWYC	4266	25	SAIL	33	9.5	Cu							
SWYC	4265	98	POWER	34	9	Cu	Interlux Ultra	3779	SI	12	2017	55	
SWYC	4259	100	POWER	48	14	Non	Interstellar 90	FXA970/A	SI	4	2013	0	
SWYC	4257	97	POWER	31	9	Cu	Proline 1088	1088C-01	SI	5	2017	67	
SWYC	4256	100	SAIL	38	12	Low	Interlux Ultra	Y3669F	SI	4	2010	55	2693-212-AA
SWYC	4254	100	SAIL	33	11	Low	Interlux Ultra	Y3669F	SI	6	2015	55	2693-212-AA
SWYC	4253	25	SAIL	30	12	Low	Interspeed 64	BRA642	purch	12	2015	38	2693-142-ZM
SWYC	4251	96	SAIL	30	10	Cu	Pro-line 1088	1088C-01	SI	8	2016	67	
SWYC	4250	100	POWER	41	14.5	Cu			purch	9	2017	55	2693-212-AA
SWYC	4248	100	POWER	42	13	Low	Interlux Ultra	Y3669F	DR SI	3	2013	55	2693-212-AA
SWYC	4247	100	POWER	14	7	Low	Pettit Protecto	B-91	Dr SI	5	2015	65	
SWYC	4245	98	POWER	11	9	Cu	Pettit Protecto	B-91	SI Inflatables	10	2017	67	
SWYC	4244	100	SAIL	38	12	Low	Interlux Ultra	Y3669F	SI	9	2013	55	2693-212-AA
SWYC	4240	100	POWER	33	12	Cu	Interlux UltraK	2449H	SI	6	2016	76	
SWYC	4239	100	SAIL	33	11	Low			Dr SI	4	2007	67	
SWYC	4238	100	POWER	35	12	Low	Interlux Ultra	Y3669F	SI	4	2011	55	2693-212-AA
SWYC	4237	8	POWER	33	11.5	Cu	Interlux Ultra	3779	SI	3	2017	55	
SWYC	4234	100	SAIL	34	11	Low			SI	1	2008	67	
SWYC	4233	100	SAIL	36	12	Non	Intersleek 900	FXA970/A	SI	8	2013	0	
SWYC	4231	75	SAIL	43	12.67	Cu	ABC 3 by PPG	ABC3-41	SI	6	2018	48	
SWYC	4230	100	SAIL	33	10.75	Low	Interlux Ultra	Y3669F	SI	11	2017	55	2693-212-AA
SWYC	4229	100	POWER	51	15	Low	Proline 1088	Y1088C-01	SI	1	2013	67	
SWYC	4228	8	POWER	30	10.5	Cu							
SWYC	4226	100	SAIL	49	14	Low	Proline 1088	Y1088C-01	SI	10	2015	67	
SWYC	4225	58	DINGY	17	6	Cu							
SWYC	4224	100	POWER	35	10	Cu	Interlux UltraK	Y3779U	KK	1	2016	57	
SWYC	4221	100	SAIL	40	13	Low	Interlux Ultra	Y3779F	SI	4	2012	55	2693-212-AA
SWYC	4217	100	SAIL	34	11	Low	Proline 1088	Y1088C-01	SI	2	2011	67	
SWYC	4216	vacant				Non			vacant			0	
SWYC	4215	100	POWER	39	12	Low	Interlux Ultra	Y3669F	SI	12	2013	55	2693-212-AA
SWYC	4212	100	SAIL	32	10	Low	Proline 1088	Y1088C-01	Dr MB	10	2015	67	
SWYC	4207	8	POWER	15	7	Cu							
SWYC	4206	92	SAIL	38	12	Low	Interlux Ultra-I	Y3779U	SI	3	2017	57	
SWYC	4205	100	SAIL	35	11	Cu	Z-Spar Protect	B-91	DrSI	4	2016	65	
SWYC	4204	8	POWER	22	8	Low	Micron 66	YBA470	Hance&Smyth	9	2014	35	2693-187-ZD

SWYC	4200	25	POWER	33	9.25	Low	Ulttakote	3779	SI	11	2015	67	
SWYC	4199	100	POWER	58	15.92	Low	Proline 1088	Y1088C-02	Lido Shipyard	2	2014	67	
SWYC	4198	8	SAIL	28	7.16	Cu							
SWYC	4196	100	SAIL	43	14	Low	Interlux Ultra	Y3779F	KK	4	2013	30	2693-227-AA
SWYC	4195	100	SAIL	49	9	Low	Proline 1088	Y1088C-02	Dr SI	4	2014	56	
SWYC	4193	100	SAIL	50	13	Low	Interlux Micro	YBA470	SI	11	2013	35	2693-187-ZD
SWYC	4192	100	SAIL	34	11	Low	Z-Spar Protect	B-91	NB	10	2013	65	
SWYC	4191	100	SAIL	27	9	Low	Interlux UltraK	Y3669F	SI	6	2016	55	
SWYC	4190	100	SAIL	38	12.58	Cu			purch	2	2017	67	
SWYC	4187	98	SAIL	26	7	Low	Interlux Ultra	Y3559F	KK	8	2017	55	2693-212-AA
SWYC	4186	100	SAIL	37	11	Low	Z-Spar Bottom	411187706	Dr	5	2015	65	
SWYC	4185	98	SAIL	33	12	Cu	Interlux Ultra	3779	SI	8	2018	55	
SWYC	4184	100	SAIL	50	12.92	Low	Interlux Ultra	Y3779F	SI	11	2016	55	2693-212-AA
SWYC	4183	100	POWER	10	4	Cu							
SWYC	4182	42	POWER	22	8	Cu	Interlux Ultra	3449	KK	8	2018	55	
SWYC	4181	100	SAIL	47	13	Low	Z-Spar Bottom	411187706	Dr	3	2015	65	
SWYC	4179	100	SAIL	37	12	Cu	Pettit Protect	B-94	Dr	5	2017	65	
SWYC	4178	100	SAIL	35	12	Low	Interlux Ultra	Y3669F	SI	6	2015	55	2693-212-AA
SWYC	4174	75	POWER	29	9.75	Low	Interlux Ultra	Y3669F	SI	4	2014	55	2693-212-AA
SWYC	4168	100	POWER	32	11	Low	Interlux Ultra	Y3449F	SI	6	2014	55	2693-212-AA
SWYC	4167	50	POWER	23	8	Low	Pettit Vivid	11161	Miramar BY	5	2017	25	
SWYC	4166	100	SAIL	54	11	Low	Trinidad SR	A1277Q	KC	2	2013	60	
SWYC	4164	100	POWER	29	8	Low	Micron Extra V	5490	NB	6	2017	24	2693-190-ZI
SWYC	4163	42	POWER	10	5	Cu							
SWYC	4162	100	POWER	17	8	Cu	Ultra-Kote	3779	SI	12	2016	55	
SWYC	4159	100	SAIL	36	12	Cu							
SWYC	4155	100	SAIL	28	10	Low	Interlux Ultra	Y3669F	SI	7	2014	55	2693-212-AA
SWYC	4154	100	SAIL	35	13	Low	Interlux Ultra	Y3779F	SI	4	2014	55	2693-212-AA
SWYC	4152	85	SAIL	46	14	Low	Interlux Ultra	Y3669F	SI	8	2018	55	
SWYC	4150	100	POWER	37	12	Non	CeRam-Kote 9	99M	SI	5	2011	0	
SWYC	4148	96	SAIL	31	11	Low	Z-Spar Bottom	411187706	DrSI	12	2017	65	
SWYC	4146	100	SAIL	42	13	Low	Interlux Ultra	Y3779F	SI	7	2014	55	2693-212-AA
SWYC	4144	100	POWER	49	15	Low	Proline 1088	Y1088C-01	SI	4	2004	67	
SWYC	4142	98	SAIL	28	9	Low	Zspar Protecto	B-91	SI	2	2017	65	
SWYC	4141	100	SAIL	34	10	Non	Intersleek 900	FXA972/A	SI	7	2013	0	
SWYC	4140	100	SAIL	30	9	Low	Interlux Ultra	Y3669F	SI	3	2013	55	2693-212-AA
SWYC	4139	100	SAIL	32	10	Non	Pettit Ultima E	1608	Ventura Harbo	7	2012	0	
SWYC	4137	33	SAIL	36.4	11.5	Cu							
SWYC	4136	25	SAIL	45	14.5	Low	Interlux Ultra	Y3669F	SI	6	2012	55	2693-212-AA
SWYC	4135	100	POWER	38	12.5	Cu	Z-Spar Protect	B-94	Larson's Shipy	9	2016	65	
SWYC	4133	100	SAIL	40.8	12.8	Low	Micron 66	YBA473	SI	9	2015	35	2693-187-ZG
SWYC	4132	97	SAIL	39	12	Low	Interlux Ultra	Y3779F	SI	9	2015	55	2693-212-AA
SWYC	4131	100	SAIL	33	11.67	Low	Pettit Trinidad	1875	Marina Shipya	7	2014	70	
SWYC	4128	100	SAIL	31	10	Low	Z-Spar Bottom	411187706	KK	11	2015	65	
SWYC	4127	100	SAIL	43	14	Low	Interlux Ultra	Y3669F	SI	7	2013	55	2693-212-AA
SWYC	4126	100	POWER	71	13	Low	Interlux Ultra	Y3669F	KK	12	2013	55	2693-212-AA

SWYC	4125	96	SAIL	31	10	Cu	Interlux Ultra I	Y3669U	SI	5	2017	57	
SWYC	4124	100	SAIL	34	11.58	Cu	Interlux Ultrak	2779N	SI	2	2017	67	
SWYC	4123	100	POWER	50	15	Low	interlux Ultra	Y3779F	SI	11	2016	55	2693-212-AA
SWYC	4121	25	SAIL	45	12	Low	Trinidad Anti-F	1275	self	10	2014	70	
SWYC	4120	100	SAIL	34	11	Low	Interlux Ultra	Y3669F	SI	12	2013	55	2693-212-AA
SWYC	4119	100	SAIL	40	12.58	Cu							
SWYC	4117	94	SAIL	52	11.25		Trinidad Anti-F	1675	SI	4	2017	70	
SWYC	4116	100	POWER	63	15	Low	Seahawk AF33	3345	Dr	6	2013	33	
SWYC	4115	100	POWER	57	16	Low	Proline 1088	Y1088C-02	SI	4	2014	67	
SWYC	4114	33	POWER	51.7	10.08	Cu			purch	4	2018	67	
SWYC	4113	75	SAIL	51	12	Low	Interlux Ultra	Y3449F	SI	6	2014	55	2693-212-AA
SWYC	4111	100	POWER	30	10	Low	Proline 1088	Y1088C-02	KK	3	2014	68	
SWYC	4110	100	SAIL	30	10	Low	Pettit Trinidad	1275	Dr	5	2008	70	
SWYC	4108	25	SAIL	40	12	Cu	Ultima SR-60	A1103206	La Cruz	2	2016	60	
SWYC	4106	100	SAIL	33	11	Low	Proline 1088	Y1088C-02	SI	11	2014	67	
SWYC	4104	8	SAIL	32.41	10.08	Low	Interlux Bottor	69		11	2018	22	
SWYC	4103	100	SAIL	27	5	Low			KK	1	2011	67	
SWYC	4102	100	SAIL	36	12	Low	Interlux Ultra	Y3779F	KK	5	2014	55	2693-212-AA
SWYC	4101	42	POWER	25	8.2	Cu	Interlux Ultra	3669	SI	9	2018	55	
SWYC	4099	100	SAIL	34	12	Low	Z-Spar Bottom	411187706	Dr	10	2014	65	
SWYC	4094	100	POWER	36	12.33	low	Micron 66	YBA470	Charlotte Harb	5	2016	35	2693-187-ZD
SWYC	4092	100	SAIL	56	15	Cu							
SWYC	4089	100	POWER	66	14.25	Low	Z-Spar Protect	B-94	SI	12	2014	65	
SWYC	4088	100	POWER	58	15.67	Low			purch	10	2015	67	
SWYC	4085	100	SAIL	37	12	Low	Proline 1088	Y1088C-01	SI	5	2010	67	
SWYC	4082	92	POWER	40	13	Low	Proline 1088	Y1088C-02	SI	12	2013	56	
SWYC	4081	100	POWER	36	11	Low	Interlux Ultra	Y3669F	SI	3	2013	55	2693-212-AA
SWYC	4080	33	POWER	19	8.5	Cu							
SWYC	4078	100	SAIL	30	10	Low			purch	9	2014	67	
SWYC	4074	99	POWER	32	12	Cu	Interlux Ultrak	Y3779U	SI	7	2017	57	
SWYC	4073	100	SAIL	32	11.33	Cu			purch	8	2016	67	
SWYC	4072	100	SAIL	41	12.17	Low			purch	10	2014	67	
SWYC	4070	100	POWER	33	9.42	Cu	Interlux Ultrak	2779N	pirch	7	2016	57	
SWYC	4068	100	POWER	72	18	Non	No paint		none			0	
SWYC	4064	100	POWER	29	7.83	Cu	Interlux Ultra	3779	SI	3	2016	55	
SWYC	4063	8	POWER	30	10	Low	Interlux Ultra	Y3669F	SI	5	2013	55	2693-212-AA
SWYC	4062	vacant				Non			vacant			0	
SWYC	4058	100	POWER	38	12	Low	Interlux UltraK	Y3669U	Basin Marine,	4	2015	57	
SWYC	4055	100	POWER	40	13	Cu	Proline 1088	Y1088C-01	SI	4	2016	67	
SWYC	4051	8	SAIL	44	13	Non	CeRam-Kote 9	99M	SI	3	2017	0	
SWYC	4050	100	POWER	21	8	Low	Interlux Ultra	Y3779F	SI	10	2014	55	2693-212-AA
SWYC	4049	100	SAIL	41	13	Cu							
SWYC	4045	100	SAIL	38	11	Low	Interlux UltraK	2669N	KK	11	2007	67	
SWYC	4041	100	POWER	51	14.83	Cu	ABC3 PPG	ABC3-92	SI	9	2016	70	
SWYC	4040	100	POWER	62	17	Low	Interlux Ultra	Y3669F	SI	6	2015	55	2693-212-AA
SWYC	4039	100	POWER	33	11	Low	Z-spar Protect	B-94	Dr	7	2014	65	
SWYC	4038	97	SAIL	39	12	Low	Proline 1088	Y1088C-01	KK	10	2017	67	

SWYC	4037	100	POWER	43	14.33	Low			Newport	5	2010	67	
SWYC	4034	100	SAIL	36	10	Low	Pettit Trinidad	A1277Q	Dr	10	2013	60	
SWYC	4033	97	POWER	52	16	Cu	Interlux Ultrak	Y3779U	SI	4	2017	55	2693-212-AA
SWYC	4031	8	POWER	21	8	Cu							
SWYC	4030	100	SAIL	30	8	Non	No paint		none			0	
SWYC	4029	100	POWER	44	14	Cu	Z-spar The Pro	B-94	SI	7	2017	53	
SWYC	4028	100	POWER	38	12.75	Low	Nautical Super	NAU770	NB	4	2016	55	
SWYC	4027	100	SAIL	30	11	Low	Z-Spar Protect	B-91	Dr	8	2014	65	
SWYC	4025	100	POWER	41	13	Low	Interlux CA Bo	YBA140	SI	8	2011	35	2693-18-ZA
SWYC	4018	100	POWER	29	8.42	Low	California Bottomkote	YBA143	Inland boat Center	3	2017	35	2693-18-ZA
SWYC	4017	33	POWER	32	8	Cu							
SWYC	4014	100	POWER	55	15	Low	Interlux Ultra	Y3779F	SI	2	2015	55	2693-212-AA
SWYC	4013	100	SAIL	37	11	Non	Intersleek 900	FXA972/A	SI	3	2013	0	
SWYC	4012	100	SAIL	32	12	Cu	Z-Spar Protect	B-91	Dr	9	2016	65	
SWYC	4011	100	POWER	44	14.6	Low	Proline 1088	Y1088C-01	SI	4	2013	67	
SWYC	4010	Vacant				Non			vacant			0	
SWYC	4008	100	POWER	21	7	Low			Sunset Aquati	12	2004	67	
SWYC	4005	vacant				Non			vacant			0	
SWYC	4003	100	POWER	34	10.5	Cu			SI	2	2018		
SWYC	4001	94	POWER	45	14	Cu	Trinidat Antifo	1875	DrSI	3	2017	70	

Facility	Slip/Mooring I	Percent of Tim	Vessel Type (P	Vessel Length	Vessel Beam	Paint Type Cop	Paint Product I	Product Numb	Boatyard Nan	Painting Date	Painting DateY	% Copper	Category 1 reg #
SIM	7013	1	S	23	9	Low	Interlux Ultra	Y3779U	SIBY	4	2006	57	
SIM	7279	1	P	21	8	Copper	Interlux Ultra	Y3779U	SIBY	5	2017	67	
SIM	7448	0.9254	P	25	8.6	Low	Interlux Ultra	Y3779F	HH Marine Ser	9	2017	55	2693-212-AA
SIM	7406	70.93	P	13	5	Non	Not Painted					0	
SIM	7579	vacant				Non						0	
SIM	7043	1	S	24	8	Copper	InterluxUltra	3669	SIBY	9	2017	55	
SIM	7432	1	S	25	8	Copper	InterluxUltra	3669	SIBY	8	2017	55	
SIM	7469	1	S	21	6.3	Copper	InterluxUltra	3669	self applied	7	2018	55	
SIM	7530	1	P	16	5	Low	Trilux33	YBA063	SELF APPLIED	10	2013	17	2693-203-ZB
SIM	7477	1	P	30	10.5	Low	Micron CSC	YBC583	SIBY	4	2015	33	2693-225-AA
SIM	7136	vacant				Non						0	
SIM	7186	0.8226	P	20	7	Copper	Interlux Ultra	3779	SIBY	5	2016	55	
SIM	7323	0.9717	E	18	7.9	Low	Interlux Ultra	Y3779F	SIBY	4	2018	55	2693-212-AA
SIM	7330	1	S	21	8	Non	Seahawk Smar	4705	Koehler Kraft	3	2015	0	
SIM	7570	0.9247	P	29	8	Low	Interlux Ultra	2669N	Driscolls	2	2013	67	
SIM	7205	1	P	23	8.6	Low	Interlux Ultra	Y3449F	SIBY	12	2017	55	2693-212-AA
SIM	7394	1	P	25	7	Copper	Interlux Ultra	3669	SIBY	4	2018	55	
SIM	7549	1	p	17	6	Low	Proline	1088C-01	Self Applied	12	2015	67	
SIM	7105	1	P	22	7.5	Low	Interlux Ultra	3449	Nielsen Beaum	8	2014	55	
SIM	7197	1	S	23	7.8	Copper	Interlux Ultra	3779	Koehler	2	2016	55	
SIM	7326	1	P	28	11	Copper	Interlux Ultra	3779	Driscolls	8	2017	55	
SIM	7391	1	P	44	13.9	Low	Micron CSC	YBC583	SIBY	9	2011	33	
SIM	7429	0.9704	S	44.5	14	Low	Interlux Ultra	3779	SIBY	4	2014	55	
SIM	7383	0.9704	S	49	12	Copper	Proline vinyl C	1088C-01	Self applied	12	2017	67	
SIM	7299	1	P	44	14.5	Copper	Proline	1088C-01	Self Applied	7	2016	67	
SIM	7010	99.72	S	37	11.6	Copper			2018		2016	67	
SIM	7211	99.19	P	42	12	Low	Interlux Ultra	3779	SIBY	10	2015	55	
SIM	7576	75.32	P	43.6	14.4	Low	Micron CSCHS	YBC583	Port Charles H	8	2017	33	
SIM	7524	100	P	43	13.11	Low	Progold	411127906	Larsens Boatya	10	2016	67	60061-117-ZE
SIM	7313	100	P	46	15	Copper	Interlux Ultra	3779	SIBY	6	2016	55	
SIM	7132	100										67	
SIM	7216	93.56	S	52	14	Low	Zspar Progold	411127906	KKMI	11	2017	55	60061-117-ZE
SIM	7421	85.22	S	47	14.8	Copper	Zspar	16471690	Driscoll SI	6	2017	67	#N/A
SIM	7291	100	P	50	15	Copper	Pettit Trinidad	1878	SIBY	3	2017	75	
SIM	7241	100	S	45	14	Low	SeaHawk AF33	3345	Gambol Ind	5	2016	33	44891-12-AA
SIM	7224	100	S	48.6	14.2	Low	Interlux Ultra	Y3669F	SIBY	3	2012	55	2693-212-AA
SIM	7396	100	S	47	14	Copper	Zspar	B-91	Newport Harb	11	2016	67	
SIM	7514	87.63	P	44	14	Low	Interlux Ultra	Y3779F	Marine Group	8	2014	67	2693-212-AA
SIM	7267	100	S	47	14	Low	Micron CSC	YBC583	SIBY	1	2016	33	2693-225-AA
SIM	7300	100	S	48	17	Copper	Pettit Ultima	1032	Baja Navall	12	2016		
SIM	7435	100	P	40	14.2	Low	Interlux Ultra	Y3779F	SIBY	4	2018	55	2693-212-AA
SIM	7420	91.94	P	49	15.5	Low	Interlux Ultra	Y3779F	SIBY	9	2018	55	2693-212-AA
SIM	7304	100	S	46	13.9	Copper	Interlux Ultra	Y3779U	SIBY	8	2017	55	
SIM	7500	100	S	38	11.5	Low	Interlux Ultra	3779	Anchors Away	10	2010	55	
SIM	7005	100	S	41	12	Low	Woolsey	4802	Self Applied	2	2017	67	60061-101-ZA
SIM	7342	100	P	50	14.6	Copper	Unknown			unknown	unknown	67	
SIM	7516	100	P	38	13.4	Low	Interlux Ultra	3669	SIBY	6	2014	55	
SIM	7523	100	S	41	12	Copper	Proline	1088C-01	SIBY	7	2018	67	
SIM	7423	100	P	30	10.4	Low	Interlux Ultra	3779	Driscoll's MB	4	2014	55	
SIM	7560	100	P	56	15.9	Low	Proline	1088C-01	SIBY	5	2015	67	
SIM	7381	95.47	P	28	10	Copper	Interlux Ultra	3779	SIBY	5	2018	55	
SIM	7353	8.88	P	20	6.6	Copper	Proline	1088C-01	Self Applied	5	2018	67	
SIM	7378	100	P	23	9	Copper	Interlux Ultra	3669	SIBY	12	2016	55	
SIM	7332	94.73	P	46	15.6	Low	Interlux Ultra	Y3779F	SIBY	8	2016	67	2693-212-AA
SIM	7062	84.78	P	30	11	Low	Zspar Pro Gold	411127906	Driscolls SI	11	2018	67	60061-117-ZE
SIM	7106	98.92	S	43	13	Copper	Proline	1088C-01	CSR Boartyard	7	2017	67	
SIM	7042	95.33	P	30	9	Low	Proguard Ablat	NAU773	Neilsen Beaum	4	2018	55	23566-20-ZT
SIM	7256	95.68	S	42	13	Low	Micron Csc	5580G	Driscolls SI	1	2015	37	
SIM	7412	100	P	30	12	Copper	Unknown		purchase	5	2017	67	
SIM	7052	98.12	P	42	13	Copper			Florida	12	2017	67	
SIM	7426	98.33	S	33	11	Low	Proline 1088	1088C-01	SIBY	4	2011	33	
SIM	7355	100	S	38	12.4	Copper	Pettit Protecto	B-94	The Boatyard (	12	2017	60	
SIM	7064	100										67	

SIM	7111	100	S		39	13	Low	Woolsey Defer	4802	Nielson Beaum		8	2017	48	60061-101-ZA
SIM	7393	100	P		20.9	8	Copper	Interlux Ultra	3669	SIBY		11	2017	55	
SIM	7382	99.46	S		39	12.6	Low	Micron CSC	YBC580	SIBY		1	2014	33	2693-225-AA
SIM	7367	100	S		30	11	Low	Zspar Gold	411127906	SIBY		8	2012	40	60061-117-ZE
SIM	7515	91.67	P		42	13	Copper	Interlux Ultra	3779	SIBY		7	2016	55	
SIM	7384	100	S		31	11.8	Low	Interlux Ultra	3779	SIBY		11	2013	55	
SIM	7517	100	S		35	12	Low	Woolsey Defer	4801	Nielson Beaum		8	2017	48	60061-101-ZA
SIM	7307	100	P		29	7	Low	Micron CSC	YBC580	DIBY		11	2013	33	2693-225-AA
SIM	7471	100	P		29	13	Low	Superproguarc	NAU773	Nielsen Beaum		3	2016	55	23566-20-ZT
SIM	7023	99.73	S		30	10	Low	Zspar Gold	411127906	Driscolls		5	2016	40	60061-117-ZE
SIM	7153	96.51	S		43	13.3	Low	Interlux Ultra	Y3779F	SIBY		8	2018	55	2693-212-AA
SIM	7061	68.68	S		54	16	Low	Micron CSC	5583G	SIBY		11	2015	37	
SIM	7270	94.17	P		33	12	Low	Interlux	3449	SIBY		1	2015	55	
SIM	7161	100	P		22	8.3	Copper	Unknown		Florida	unknown		unknown	67	
SIM	7095	100	S		27	9	Copper	Interlux Ultra	3779	SIBY		10	2016	55	
SIM	7152	100	P		69	17.2	Low	Petit Zspar	B-94	Driscolls		6	2015	67	
SIM	7169	100	D		40.5	12	Low	Proline	1088C-02	2009	unknown		2008	67	
SIM	7584	100	P		43	14	Low	Interlux Ultra	3779	Kings Harbor		8	2015	55	
SIM	7410	100	S		36	12	Copper	Pettitt	1875	So Texas Yacht		11	2016	70	
SIM	7288	100	P		41	14	Copper				Nov		2017	67	
SIM	7564	100	p		38	14	Low	Interlux Ultra	3779	Unknown		2	2015	55	
SIM	7373	100	P		35	13	Low	Petit Protector	B-94	Driscolls MB		9	2013	65	
SIM	7040	98.39	S		63	18.5	Copper	Pettit the Prot	B-94	Driscolls		8	2016	65	
SIM	7208	94.09	S		54	16	Copper	Pettit the Prot	B-94	SIBY		6	2016	65	
SIM	7201	100	S		38	12.5	Low	Interlux Ultra	3779	Driscolls MB		9	2009	55	
SIM	7513	100	P		38	12.8	Non	Interlux Pacific	YBA163	Marine Group		4	2014	0	
SIM	7504	97.58	P		40	14	Low	Interlux Ultra	Y3779F	SIBY		5	2018	55	2693-212-AA
SIM	7464	98.92	S		43	13	Copper	Proline	1088C-01	CSR Marine So		6	2017	67	
SIM	7147	97.5	S		42	13	Copper	Zspar Progold	B-94	Driscolls SI		8	2016	65	
SIM	7603	100	P		38	13	Copper	Interlux Ultra	3669	Koehler Kraft		3	2017	55	
SIM	7413	100	P		36	12.6	Low	Interlux Ultra	3669	SIBY		11	2014	55	
SIM	7054	100	P		38	11	Low	Nautical Sup P	NAU773	Nielson Beaum		1	2016	55	23566-20-ZT
SIM	7416	100	P		38	12.5	Low	Interlux Ultra	3669	Driscolls		7	2012	55	
SIM	7341	100	S		40	14	Copper	Interlux Ultra	3779	SIBY		5	2018	55	
SIM	7443	98.89	S		42	11	Copper	Interlux Ultra	3779	SIBY		7	2018	55	
SIM	7068	100	S		40	12	Copper			purchase		5	2018	67	
SIM	7499	100	S		42	12	Low	Zspar Progold	411127906	Driscolls		4	2017	40	60061-117-ZE
SIM	7418	100	P		36.4	12	Low	Interlux Ultra	3449	SIBY		1	2014	55	
SIM	7268	99.72	S		45	14	Low	Pettitt Vivid	1261	Mobile Ship Ya		8	2013	25	60061-116-AA
SIM	7485	100	S		39	12	Low	Hydrocoat	1840	Self Applied		6	2016	40	60061-87-ZI
SIM	7087	100	S		44	12	Copper	Interlux Ultra	3669	SIBY		5	2017	55	
SIM	7329	100	P		40	13.5	Copper			purchase		6	2017	67	
SIM	7167	100	P	39'7"		13.7	Low	Interlux Ultra	Y3779F	SIBY		4	2013	55	2693-212-AA
SIM	7173	100	P		34	13.5	Low	Zspar Progold	41127706	Driscolls		11	2015	65	60061-94-ZE
SIM	7297	100	P		32	12	Non	hydrohoist		Sits on Hydrohoist			2008	0	
SIM	7528	100	S		30	11	Low	Interlux Ultra	Y3669F	SIBY		9	2015	55	2693-212-AA
SIM	7474	98.92	S		22	6	Copper								
SIM	7454	100	P		23	8	Low	Interlux Ultra	Y3779F	SIBY		1	2015	55	2693-212-AA
SIM	7561	100	S		30	11	Copper	Interlux Ultra	3669	SIBY		6	2017	55	
SIM	7122	100	S		33	11.6	Low	Interlux Ultra	Y3779F	SIBY		5	2016	55	2693-212-AA
SIM	7168	98.61	S		30	11	Low	Interlux Ultra	Y3779F	Driscolls		5	2013	55	2693-212-AA
SIM	7529	100	S		24	8	Low	Interlux Ultra	Y3669F	Oceanside Ma		7	2011	55	
SIM	7226	100	S		34	10	Low	Interlux Ultra	Y3669F	SIBY		10	2014	55	2693-212-AA
SIM	7541	100	S		34	10	Copper	Proline	1088C-01	Self Applied		4	2018	67	
SIM	7209	100	P		28	10.5	Copper			purchase 6/1/	unknown		unknown	67	
SIM	7261	97.58	S		30	10.8	Low	Proline	1088C-01	Knight & Carve		2	2013	67	
SIM	7363	100	S		27	8	Low	Interlux Ultra	Y3779F	Kohler Kraft		3	2013	55	2693-212-AA
SIM	7189	100	P		28.3	9.8	Low	Interlux Ultra	Y3779F	SIBY		5	2013	55	2693-212-AA
SIM	7141	91.4	P		25	8	Low	Interlux Ultra	Y3669F	Franciscos Boa		11	2016	55	2693-212-AA
SIM	7223	92.68	S		30	10.9	Copper			purchase 6/1/	Unknown		Unknown	67	
SIM	7055	100	S		29	7	Low	Interlux Ultra	Y3779F	SIBY		4	2012	67	2693-212-AA
SIM	7556	97.8	S		33	11	Copper	Proline	1088C-01	Driscolls		7	2016	67	
SIM	7200	100	S		30	11	Low	Interlux Ultra	Y3669F	SIBY		9	2015	55	2693-212-AA
SIM	7522	100	P		30	11.3	Low	Interlux Ultra	Y3779F	SIBY		3	2017	55	2693-212-AA

SIM	7558	100	S	30	10	Low	Interlux Ultra	Y3779F	SIBY	6	2017	55	2693-212-AA
SIM	7257	100	S	29	9.6	Low	Zspar Pro Gold	A411187706	SIBY	4	2013	65	
SIM	7024	99.47	P	32	9.67	Low	Interlux Ultra	Y3779F	MGBW	12	2017	55	2693-212-AA
SIM	7512	78.79	S	30	10.2	Low	Pettit Protecto	B-91	Driscolls	6	2015	65	
SIM	7176	96.42	P	23	7.6	Low	Zspar	B-94	Sunset Aquatic	1	2014	65	
SIM	7039	99.72	P	30	10	Low	Interlux Ultra	Y3779F	SIBY	1	2014	55	2693-212-AA
SIM	7539	98.89	S	29.6	10	Low	Pettit Kop Coat	1881	KKMI	3	2015	38	60061-71-ZA
SIM	7465	93.01	S	30	10.6	Low	Interlux Ultra	Y3669F	SIBY	5	2016	55	2693-212-AA
SIM	7347	100	S	30	11	Low	Trinidad	A10882	Dolphin Divers	9	2011	60	60061-94-ZB
SIM	7392	100	S	33	10.5	Low	Interlux Ultra	Y3779F	SIBY	11	2017	55	2693-212-AA
SIM	7284	100	P	32	11.3	Low	Interlux Ultra	Y3779F	Driscolls SI	2	2014	55	2693-212-AA
SIM	7156	100	S	30	11.3	Low	Interlux Ultra	Y3669F	SIBY	10	2007	55	2693-212-AA
SIM	7397	100	P	30	10	Copper	Interlux	Y3669U	SIBY	7	2016	57	
SIM	7102	100	S	30	10.2	Low	Proline	1088C-01	Santa Barbara	10	2010	67	
SIM	7473	100	P	54	16	Non	Epaint SN-1	EPT S1-105-1	Driscolls MB	8	2015	0	
SIM	7430	100	P	48	15.5	Low	Interlux Ultra	Y3669F	Koehler Kraft	10	2018	55	2693-212-AA
SIM	7031	100	P	37	14	Low	Interlux Ultra	Y3779F	Hale Marine A	4	16	55	
SIM	7598	100	P	29.9	11.5	Low	Interlux Ultra	Y3779F	SIBY	12	2015	55	
SIM	7356	100	S	35	10	Non	Ceram Kote	99M	SIBY	3	2015	0	
SIM	7260	100	P	35	13	Copper	Interlux Ultra	Y3669F	SIBY	2	2016	55	
SIM	7220	100	S	37	12	Low	Imeron	ABC-3	Ventura Boat Y	10	2014	70	
SIM	7283	100	S	36	12	Non	Ceram Kote	99M	Was in Port Hu	5	2015	0	
SIM	7538	90.04	S	40	12	Low	Interlux Ultra	Y3779F	SIBY	11	2018	55	2693-212-AA
SIM	7212	100	S	35	11.6	Copper			Mexico	6	2016	67	
SIM	7098	83.32	S	34	11.4	Low	Interlux	Y3779F	SIBY	3	2016	55	2693-212-AA
SIM	7578	98.92	S	36	12	Copper	Zspar	B-91	Driscolls	5	2017	67	
SIM	7369	94.89	S	41	13	Low	Micron csc	5583G	SIBY	5	2017	37	
SIM	7244	98.33	P	34	13.2	Copper	Interlux Ultra	Y3669U	SIBY	7	2017	55	
SIM	7436	99.19	S	42	13.9	Low	Interlux Ultra	Y3669F	Koehler Kraft	10	2016	55	2693-212-AA
SIM	7009	94.83	S	35	12.5	Non	Micron CF	YBD103	Koehler Kraft	2	2016	0	https://interlux.com/en/us/boat-paint/antifouling/micron-cf
SIM	7269	100	S	37	11.5	Copper	Interlux Ultra	Y3779U	SIBY	8	2016	55	
SIM	7409	100	S	34	11.9	Low	Micron csc	YBC583	SIBY	4	2018	33	2693-225-AA
SIM	7459	100	P	42	14	Low	Interlux Ultra	2669N	SIBY	11	2015	55	
SIM	7371	100	P	38	13	Low	Proline	1088C-01	SIBY	10	2013	67	
SIM	7129	100	P	34	13	Low	Micron CSC	YBC580	SIBY	11	2014	33	2693-225-AA
SIM	7575	80.09	S	36	11	Copper	Interlux Ultra	Y3449U	SIBY	7	2017	55	
SIM	7159	85.87	S	39	13	Copper			Georgia			67	
SIM	7476	99.73	S	34	11	Copper	Zspar Pro Gold	A411187706	Driscolls	3	2018	60	
SIM	7252	85.52	P	45.5	14	Low	Interlux Ultra k	Y3779U	SIBY	10	17	55	
SIM	7480	100	P	36	12.2	Low	Interlux Ultra	3779	SIBY	3	2015	55	
SIM	7034	100	S	40	12	Low	Ultra w/Bio	Y3779F	SIBY	1	2014	55	2693-212-AA
SIM	7317	100	P	64	17	Low	Interlux Ultra	Y3779F	SIBY	8	2017	55	2693-212-AA
SIM	7327	97.04	P	62	16	Low	Interlux Ultra	Y3779F	SIBY	3	2017	55	2693-212-AA
SIM	7358	100	P	92	20.5	Low	Interlux Ultra	Y3779F	SIBY	5	2018	55	2693-212-AA
SIM	7078	71.37	p	85	22.5	Low	Zspar Pro Gold	411127906	Driscolls SI	6	2018	40	60061-117-ZE
SIM	7365	94.57	P	115	25	Low	Interlux Ultra	Y3779F	Marina Group	10	2018	55	2693-212-AA
SIM	7328	96.98	P	111	25	Low	Interlux Ultra	Y3779F	Marine Goup	7	2017	55	2693-212-AA
SIM	7046	99.46	P	43	16	Low	Interlux Ultra	Y3669F	SIBY	9	2018	55	2693-212-AA
SIM	7395	77.9	P	105	24	Copper	Seaguard P30	P30BQ12	Delta WA	6	2018	48	
SIM	7338	82.4	P	90	22	Copper	Proline	1088C-01	Marine Goup	11	2018	67	
SIM	7577	84.09	P	150	30	Non	Seahawk Biocu	1205-1	Marine Goup	10	2016	0	
SIM	7442	98.89	P	146	28	Non	Seahawk Biocu	1205-1	Rosioli FT Laud	1	2017	0	
SIM	7368	87.88	P	56	15.2	Low	Interlux Ultra	Y3779F	SIBY	6	2018	55	2693-212-AA
SIM	7240	95.43	P	75	19	Low	Micron CSC HS	YBC581	Cable Marine/	1	2017	33	2693-225-AA
SIM	7088	100	P	53	15	Low	Interlux Ultra	Y3779F	Marine Group	7	2016	55	2693-212-AA
SIM	7089	80.59	P	110	23	Low	Seahawk Bio C	1205-1	Marine Group	3	2018	38	
SIM	7510	88.69	P	112	24.9	Low	Interlux Ultra	Y3779F	SIBY	10	2018	55	2693-212-AA
SIM	7191	99.19	S	106	27	Low	Seahawk Biocu	1205-1	Marine Group	8	2017	38	
SIM	7047	88.91	p	108	24	Low	Seahawk Biocu	1205-1	SIBY	8	2018	38	
SIM	7192	80.59	P	100	23.6	Copper	Seaguard P30	P30BQ12	Marine Group	11	2018	48	
SIM	7278	96.17	P	61.3	18	Low	Ultra w/Bio	Y3669F	SIBY	10	2017	55	2693-212-AA

Facility	Slip/Mooring	Percent of Tir	Vessel Type (	Vessel Length	Vessel Beam	Paint Type Co	Paint Product	Product Num	Boatyard Na	Painting Date	Painting Date	% Copper	Category 1 reg #
HMM	9009	100	P	36	12	Copper	Unknown			Unknown	Unknown	67	
HMM	9016	100	S	35	12	Copper	Unknown			Unknown	Unknown	67	
HMM	9032	95	S	34	10	Copper	Interlux Ultra	Y3669U	Shelter Island	7	2016	57	
HMM	9041	90	P	32	10	Copper	Unknown			Unknown	Unknown	67	
HMM	9042	100	P	22	7	Copper	Interlux Ultra	Y3779U	Shelter Island	4	2017	57	
HMM	9045	100	P	21	9	Copper	Unknown			Unknown	Unknown	67	
HMM	9073	100	S	33	9	Low	Interlux Ultra	Y3779F	Shelter Island	8	2014	55	2693-212-AA
HMM	9079	vacant				Non						0	
HMM	9098	100	S	25	9	Copper	Unknown			Unknown	Unknown	67	
HMM	9098	100	S	31	11	Copper	Unknown			Unknown	Unknown	67	
HMM	9127	90	P	29	11	Non	Armored Hull (liner)		None	10	2017	0	
HMM	9135	90	P	29	10	Non	Thorn D		Shelter Island	6	2013	0	
HMM	9139	100	E	18	7	Copper	Unknown		Unknown	Unknown	Unknown	67	
HMM	9140	100	P	20	9	Non	Pettit Hydro (	1204	Self Applied	4	2018	0	60061-137
HMM	9141	95	S	32	12	Copper	Unknown			Unknown	Unknown	67	
HMM	9144	100	S	30	11	Low	Unknown		Driscoll SI	6	1999	67	
HMM	9147	100	P	24	9	Copper	Unknown			Unknown	Unknown	67	
HMM	9149	100	S	35	11	Low	Interlux Ultra	Y3669F	Shelter Island	11	2013	55	2693-212-AA
HMM	9153	95	S	38	11	Low	Interlux Ultra	Y3669U	Koehler Kraft	7	2015	57	
HMM	9164	vacant				Non						0	
HMM	9165	90	P	15	7	Copper	Unknown			Unknown	Unknown	67	
HMM	9167	100	P	26	9	Low	Pettit Hydroc	1240	Self Applied	3	2014	40.43	60061-87-ZH
HMM	9172	100	P	52	14	Low	Unknown		Baja Naval	1	2009	67	
HMM	9178	100	S	22	9	Low	Unknown			12	2011	67	
HMM	9180	100	P	23	10	Copper	Unknown			Unknown	Unknown	67	
HMM	9189	100	S	38	12	Low	Interlux Micro	5693	British Marin(	9	2013	35	
HMM	9197	100	P	21	8	Copper	Unknown			1	2017	67	
HMM	9198	100	S	36	12	Low	Interlux Ultra	Y3669F	Shelter Island	7	2015	55	2693-212-AA
HMM	9206	100	S	27	8	Low	Unknown		Driscoll SI	12	2010	67	
HMM	9211	100	S	43	13	Low	Interlux Ultra	Y3779F	Basin Marine	6	2015	55	2693-212-AA
HMM	9217	75	P	28	10	Copper	Pettit		Self Applied	Unknown	Unknown	66	
HMM	9225	100	P	37	13	Low	Interlux Ultra	Y3779U	Shelter Island	1	2013	57	
HMM	9227	100	P	26	8	Copper	Unknown			Unknown	Unknown	67	
HMM	9230	100	S	26	9	Low	Interlux Ultra	Y3779U	Shelter Island	9	2017	57	
HMM	9235	100	S	30	9	Low	Interlux Ultra	Y3779F	Shelter Island	5	2010	55	2693-212-AA
HMM	9237	90	P	38	14	Copper						67	
HMM	9280	90	S	53	13	Copper	Unknown			Unknown	Unknown	67	
HMM	9287	90	S	36	12	Low	Interlux CSC	5583G	Shelter Island	6	2017	37	
HMM	9287	100	S	34	10	Copper	Unknown		Shelter Island	11	2016	67	
HMM	9295	95	S	41	12	Copper	Interlux Ultra	Y3669U	Shelter Island	10	2016	57	
HMM	9295	vacant				Non						0	
HMM	9299	100	S	34	12	Copper	Unknown			Unknown	Unknown	67	
HMM	9304	100	S	48	14	Copper	Unknown			Unknown	Unknown	67	
HMM	9315	100	P	30	11	Copper	Unknown			Unknown	Unknown	67	
HMM	9317	100	S	17	6	Copper						67	
HMM	9331	100	S	20	6	Copper	Unknown			Unknown	Unknown	67	

HMM	9339	100	S	30	11	Copper	Pettit Z-Spar	B-91	Driscoll SI	2	2016	65	
HMM	9344	98	P	50	16	Low	Interlux Ultra	Y3779F	Driscoll MB	9	2017	55	2693-212-AA
HMM	9347	100	P	35	12	Low	Interlux Ultra	Y3669F	Shelter Islanc	10	2018	55	2693-212-AA
HMM	9359	100	S	14	5	Low	Interlux Micr	5691	Self Applied	7	2016	35	
HMM	9365	95	P	38	15	Low	Interlux Ultra	Y3669U	Shelter Islanc	12	2015	57	
HMM	9378	100	S	30	10	Low	Proline	1088C-01	Shelter Islanc	10	2012	67	
HMM	9383	vacant				Non						0	
HMM	9391	100	S	30	11	Copper	Interlux Ultra	Y3669U	Shelter Islanc	6	2016	57	
HMM	9402	100	S	26	8	Low	Interlux Micr	5790	Knight and Ca	2	2011	35	2693-190-ZI
HMM	9403	100	P	33	12	Copper	Unknown			Unknown	Unknown	67	
HMM	9405	100	P	39	13	Copper	Unknown			Unknown	Unknown	67	
HMM	9407	100	S	38	13	Low	Interlux Ultra	Y3669F	Shelter Islanc	6	2018	55	2693-212-AA
HMM	9407	90	P	29	10	Non	Thorn D		Shelter Islanc	6	2013	0	
HMM	9417	85	S	35	12	Copper	Interlux Ultra	Y3669U	Shelter Islanc	12	2016	57	
HMM	9419	100	S	22	9	Copper	Unknown			Unknown	Unknown	67	
HMM	9420	95	S	34	10	Low	Interlux Ultra	Y3779F	Driscoll SI	10	2018	55	2693-212-AA
HMM	9421	100	S	27	9	Low	Interlux Ultra	Y3449F	Shelter Islanc	6	2012	55	2693-212-AA
HMM	9428	90	S	30	11	Low	Seahawk	6142	Driscoll SI	1	2006	45	44891-11-AA
HMM	9434	100	S	36	12	Low	Interlux Ultra	Y3669F	Shelter Islanc	6	2018	55	2693-212-AA
HMM	9443	95	P	23	7	Non	Pettit Hydro (	1204	Self Applied	7	2017	0	60061-137
HMM	9450	100	S	17	6	Copper	Unknown			Unknown	Unknown	67	
HMM	9459	100	S	36	12	Low	Interlux Ultra	2779N	Shelter Islanc	5	2011	66.5	
HMM	9461	100	P	24	9	Copper	Unknown			Unknown	Unknown	67	
HMM	9467	100	P	32	12	Copper						67	
HMM	9470	100	P	33	11	Copper	Unknown			Unknown	Unknown	67	
HMM	9478	98	S	28	9	Low	Unknown			4	2012	67	
HMM	9498	100	S	36	10	Low	Interlux Ultra	Y3779U	Shelter Islanc	6	2016	57	
HMM	9500	98	S	33	13	Copper	Interlux Ultra	Y3559U	Shelter Islanc	5	2016	57	
HMM	9514	vacant				Non						0	
HMM	9522	100	S	30	11	Low	Interlux Ultra	Y3669F	Shelter Islanc	4	2015	55	2693-212-AA
HMM	9523	95	P	33	11	Low	Unknown		Driscoll SI	10	2012	67	
HMM	9530	100	P	32	10	Copper	Interlux Ultra	Y3779U	Shelter Islanc	6	2016	57	
HMM	9531	100	S	30	12	Low	Interlux Ultra	Y3449F	Shelter Islanc	1	2017	55	2693-212-AA
HMM	9536	100	S	38	12	Copper	Proline	1088C-01	Self Applied	11	2017	67	
HMM	9544	95	P	18	8	Copper	Unknown			Unknown	Unknown	67	
HMM	9548	100	S	34	12	Low	Interlux Ultra	Y3779F	Shelter Islanc	4	2014	55	2693-212-AA
HMM	9552	100	S	26	7	Low	Unknown		Shelter Islanc	4	2014	67	
HMM	9554	100	S	42	14	Low	Interlux Ultra	Y3669F	Shelter Islanc	11	2018	55	2693-212-AA
HMM	9558	100	p	10	5	Copper	Unknown			Unknown	Unknown	67	
HMM	9561	95	S	33	12	Copper	Unknown		Dana Point Sh	1	2017	67	
HMM	9567	100	S	32	9	Low	Unknown		Shelter Islanc	12	2012	67	
HMM	9568	100	P	36	13	Copper						67	
HMM	9577	100	S	36	11	Low	Pettit Z-Spar	B-91	Driscoll SI	6	2015	65	
HMM	9582	100	P	18	8	Low	Unknown		Self Applied	12	2010	67	
HMM	9582	100	S	42	13	Low	Unknown		Shelter Islanc	6	2006	67	
HMM	9584	95	P	24	8	Low	West Marine	411181108	Self Applied	6	2017	37.5	60061-71-ZD
HMM	9587	100	S	30	10	Low	Interlux Ultra	Y3779F	Shelter Islanc	9	2014	55	2693-212-AA

HMM	9594	100	S	23	8	Low	Unknown		Shelter Islanc	12	1990	67	
HMM	9601	100	S	47	14	Low	Pettit Trinida	1275	Self Applied	3	2011	70	
HMM	9608	100	S	30	10	Copper	Unknown		Shelter Islanc	9	2016	67	
HMM	9612	90	S	25	8	Copper	Unknown			Unknown	Unknown	67	
HMM	9612	94	S	44	13	Low	Interlux Ultra	Y3559F	Shelter Islanc	5	2014	55	2693-212-AA
HMM	9617	100	S	31	10	Low	Pettit Trinida	A1277Q	Driscoll SI	12	2014	60	60061-94-ZD
HMM	9628	100	P	19	8	Copper	Unknown			Unknown	Unknown	67	
HMM	9655	100	S	30	12	Copper	Unknown			Unknown	Unknown	67	
HMM	9656	70	S	38	12	Copper	Unknown			Unknown	Unknown	67	
HMM	9657	100	E	18	6	Low	Pettit Z-Spar	411187706	Perceptions,	12	2017	65	60061-94-ZE
HMM	9660	100	P	24	9	Copper	Unknown			Unknown	Unknown	67	
HMM	9661	95	S	37	12	Low	Interlux Micr	5693	Mexico	3	2014	35	
HMM	9663	100	S	50	12	Low	Unknown		Koehler Kraft	3	2014	67	
HMM	9663	50	S	47	14	Low	Interlux Ultra	Y3669F	Shelter Islanc	5	2012	55	2693-212-AA
HMM	9671	98	S	32	11	Low	Nautical Supe	NAU770	Nielsen-Beau	10	2017	55	23566-20-ZR
HMM	9678	100	S	47	13	Low	Unknown		Shelter Islanc	12	2006	67	
HMM	9684	100	S	34	10	Low	Interlux Ultra	Y3669F	Shelter Islanc	9	2014	55	2693-212-AA
HMM	9688	100	P	30	10	Low	Nautical Supe	NAU773	Nielsen-Beau	2	2016	55	23566-20-ZT
HMM	9693	100	S	30	10	Low	Interlux Ultra	Y3669U	Shelter Islanc	4	2015	57	
HMM	9693	70	S	38	12	Copper	Unknown			Unknown	Unknown	67	
HMM	9694	100	S	38	12	Low	Unknown		Channel Islan	3	2015	67	
HMM	9700	65	P	23	9	Low	Interlux Ultra	Y3779F	Shelter Islanc	11	2017	55	2693-212-AA
HMM	9700	95	P	50	15	Copper	Interlux Ultra	Y3779U	Shelter Islanc	2	2016	57	
HMM	9700	100	S	34	12	Copper	Unknown			Unknown	Unknown	67	
HMM	9710	100	S	35	11	Low	Pettit Trinida	A1088G	Koehler Kraft	12	2015	60	60061-94-ZB
HMM	9710	100	P	35	11	Low	Pettit Z-Spar	B-94	Driscoll SI	8	2014	65	
HMM	9712	100	S	26	10	Low	Interlux Ultra	Y3669F	Driscoll MB	5	2014	55	2693-212-AA
HMM	9712	100	P	32	12	Copper	Unknown			Unknown	Unknown	67	
HMM	9721	100	P	30	10	Copper	Unknown			Unknown	Unknown	67	
HMM	9722	100	P	36	12	Low	Interlux Ultra	Y3779F	Shelter Islanc	3	2013	55	2693-212-AA
HMM	9723	100	R	19	6	Copper	Unknown			Unknown	Unknown	67	
HMM	9726	100	P	22	8	Low	Interlux Ultra	Y3779F	Driscoll MB	1	2013	55	2693-212-AA
HMM	9734	100	S	36	12	Copper	Unknown			Unknown	Unknown	67	
HMM	9735	65	S	33	11	Low	Proline	1088C-01	Shelter Islanc	4	2012	67	
HMM	9744	100	S	37	12	Copper	Pettit Z-Spar	B-91	Seven Seas B	6	2017	65	
HMM	9745	98	P	36	13	Low	Interlux Ultra	Y3779F	Shelter Islanc	10	2014	55	2693-212-AA
HMM	9747	100	S	23	9	Low	West Marine	411181108	Self Applied	7	2018	37.5	60061-71-ZD
HMM	9748	100	P	18	9	Copper	Pettit Trinida	A1088G		Unknown	Unknown	60	60061-94-ZB
HMM	9751	100	S	27	9	Low	Unknown		Shelter Islanc	7	2012	67	
HMM	9751	95	P	30	8	Low	Interlux Ultra	Y3669F	Shelter Islanc	6	2013	55	2693-212-AA
HMM	9754	100	S	23	8	Copper	Pettit Trinida	Y3779U	Shelter Islanc	8	2016	57	
HMM	9755	100	S	36	13	Copper	Interlux Ultra	2669N	Shelter Islanc	12	2016	67	
HMM	9766	100	S	25	8	Low	Interlux Ultra	Y3559F	Shelter Islanc	5	2011	55	2693-212-AA
HMM	9774	100	P	40	12	Low	Unknown		Shelter Islanc	1	2000	67	
HMM	9775	90	P	29	10	Low	Pettit		Shelter Islanc	4	2015	67	
HMM	9787	90	P	47	14	Copper	Interlux Ultra	Y3779U	Shelter Islanc	6	2017	57	
HMM	9793	vacant				Non						0	

HMM	9799	100	P	27	10	Copper	Unknown			Unknown	Unknown	67	
HMM	9800	100	S	45	14	Copper	Unknown		Shelter Islanc	10	2016	67	
HMM	9803	vacant				Non						0	
HMM	9804	100	P	35	11	Low	Pettit Z-Spar	B-94	Driscoll SI	8	2014	65	
HMM	9807	90	P	28	10	Low	West Marine	411181108	Shelter Islanc	8	2018	37.5	60061-71-ZD
HMM	9816	100	S	30	11	Non	No bottom paint		No bottom pa	No bottom pa	No bottom pa	0	
HMM	9824	100	S	24	8	Copper	Unknown			Unknown	Unknown	67	
HMM	9830	100	S	36	10	Copper	Unknown			Unknown	Unknown	67	
HMM	9837	100	S	35	12	Copper	Unknown			Unknown	Unknown	67	
HMM	9841	vacant				Non						0	
HMM	9862	100	S	27	9	Copper	Unknown			Unknown	Unknown	67	
HMM	9870	vacant				Non					NA	0	
HMM	9873	100	S	25	8	Copper	Unknown			Unknown	Unknown	67	
HMM	9876	80	S	30	11	Non	Interlux Inter	FXA972/A	Shelter Islanc	5	2015	0	
HMM	9879	100	P	41	12	Low	Interlux Ultra	Y3779F	Shelter Islanc	9	2013	55	2693-212-AA
HMM	9882	100	P	48	15	Low	Interlux Ultra	Y3779F	Shelter Islanc	8	2013	55	2693-212-AA
HMM	9884	100	NA	20	8	Copper	Unknown			Unknown	Unknown	67	
HMM	9886	100	S	47	14	Low	Interlux Ultra	2449H	Koehler Kraft	1	2012	76	
HMM	9891	100	S	27	9	Low	Unknown			2	2011	67	
HMM	9900	100	S	40	13	Copper	Unknown			Unknown	Unknown	67	
HMM	9900	100	P	42	14	Low	Interlux Ultra	Y3669F	Shelter Islanc	6	2018	55	2693-212-AA
HMM	9905	vacant				Non						0	
HMM	9922	100	S	36	13	Low	Pettit Z-Spar	B90VOC	Driscoll SI	11	2015	76	
HMM	9923	100	S	34	11	Low	Interlux Ultra	Y3669F	Shelter Islanc	4	2015	55	2693-212-AA
HMM	9924	90	S	41	11	Copper	Unknown		Shelter Islanc	2	2016	67	
HMM	9927	100	P	21	8	Low	Unknown		Shelter Islanc	6	2013	67	
HMM	9948	100	P	42	15	Copper	Unknown			Unknown	Unknown	67	
HMM	9961	100	S	25	8	Copper	Unknown			Unknown	Unknown	66	
HMM	9963	90	S	37	12	Low	Unknown		Florida	4	2008	67	
HMM	9966	100	S	39	12	Low	Interlux Ultra	Y3669F	Mexico	11	2014	55	2693-212-AA
HMM	9966	100	P	28	11	Low	Interlux Ultra	Y3779U	Shelter Islanc	2	2014	57	
HMM	9968	100	S	34	11	Low	Unknown			4	2011	67	
HMM	9970	100	S	40	13	Low	Interlux Ultra	Y3779F	Shelter Islanc	6	2013	55	2693-212-AA
HMM	9976	95	P	30	12	Low	Seaguard	P30BQ12	Self Applied	12	2014	49	
HMM	9982	100	P	30	12	Copper	Unknown		Shelter Islanc	6	2016	67	
HMM	9991	90	S	27	8	Low	Interlux Supe	K90B	Driscoll MB	11	2008	70	
HMM	9993	100	S	33	10	Low	Unknown		Nielsen-Beau	10	2012	67	
HMM	9996	vacant				Non						0	

Facility	Slip/Mooring	Percent of Ti	Vessel Type (	Vessel Lengt	Vessel Beam	Paint Type C	Paint Product	Product Num	Boatyard Na	Painting Date	Painting Date	% Copper	Category 1 reg #
LPYC	11001	50	Power	43	13'4"	Low Copper	Bottom Pro	411127906	Driscolls	Jan	2017	40	60061-117-ZE
LPYC	11002	vacant											
LPYC	11003	50	Power	22	7	Low Copper			Koehler Kraft	Jun	2012	67	
LPYC	11004	vacant											

Facility	Slip/Mooring	Percent of Tir	Vessel Type (	Vessel Lengtl	Vessel Beam	Paint Type Cc	Paint Product	Product Num	Boatyard Na	Painting Date	Painting Date	% Copper	Category 1 reg #
GCA	5008	90	Power	56'	15'	Low Copper	Interlux Ultra	Y3779F	Shelter Island	2	2016	55	2693-212-AA
GCA	5030	90	Power	38'	13'	Copper	Proline	Y1088c-01	Koehler Kraft	8	2017	67	
GCA	5031	90	Power	38'	13'4"	Low Copper	Interlux Ultra	Y3779F	Basin Marine	11	2017	55	2693-212-AA
GCA	5050	100	Power	48'	17'	Copper	Nautical Prog	NAU993	Nielsen Beau	2	2018	42	
GCA	5064	100	Power	38'	14'	Copper	Woolsey Defe	4301G	Nielsen Beau	9	2018	65	60061-49
GCA	5080	100	Power	42'	14'3"	Copper	Woolsey Defe	4301G	Nielsen Beau	2	2016	65	60061-49
GCA	5103	80	Power	48'	15'6"	Copper	PCA Gold	16471674	Nielsen Beau	6	2016	40	60061-101-23
GCA	5163	100	Sail	67'	19'	Copper	Pettit Pro	B90VOC	Driscoll's	7	2016	76	
GCA	5182	95	Power	42'	10'	Low Copper	Petit Vivid	11161	Nielsen Beau	10	2017	25	60061-116-AA
GCA	5183	95	Power	54'	15'5"	Low Copper	Interlux Ultra	Y3779F	Shelter Island	1	2014	55	
GCA	5200	90	Power	17'		Low Copper	Interlux Ultra	Y3779F	Shelter Island	3	2018	55	2693-212-AA
GCA	5204	100	Power	70'	16'	Copper	Proline	Y1088C-01	Shelter Island	3	2017	67	
GCA	5225	95	Power	45'	14'7"	Copper	Woolsey Defe	4501	Nielsen Beau	5	2017	65	60061-49
GCA	5245	95	Power	23'7"	8'3"	Copper	Z-Spar Protec	B-91	Driscoll's	8	2018	65	
GCA	5247	vacant										0	
GCA	5298	100	Sail	51'6"	13'3"	Low Copper	Interlux Ultra	Y3779F	Shelter Island	1	2018	55	2693-212-AA
GCA	5343	100	Sail	54'8"	17'	Low Copper	Interlux Ultra	Y3779F	Shelter Island	10	2015	55	2693-212-AA
GCA	5368	100	Power	40'	13'	Low Copper	Interlux Ultra	Y3779F	Shelter Island	7	2017	55	2693-212-AA
GCA	5380	100	Sail	64.5'	15'	Copper	Unkown					67	
GCA	5459	100	Power	37'	10'8"	Copper	Z-Spar Protec	B-94	Driscoll's	9	2018	65	
GCA	5460	100	Power	35'6"	10'8"	Copper	Z-Spar Protec	B-94	Driscoll's	9	2018	65	
GCA	5475	100	Power	54'8"	17'	Low Copper	Interlux Ultra	Y3779F	Shelter Island	9	2017	55	2693-212-AA
GCA	5480	vacant										0	
GCA	5485	95	Power	28'7"	9'9"	Copper	Z-Spar Protec	B-91	Driscoll's	1	2018	65	
GCA	5497	90	Power	29'	10'	Low Copper	Interlux Ultra	Y3779F	Shelter Island	9	2016	55	2693-212-AA
GCA	5500	90	Power	75'	21'	Copper	Nautical Prog	NAU993	Driscoll's	9	2018	42	
GCA	5510	100	Power	44'	13'8"				Purchase	8	2018	67	
GCA	5527	50	Power	54'	15'6"	Copper	Woolsey Defe	4301G	Nielsen Beau	10	2017	65	60061-49
GCA	5540	100	Power	40'					Purchase	1	2018	67	
GCA	5543	vacant										0	
GCA	5551	100	Power	40'	11'5"	Low Copper	Z-Spar Protec	B-94	Nielsen Beau	11	2013	65	
GCA	5557	vacant										0	
GCA	5563	95	Power	30'	10'	Copper	Woolsey Defe	4301G	Nielsen Beau	5	2017	65	60061-49
GCA	5581	100	Power	80'	23'	Copper	Interlux Ultra	Y3779U	Shelter Island	2	2018	57	
GCA	5585	100	Power	58'	16'	Copper	Unkown					67	
GCA	5595	100	Power	61'	17'4"	Low Copper	Interlux Ultra	Y3779F	Shelter Island	5	2014	55	2693-212-AA

Facility	Slip/Mooring	Percent of Tir	Vessel Type (	Vessel Length	Vessel Beam	Paint Type Co	Paint Product	Product Num	Boatyard Na	Painting Date	Painting Date	% Copper	Category 1 reg #
Tonga	none	50%	Power	44	14"11"	Low-copper	Micron CSC H	YBC580	Factory		2018	33	
Tonga	none	50%	Power	50	15	Copper	Sea Hawk Cu	3445	Factory		2018	47.5	
Tonga	none	50%	Power	45	14'6"	Copper	Sea Hawk Cu	3445	Factory		2018	47.5	
Tonga	none	30%	Power	39	12'8"	Copper	Sea Hawk Cu	3445	Factory		2018	47.5	
Tonga	none	50%	Power	43	15'4"	Copper	Nautical Prog	NAU990	Nielsen Beau	7	2018	42	
Tonga	none	70%	Power	32	11'5"	Copper	Z-SPAR BOTT	B-91	Driscoll's Boa	4	2018	65	
Tonga	none	15%	Power	21	8'6"	Non	No Bottom Paint		None			0	
Tonga	none	25%	Power	55	14'8"	Copper	Pettit Trinida	1088	Cabrillo Way	9	2018	60	
Tonga	none	15%	Power	35	12'7"	Copper	unknown		Delta Marine	unknown		67	
Tonga	none	50%	Power	47	15'8"	Copper	Z-SPAR BOTT	B-91	Monterrey Bo	4	2018	65	
Tonga	none	80%	Power	65	17'11"	Copper	Z-SPAR BOTT	B-91	Driscoll's Boa	7	2018	65	
Tonga	none	100%	Power	32	11'9"	Low-copper	Interlux Ultra	Y3779F	Shelter Islan	8	2015	55	2693-212-AA
Tonga	none	15%	Sail	47	14'	Low-copper	Interlux Ultra	Y3779F	Shelter Islan	unknown	2016	55	2693-212-AA

Facility	SlipReferen	PercentOc	VesselTyp	VesselLen	VesselBea	PaintType	PercCopper	PaintProductName	Product Number	BoatyardName	PaintDateMonth	PaintDate
BCM	1	96	S	36	10.5	LOW COPPER		INTERSPEED 6400	BQA642 BLUE	KOEHLER	3	2017
BCM	2	98	P	44	11	LOW COPPER		SEAGUARD BLUE	P30LQ13	DRISCOLL	9	2014
BCM	3	97	S	32	11	LOW COPPER		SUPER PROGUARD	NAU770	NB	7	2016
BCM	4	100	P	36	14	COPPER		ULTRA KOTE	Y3669U	SIBY	10	2016
BCM	5	99	S	34	11.5	COPPER		ULTRA KOTE	Y3669U	SIBY	1	2017
BCM	6	100	P	33	10.6	COPPER		ULTRA BLUE	Y3669U	SIBY	7	2017
BCM	7	100	P	34	11	LOW COPPER		ULTRA-KOTE	Y3669U	SIBY	5	2011
BCM	8	100	S	24	8	COPPER		ULTRA-KOTE	Y3669U	SIBY	1	2016
BCM	9	99	P	34	11	COPPER		ULTRA-KOTE	Y3669U	SIBY	10	2016
BCM	10	92	S	38	21.5	COPPER		ULTRA-KOTE	Y3669U	SIBY	3	2017
BCM	11	88	P	26	8.6	COPPER		ULTRA-KOTE	Y3779U	DRISCOLL MB	9	2017
BCM	12	100	P	42	13.6	COPPER		ULTRA-KOTE	Y3669U	SIBY	7	2017
BCM	13	100	S	40	13	COPPER		ULTRA-KOTE BLUE	Y3669U	SIBY	4	2017
BCM	14	100	S	34	11	COPPER		ULTRA-KOTE	Y3559U	SIBY	2	2017
BCM	15	96	P	37	13.9	COPPER		ULTRAKOTE	Y3669U	SIBY	8	2018
BCM	16	73	S	44	13	COPPER		ULTRA-KOTE	Y3779U	SIBY	4	2017
BCM	17	99	S	43	11.8	LOW COPPER		MICRON CSC	5583G	KOEHLER	5	2018
BCM	18	82	P	26	8.6	COPPER		ULTRAKOTE BLUE	2669N	KOEHLER	4	2017
BCM	19	88	S	45	13.6	COPPER		ULTRAKOTE BLUE	2669N	KOEHLER	11	2017
BCM	20	100	S	30	10.1	LOW COPPER		ULTRAKOTE BLUE	2669N	SIBY	8	2015
BCM	21	100	S	32	11.5	LOW COPPER		ULTRAKOTE BLACK	2779N	KOEHLER	8	2011
BCM	22	97	S	33	10	COPPER		ULTRAKOTE BLACK	2779N	SIBY	3	2016
BCM	23	77	S	30	10.6	LOW COPPER		FIBERGLASS BOTTOMKOTE	YBB669G	HYLEBOS	2	2012
BCM	24	100	S	24	9	LOW COPPER		MICRON EXTRA	5793	DRISCOLL	4	2014
BCM	25	100	P	19	6.6	COPPER		ULTRA BLACK	3779	SIBY	2	2018
BCM	26	88	P	34	12	COPPER		ULTRA BLACK	3779	SIBY	10	2018
BCM	27	100	P	32	11	LOW COPPER		ULTRA BLACK	3779	SIBY	7	2010
BCM	28	99	P	38	13	LOW COPPER		ULTRA BLACK	3779	SIBY	8	2013
BCM	29	100	P	40	14	LOW COPPER		ULTRA BLACK	3779	KOEHLER	8	2015
BCM	30	90	S	35.5	13.3	LOW COPPER		ULTRA BLACK	3779	SIBY	1	2014
BCM	31	93	P	36	12	LOW COPPER		ULTRA BLACK	3779	SIBY	1	2013
BCM	32	100	P	38	13	LOW COPPER		ULTRA BLACK	3779	SIBY	2	2014
BCM	33	93	P	48	12	LOW COPPER		ULTRA BLACK	3779	SIBY	12	2014
BCM	34	100	S	41	12	COPPER		ULTRA BLACK	3779	SIBY	11	2017
BCM	35	82	S	41	13.9	COPPER		ULTRA BLACK	3779	SIBY	3	2018
BCM	36	95	S	35	10	LOW COPPER		ULTRA BLACK	3779	SIBY	7	2010
BCM	37	100	S	35	9	LOW COPPER		ULTRA BLACK	3779	SIBY	6	2015
BCM	38	100	S	35	10.5	LOW COPPER		ULTRA BLACK	3779	KOEHLER	2	2013
BCM	39	96	S	33	9.7	LOW COPPER		ULTRA BLACK	3779	SIBY	6	2011
BCM	40	100	S	30	10	COPPER		ULTRA BLACK	3779	SIBY	6	2018
BCM	41	84	S	33	11.1	LOW COPPER		ULTRA BLACK	3779	DRISCOLL MB	4	2015
BCM	42	100	P	37	14	COPPER		ULTRA BLACK	3779	SIBY	10	2016
BCM	43	93	S	34	9.8	LOW COPPER		ULTRA BLACK	3779		4	2010
BCM	44	100	S	30	10.1	LOW COPPER		ULTRA RED	3449	NB	3	2014
BCM	45	93	P	42	13.5	LOW COPPER		ULTRA RED	3449	SIBY	7	2014
BCM	46	100	P	28	10	COPPER		ULTRA BLUE	3669	SIBY	4	2016
BCM	47	100	S	36	11	LOW COPPER		ULTRA BLUE	3669	SIBY	1	2014
BCM	48	100	S	39	19.4	COPPER		ULTRA BLUE	3669	SIBY	9	2016
BCM	49	100	P	32	11.6	LOW COPPER		ULTRA BLUE	3669	SIBY	7	2013
BCM	50	100	P	46	14.6	LOW COPPER		ULTRA BLUE	3669	DRISCOLL	3	2010
BCM	51	94	S	30	9	LOW COPPER		ULTRA BLUE	3669	SIBY	7	2014
BCM	52	100	S	26.6	10.6	LOW COPPER		ULTRA BLUE	3669	SIBY	7	2015

Facility	SlipRefere	PercentOc	VesselTyp	VesselLen	VesselBea	PaintType	PercCopper	PaintProductName	Product Number	BoatyardName	PaintDateMonth	PaintDate
BCM	53	99	S	32.6	11.6	LOW COPPER		ULTRA BLUE	3669	SIBY	11	2015
BCM	54	67	S	35	11.4	COPPER		ULTRA BLUE	3669	SIBY	3	2015
BCM	55	100	S	37	12	LOW COPPER		ULTRA BLUE	3669	SIBY	5	2010
BCM	56	93	S	35	11.6	COPPER		ULTRA BLUE	3669	SIBY	5	2017
BCM	57	100	P	30	9.9	COPPER		ULTRA BLUE	3669	SIBY	7	2016
BCM	58	97	S	30	10.5	COPPER		ULTRA BLUE	3669	SIBY	2	2018
BCM	59	92	S	34	11.9	LOW COPPER		ULTRA BLUE	3669	SIBY	6	2015
BCM	60	96	S	34	11.3	LOW COPPER		ULTRA BLUE	3669		3	2011
BCM	61	100	P	16	4	LOW COPPER		ULTRA BLUE	3669	SIBY	12	2014
BCM	62	100	P	40	10.6	LOW COPPER		ULTRA GREEN	3559	SIBY	3	2012
BCM	63	100	S	34	12	LOW COPPER		ULTRA GREEN	3559	SIBY	2	2015
BCM	64	99	P	40	14.1	LOW COPPER		TRINIDAD	1088C-02	Vee Jay Marine	5	2006
BCM	65	96	P	48	12	LOW COPPER		PROLINE	1088C-02	SIBY	7	2012
BCM	66	100	S	44.6	14	LOW COPPER		PROLINE	1088C-02	SIBY	10	2011
BCM	67	100	S	29.11	10.1	COPPER		PROLINE	1088C-02	SIBY	8	2018
BCM	68	100	S	35.5	11.5	LOW COPPER		PROLINE	1088C-02	SIBY	5	2011
BCM	69	90	S	41	12.6	LOW COPPER		PROLINE	1088C-02	SIBY	3	2014
BCM	70	100	S	46	13.5	COPPER		PROLINE	1088C-02	SIBY	4	2016
BCM	71	100	S	46	13.8	COPPER		PROLINE	1088C-02	SIBY	3	2017
BCM	72	100	P	26	7	COPPER		PROLINE	1088C-02	SELF	4	2016
BCM	73	99	S	35	11.5	COPPER		PROLINE	1088C-02	SIBY	1	2018
BCM	74	100	S	30	10	LOW COPPER		PROLINE	1088C-02	SIBY	3	2012
BCM	75	100	S	46	14	LOW COPPER		PROLINE	1088C-02	SIBY	2	2009
BCM	76	96	S	32	10.6	LOW COPPER		PROLINE	1088C-02	SIBY	5	2015
BCM	77	100	S	33	9.7	COPPER		PROLINE	1088C-02	DRISCOLL	5	2016
BCM	78	100	S	33	11.5	COPPER		PROLINE	1088C-02	SIBY	3	2016
BCM	79	92	S	31	10.4	LOW COPPER		PROLINE	1088C-02	DRISCOLL	9	2010
BCM	80	89	S	43.5	13.9	COPPER		PETTIT HORIZONS	1850	SIBY	8	2016
BCM	81	98	S	44	13	COPPER		PETTIT ULTIMA SR 40	1109606	DRISCOLL	10	2017
BCM	82	100	S	40	22	LOW COPPER		Z*SPAR BOTTOM PRO GOLD	411127706	DRISCOLLS	8	2015
BCM	83	82	P	46	14.5	LOW COPPER		Z*SPAR GOLD	411127706	SIBY	3	2015
BCM	84	82	S	27	9	COPPER		Z*SPAR BOTTOM PRO GOLD	411127706	DRISCOLL	10	2017
BCM	85	90	S	32	9.8	COPPER		Z*SPAR BOTTOM PRO GOLD	411127706	DRISCOLL	11	2018
BCM	86	100	S	38	14.11	LOW COPPER		WEST MARINE BOTTOMSHIELD	411186606	KOHLER KRAFT	2	2015
BCM	87	100	S	30	9.6	COPPER		WEST MARINE CPP ABLATIVE	5436936	KOHLER KRAFT	5	2016
BCM	88	100	S	41	12	LOW COPPER		Z*SPAR	B90	LONG BEACH	6	2011
BCM	89	100	P	34.5	11.8	LOW COPPER		Z*SPAR	B 94	NB	10	2010
BCM	90	80	P	32.5	11.1	LOW COPPER		Z*SPAR	B 94	DRISCOLL	9	2015
BCM	91	100	P	31.6	11.5	COPPER		Z*SPAR	B94	DRISCOLL	4	2017
BCM	92	88	S	30	9.6	LOW COPPER		PETTIT TRINIDAD	1875	KOEHLER	9	2015
BCM	93	87	P	34	11.6	COPPER		Z*SPAR BOTTOM PRO GOLD	A411187706	DRISCOLL	11	2017
BCM	94	96	S	25	8	LOW COPPER		Z*SPAR	B 91	DRISCOLL	6	2011
BCM	95	100	S	37	12	LOW COPPER		Z*SPAR	B91	DRISCOLL	9	2012
BCM	96	90	S	36	12.6	LOW COPPER		Z*SPAR	B91	SIBY	4	2015
BCM	97	93	S	31	10	COPPER		PETTIT HYDROCOAT	1640	NB	1	2017
BCM	98	100	S	29.11	10.1	LOW COPPER		PETTIT TRINIDAD PRO	A1088G	KOEHLER	8	2014
BCM	99	100	S	32	9.6	LOW COPPER		PETTIT TRINIDAD	A1088G	KOEHLER	6	2012
BCM	100	99	S	32	11.8	COPPER		PETTIT TRINIDAD PRO	A10882	SIBY	8	2018
BCM	101	97	P	39.5	14.2	COPPER		Z*SPAR BOTTOM PRO GOLD	411187706	DRISCOLL	3	2017
BCM	102	82	P	49	15.6	COPPER		Z*SPAR BOTTOM PRO GOLD	41127706	DRISCOLL	10	2018
BCM	103	100	S	36	11	LOW COPPER		Z*SPAR BOTTOM PRO GOLD	411187706	SIBY	2	2014
BCM	104	100	S			NON COPPER		INTERSLEEK 900	FXA979/A	SIBY	10	2013

Facility	SlipRefere	PercentOc	VesselTyp	VesselLen	VesselBea	PaintType	PercCopper	PaintProductName	Product Number	BoatyardName	PaintDateMonth	PaintDate
BCM	105	100	S	30	9.5	COPPER						
BCM	106	100	S	32	10.1	LOW COPPER				DRISCOLL	7	2010
BCM	107	100	P	32	12	LOW COPPER				62015		
BCM	108	100	S	29		COPPER						
BCM	109	95	S	27	9	COPPER				22017		
BCM	110	100	S	26	4.6	LOW COPPER				32012		
BCM	111	0				NON COPPER						
BCM	112	100	P	36	14	COPPER						
BCM	113	86	S	26	11	LOW COPPER				22011		
BCM	114	100	S	25	8	LOW COPPER		PETTIT PROTECTOR		DRISCOLL	6	2011
BCM	115	0				NON COPPER						
BCM	116	100	P	13.3	4	LOW COPPER				SELF	6	2011
BCM	117	100	S	50	14.9	COPPER						
BCM	118	100	S	31	11	COPPER						
BCM	119	100	S	30	10.1	COPPER						
BCM	120	100	S	29	11	LOW COPPER		WEST MARINE		82005	8	2005
BCM	121	100	P	57	16.5	COPPER						
BCM	122	100	S	40	13	LOW COPPER				SIBY	3	2011
BCM	123	100	S	27	8.6	COPPER						
BCM	124	100	S	30	10.1	COPPER		PETTIT KOP-KOTE SPECIALTY	XP144	SIBY	9	2018
BCM	125	100	P	54	14	COPPER				102017		
BCM	126	100	S	36	11.6	LOW COPPER				72013		
BCM	127	100	P	36.3	12.1	COPPER						
BCM	128	100	S	46	12.2	COPPER						
BCM	129	100	S	36	11.6	COPPER						
BCM	130	96	S	36	10	LOW COPPER				BAY MARINE	6	2011
BCM	131	92	S	37	12.6	COPPER						
BCM	132	100	S	42	14.5	LOW COPPER				KNIGHT & CARVER	8	2010
BCM	133	95	S	44	8	COPPER						
BCM	134	99	S	37.6	12	NON COPPER		SHELTER ISLAND BLUE	8201	SIBY	1	2017
BCM	135	99	S	32	11	LOW COPPER		PETTIT		SIBY	4	2009
BCM	136	97	S	36	11.5	COPPER						
BCM	137	100	S	30	10	LOW COPPER				62013		
BCM	138	100	P	32	11	LOW COPPER				102012		
BCM	139	84	P	65	14	COPPER						
BCM	140	0				NON COPPER						
BCM	141	100	S	34	11.5	COPPER						
BCM	142	97	S	36	11.5	COPPER						
BCM	143	100	S	36	11	COPPER				52016		
BCM	144	100	S	33.5	11.5	LOW COPPER				122013		
BCM	145	100	S	34	11	LOW COPPER				22014		
BCM	146	100	S	28	8.5	COPPER						
BCM	147	90	S	34.8	10	COPPER				62016		
BCM	148	100	S	29	8	COPPER						
BCM	149	96	S	31	9.75	COPPER						
BCM	150	99	S	37.1	11.7	COPPER						
BCM	151	68	S	31	10	COPPER				72016		
BCM	152	0				NON COPPER						
BCM	153	0				NON COPPER						
BCM	154	0				NON COPPER						
BCM	155	0				NON COPPER						
BCM	156	0				NON COPPER						

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Facility	Slip	% Year Occupied	Vessel Type Power or Sail (P or S)	Vessel Length	Vessel Beam	EPA REGISTRATION NUMBER	Paint Type (Copper, Low, NON, UNK)	% Copper	Paint Brand Name	Product Number	Boatyard Name	Month Painted	Year Painted
2	KKM	1	90%	P	30	10		UNK	NA	NA	NA	NA	NA	NA
3	KKM	2	10%	P	38	13		COMBO	unk	Petite	unk	unk	11	2018
4	KKM	3	60%	S	32	9		UNK	NA	NA	NA	NA	NA	NA
5	KKM	4	50%	P	35	13		COPPER	65%	INTERLUX ULTRA	160	BASIN MARINE	04	2012
6	KKM	5	80%	S	34	12		UNK	NA	NA	NA	NA	NA	NA
7	KKM	6	60%	S	34	10		UNK	NA	E PAINT EP2000	EP-401	NA	NA	NA
8	KKM	7	95%	s	32	11		Non Copper	0%	silicon	na	NA	06	2011
9	KKM	8	85%	P	36	11		COPPER	70%	TRINIDAD PETTIT	1877	driscolls	05	2015
10	KKM	9	90%	S	34	10		UNK	NA	NA	NA	NA	NA	NA
11	KKM	10	90%	S	30	10		UNK	NA	NA	NA	NA	NA	NA
12	KKM	11	90%	P	27	8		UNK	NA	NA	NA	NA	NA	NA
13	KKM	12	90%	P	39	13		LOW	NA	INTERLUX ULTRA	NA	SHELTER ISLAND BOATYARD	02	2009
14	KKM	13	75%	p	32	13		unk	unk	unk	unk	unk	unk	unk
15	KKM	14	70%	S	36	12		UNK	NA	NA	NA	NA	NA	NA
16	KKM	15	70%	S	32	10		LOW	NA	Proline 1088-6	NA	Driscoll MB	06	2009
17	KKM	16	95%	P	28	9		LOW	NA	NA	NA	BASIN MARINE	12	2010
18	KKM	17	95%	P	26	8	2693-119-ZD	COPPER	NA	Interlux Ultrakote	3779U	Shelter Island Boatyard	10	2017
19	KKM	18	80%	P	32	10.8		low	40%	Interlux	2301	out of state	12	2017
20	KKM	19	70%	S	30	10		LOW	NA	NA	NA	SHELTER ISLAND BOATYARD	04	2011
21	KKM	20	90%	P	35	11	2693-212-AA	copper	NA	interlux ultra black	3779F	shelter island boatyard	05	2018
22	KKM	21	98%	P	32.7	11.5		UNK	NA	NA	NA	NA	06	2016
23	KKM	22	90%	S	35	11		UNK	NA	NA	NA	DRISCOLLS	09	2013
24	KKM	23	10%	p	32.2	10.2		low	20%	Intrerlux micron extra	y5693	MarineMax	08	2017
25	KKM	24	100%	P	33.6	11.9		unk	unk	blue w3ater porcoat hard	unk	Shelter Island Boatyard	11	2009
26	KKM	25	90%	P	29	9.9		UNK	NA	NA	NA	Shelter Island Boatyard	10	2016
27	KKM	26	90%	P	32	11		LOW	65%	INTERLUX	NA	SHELTER ISLAND BOATYARD	07	2010
28	KKM	27	60%	P	27.2	9.5		UNK	UNK	UNK	NA	DRISCOLLS	06	2016
29	KKM	28	25%	S	36	11	577-550-ZE	COPPER	65%	Proline 1088	168	Shelter Island Boatyard	06	2013
30	KKM	29	VACANT											
31	KKM	30	90%	p	34	10		copper	40%	pettit	NA	LA CRUZ SHIPYARD	09	2016
32	KKM	31	VACANT											
33	KKM	32	80%	S	30	9		UNK	NA	NA	NA	SHELTER ISLAND	07	2012
34	KKM	33	VACANT											
35	KKM	34	100%	P	26	10		UNK	NA	NA	NA	Kohler Kraft	00	2004
36	KKM	35	100%	P	32	12	2693-212-AA	COPPER	55%	INTERLUX ULTRA	3669F	SHELTER ISLAND	12	2017
37	KKM	36	90%	P	33	9		COPPER	NA	NA	NA	Kohler Kraft	06	2018
38	KKM	37	VACANT											
39	KKM	38	55%	P	32	10	64684-6	UNK	NA	E PAINT EP2000	35	DRISCOLL	08	2012

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1	Facility	Slip	% Year Occupied	Vessel Type Power or Sail (P or S)	Vessel Length	Vessel Beam	EPA REGISTRATION NUMBER	Paint Type (Copper, Low, NON, UNK)	% Copper	Paint Brand Name	Product Number	Boatyard Name	Month Painted	Year Painted
40	KKM	39	100%	S	35	11.5		UNK	NA	Interlux Ultra	NA	Shelter Island Boatyard	`3	2018
41	KKM	40	100%	HYDRAHOIST	34	12		UNK	NA	NA	NA	NA	NA	NA
42	KKM	41	98%	s	33	10.8	577-550-ZE	copper	NA	sherwin williams proline	1088	SHELTER ISLAND BOATYARD	11	2017
43	KKM	42	100%	P	35	10		copper	NA	zspar bottom pro gold	NA	NA	10	2016
44	KKM	43	90%	S	33	11.4	2693-119-ZD	NON	NA	INTERLUX ULTRAKOTE	366916	SHELTER ISLAND	NA	NA
45	KKM	44	90%	p	28	9.6		non	0%	West Marine Bottom Shield	NA	SELF APPLIED	02	2018
46	KKM	45	55%	S	34	10		LOW	NA	NA	NA	DRISCOLL MB	10	2011
47	KKM	46	95%	S	36	11		LOW	NA	NA	NA	SHELTER ISLAND	11	2004
48	KKM	47	80%	P	34	na		unk	na	Boat Paint - Professional	NA	NA	NA	NA
49	KKM	48	80%	P	35	11		UNK	NA	NA	NA	SHELTER ISLAND	07	2013
50	KKM	49	85%	S	36	12	Registration NR2	Non	0%	INTERSEEK 900	35	Shelter Island Boatyard	04	2012
51	KKM	50	100%	S	31	22	577-550-ZE	copper	0%	PROLINE	1088	Shelter Island Boatyard	12	2016
52	KKM	51	100%	S	34	11		copper	76%	INTERLUX ULTRAKOTE	NA	KOLAR MARINE	02	2010
53	KKM	52	90%	P	32	14		NA	NA	NA	NA	NA	NA	NA
54	KKM	53	100%	P	50	17		NA	NA	NA	NA	Marine Works	06	2010
55	KKM	54	95%	P	35	13		NA	NA	NA	NA	SHELTER ISLAND BOATYARD	08	2012
56	KKM	55	95%	P	38	12		NA	NA	NA	NA	NA	NA	NA
57	KKM	56	VACANT											
58	KKM	57	VACANT											
59	KKM	58	60%	P	24	8.5		NA	NA	International	NA	Ventura Harbor Boat Yard	02	2015
60	KKM	59	90%	P	42.9	14.5		LOW	NA	Woolsey Defense CA	NA	NIELSON BEAUMONT	11	2016
61	KKM	60	95%	P	24	8		NA	NA	ANTI-FOUL VIVID	NA	SHELTER ISLAND BOATYARD	11	2013
62	KKM	61	80%	P	30	12		NA	NA	NA	NA	NA	NA	NA
63	KKM	62	100%	p	30.9	10		NA	NA	Z-Spar	NA	Depth Perceptions, Inc	06	2018
64	KKM	63	100%	P	35	16		NON	NA	NA	NA	Neilsen Boatyard	04	2014
65	KKM	64	100%	P	29	12.6		COPPER		INTERLUX HARD	3779-1	SELF APPLIED	09	2017
66	KKM	65	90%	P	40	13.5		NA	40%	INTERLUX ULTRA	NA	driscoll	03	2017
67	KKM	66	50%	P	23	6	60061-116-AA	LOW	NA	PETTIT VIVIB	73	Shelter Island Boatyard	09	2011
68	KKM	67	50%	P	37/1	11.7	2693-132-ZV	low	40%	ultra	NA	SELF APPLIED	02	2016
69	KKM	68	95%	P	30	13		UNK	NA	NA	NA	NA	NA	NA
70	KKM	69	VACANT											
71	KKM	70	50%	P	28	8.5		UNK	NA	NA	NA	SELF APPLIED	NA	NA
72	KKM	71	90%	P	42	16		UNK	0%	NA	NA	MARINE WORKS	05	2013
73	KKM	72	90%	S	27	9		LOW	NA	NA	NA	DRISCOLL	05	2013
74	KKM	73	90%	S	40	13		LOW	NA	NA	NA	Driscoll MB	06	2012
75	KKM	74	60%	S	30	9	Registration NR2	LOW	NA	INTERSEEK 900	35	SHELTER ISLAND	09	2009
76	KKM	75	90%	P	40	14	2693-192-AA	COPPER	55%	INTERLUX ULTRAKOTE	3779	SHELTER ISLAND	06	2017
77	KKM	76	75%	P	28	10		UNK	NA	NA	NA	NA	NA	NA

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78	KKM	77	25%	P	40	12		UNK	NA	NA	NA	NA	NA	NA
79	KKM	78	45%	S	25	8		UNK	NA	NA	NA	NA	NA	NA
80	KKM	79	40%	P	28	10		UNK	NA	NA	NA	NA	NA	NA
81	KKM	80	100%	p	35.7	11.8		unk	na	na	na	na	na	na
82	KKM	81	100%	P	28	9		UNK	NA	NA	NA	DRISCOLL	07	2015
83	KKM	82	100%	S	40.5	13.5	2693-119-ZD	COPPER	55%	INTERLUX ULTRAKOTE	3669U	Shelter Island Boatyard	08	2016
84	KKM	83	95%	P	28	10		UNK	NA	NA	NA	NA	NA	NA
85	KKM	84	50%	P	36	12		UNK	NA	NA	NA	Shelter Island Boatyard	07	2014
86	KKM	85	90%	P	28	10		LOW	NA	WEST BOTTOM PRO	NA	MARINE WORKS	04	2009
87	KKM	86	100%	P	35	13		NA	NA	INTERLUX ULTRAKOTE	NA	SHELTER ISLAND	JAN	2018
88	KKM	87	95%	S	30	11		LOW	NA	NA	NA	BASIN	05	2009
89	KKM	88	VACANT											
90	KKM	89	100%	HYDRAHOIST	30	10		UNK	NA	NA	NA	NA	NA	NA
91	KKM	90	95%	P	42	42		UNK	NA	NA	NA	NA	NA	NA
92	KKM	91	VACANT								NA			
93	KKM	92	80%	P	40	13		UNK	NA	NA	NA	SHELTER ISLAND	05	2013
94	KKM	93	80%	S	31	15		LOW COPPER	NA	Ultralux	160	Shelter Island Boatyard	11	2011
95	KKM	94	75%	S	42	15		UNK	NA	NA	NA	SHELTER ISLAND	10	2013
96	KKM	95	75%	P	30	11		UNK	NA	NA	NA	SHELTER ISLAND	06	2012
97	KKM	96	70%	P	33	12		UNK	NA	NA	NA	DRISCOLL	09	2013
98	KKM	97	50%	S	30	10	60061-87-ZI	Non Copper	0%	pettit hydracoat	93-18406g	NIELSON BEAUMONT	08	2016
99	KKM	98	95%	S	29	10		UNK	NA	NA	NA	DRISCOLL	01	2013
100	KKM	99	50%	S	29	10		LOW COPPER	NA	NA	NA	SHELTER ISLAND	05	2010
101	KKM	100	90%	P	30	10		LOW COPPER	NA	NA	NA	NA	12	2010
102	KKM	101	90%	S	30	9		UNK	NA	INTERLUX ULTRAKOTE	NA	KOEHLER KRAFT	03	2016
103	KKM	102	100%	S	30	11		NON	0%	NA	NA	SHELTER ISLAND BOATYARD	01	2017
104	KKM	103	70%	S	27	9		UNK	NA	NA	NA	NA	NA	NA
105	KKM	104	85%	P	48	15		UNK	NA	NA	NA	NA	NA	NA
106	KKM	105	95%	P	56	15		LOW COPPER	NA	INTERLUX	78	SHELTER ISLAND BOATYARD	01	2014
107	KKM	106	90%	P	42	14		UNK	NA	NA	NA	NA	NA	NA
108	KKM	107	95%	P	58	14		UNK	NA	NA	NA	NA	NA	NA
109	KKM	108	88%	P	35	13	2693-119-ZD	COPPER	76%	INTERLUX ULTRAKOTE	117598	SHELTER ISLAND BOATYARD	09	2017
110	KKM	109	85%	P	60	15		COPPER	NA	INTERLUX	NA	Shelter Island Boatyard	03	2012
111	KKM	110	75%	P	41	12		LOW COPPER	NA	NA	NA	Shelter Island Boatyard	02	2009
112	KKM	111	30%	P	60	10		UNK	NA	NA	NA	NA	NA	NA
113	KKM	112	95%	P	42	13		UNK	NA	NA	NA	NA	12	2012
114	KKM	113	80%	P	55	15		LOW COPPER	NA	PETTIT	NA	PORT TOWNSEND SHIPYARD	06	2013
115	KKM	114	95%	P	41	13.5		LOW COPPER	NA	SUPER PRO GUARD	NA	Neilsen Boatyard	07	2016
116	KKM	115	VACANT											
117	KKM	116	90%	S	41	12.6		copper	65%	INTERLUX ULTRA	160	SHELTER ISLAND	02	2012
118	KKM	117	25%	P	58	18		UNK	NA	NA	NA	NA	NA	NA
119	KKM	118	90%	S	42	14	2693-212-AA	copper	65%	INTERLUX ULTRA	3669F	SHELTER ISLAND BOAT YARD	07	2015
120	KKM	119	70%	P	58	18		copper	76%	INTERLUX ULTRAKOTE	NA	SHELTER ISLAND	04	2016

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121	KKM	120	90%	P	30	8		UNK	NA	INTERLUX ULTRA	NA	SHELTER ISLAND BOAT YARD	01	2012
122	KKM	121	90%	P	60.1	16	--	Non Copper	0%	ppg abc	abc3	canal boat yard	06	2017
123	KKM	122	60%	S	42	14		UNK	NA	NA	NA	NA	NA	NA
124	KKM	123	60%	P	55	16		UNK	NA	Z-SPAR	147	Driscoll's Ship Yard	04	2016
125	KKM	124	40%	P	42	16		UNK	NA	NA	NA	SHELTER ISLAND BOAT YARD	07	2014
126	KKM	125	60%	S	54	14		UNK	NA	NA	NA	NA	NA	NA
127	KKM	126	80%	S	36	12		UNK	NA	NA	NA	SHELTER ISLAND BOAT YARD	07	2014
128	KKM	127	95%	P	60	16.4	2693-212-AA	COPPER	55%	INTERLUX ULTRA	3669F	SHELTER ISLAND BOAT YARD	11	2012
129	KKM	128	70%	P	42	14		COPPER	NA	INTERLUX	NA	SHELTER ISLAND BOAT YARD	02	2014
130	KKM	129	99%	p	50	15.9		Non Copper	0%	hydrocoat eco	NA	NEWPORT	12	2015
131	KKM	130	90%	P	37	14		UNK	NA	NA	NA	NA	NA	NA
132	KKM	131	20%	P	60	18		UNK	NA	NA	NA	NA	NA	NA
133	KKM	132	100%	P	45	15.9	2693-212-AA	COPPER	NA	interlux ultra	3779f	Shelter Island Boatyard	09	2018
134	KKM	133	70%	P	48	16		NA	NA	NA	NA	NA	NA	NA
135	KKM	134	80%	P	35	12		NA	NA	NA	NA	NA	NA	NA
136	KKM	135	80%	P	56	17		NON	NA	comex	NA	opequimar PV	09	2014
137	KKM	136	88%	P	41	13		copper	NA	INTERLUX	NA	Shelter Island Boatyard	02	2013
138	KKM	137	90%	S	52	16		copper	67%	INTERLUX ULTRA	NA	Shelter Island Boatyard	04	2014
139	KKM	138	25%	P	33	12		UNK	NA	NA	NA	Shelter Island Boatyard	10	2013
140	KKM	139	90%	P	60	17		non Copper	0%	interlux ultra	na	Shelter Island Boatyard	07	2017
141	KKM	140	95%	P	38	14	2693-132-ZV	LOW COPPER	37%	INTERLUX CSC	319293	Shelter Island Boatyard	05	2015
142	KKM	141	80%	P	52	16	2693-192-ZA	LOW COPPER	40%	interlux 3449	3449	Shelter Island Boatyard	12	2015
143	KKM	142	70%	P	59	15	2693-212-AA	LOW COPPER	NA	INTERLUX ULTRA	3779F	SHELTER ISLAND BOAT YARD	02	2011
144	KKM	143	VACANT											
145	KKM	144	80%	S	42	11		COPPER	65%	Z-SPAR bottom pro	NA	DRISCOLL	03	2017
146	KKM	145	80%	P	43	15.2		NON	0%	INTERLUX 1088	168	Shelter Island Boatyard	04	2010
147	KKM	146	80%	P	38	13		COPPER	66%	Z-SPAR bottom pro	NA	Driscoll MB	08	2017
148	KKM	147	90%	P	38	15		UNK	NA	INTERLUX ULTRA	NA	SHELTER ISLAND BOAT YARD	09	2012
149	KKM	148	100%	P	48.8	16.5		COPPER	NA	interlux ultrakote	NA	SHELTER ISLAND BOAT YARD	10	2016
150	KKM	149	40%	P	40	16		LOW	NA	NA	NA	NA	11	2009
151	KKM	150	95%	P	52	15		LOW	65%	PETIT PRO	NA	Shelter Island Boatyard	10	2018
152	KKM	151	95%	p	37	14		UNK	NA	ULTRA-KOTE	NA	BASIN MARINE	01	2017
153	KKM	152	90%	P	41	14		UNK	NA	NA	NA	NA	NA	NA
154	KKM	153	90%	S	40	12		UNK	NA	NA	NA	NA	NA	NA
155	KKM	154	95%	P	42.9	13.9	577-550-ZE	LOW	40%	PROLINE 1088C	168	KNIGHT AND CARVER	11	2012
156	KKM	155	60%	S	40	14		UNK	NA	NA	NA	NA	NA	NA
157	KKM	156	60%	P	48	14		LOW	NA	INTERLUX	NA	SHELTER ISLAND BOAT YARD	05	2011
158	KKM	157	90%	P	38	13		NON	0%	INTERLUX	NA	DRISCOL	04	2011
159	KKM	158	100%	P	46	12		LOW	NA	NA	NA	SHELTER ISLAND	12	2007
160	KKM	159	75%	S	42	14	577-550-ZE	COPPER	66%	PROLINE	1088	Shelter Island Boatyard	05	2015
161	KKM	160	20%	P	36	16		LOW	NA	NA	NA	Shelter Island Boatyard	09	2011
162	KKM	161	VACANT											
163	KKM	162	100%	s	45	15.9		copper	NA	petite	NA	Shelter Island Boatyard	11	18
164	KKM	163	90%	P	43	14		UNK	NA	NA	NA	NA	NA	NA
165	KKM	164	40%	S	44	12.8		UNK	NA	NA	NA	KNIGHT AND CARVER	06	2012
166	KKM	165	80%	S	42	12	2693-119-ZD	copper	76%	INTERLUX ULTRAKOTE	Y3669U/I	SHELTER ISLAND	03	2017
167	KKM	166	90%	P	51	15		UNK	NA	DRISCOLLS STANDARD 2 PART	NA	DRISCOLL	10	2016
168	KKM	167	30%	S	38	14		UNK	NA	NA	NA	NA	NA	NA

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169	KKM	168	80%	S	46	13		UNK	NA	NA	NA	NA	NA	NA
170	KKM	169	VACANT											
171	KKM	170	95%	P	43	16		copper	60%	NA	NA	south coast boat yard	06	2014
172	KKM	171	VACANT											
173	KKM	172	92%	P	43	14		UNK	NA	NA	NA	NA	NA	NA
174	KKM	173	70%	P	38	14		UNK	NA	PROLINE	NA	NA	NA	NA
175	KKM	174	90%	P	50	16		UNK	NA	NA	NA	NIELSON BEAUMONT	12	2014
176	KKM	175	80%	S	43	14	2693-212-AA	Copper	55%	Interlux Ultra	3779f	Shelter Island Boatyard	06	2015
177	KKM	176	75%	P	42	14		NON	0%	Micron	NA	Shelter Island Boatyard	MAR	2016
178	KKM	177	95%	S	43	12		LOW	NA	NA	NA	Shelter Island Boatyard	12	2008
179	KKM	178	100%	P	42	13		copper	NA	interlux micron csc	NA	NA	02	15
180	KKM	179	95%	S	38	13		Copper	NA	INTERLUX ULTRA	NA	SHELTER ISLAND	10	2017
181	KKM	180	VACANT											
182	KKM	181	95%	P	43	14		UNK	NA	INTERLUX ULTRA	NA	SHELTER ISLAND BOAT YARD	05	2014
183	KKM	182	98%	S	44	14		copper	NA	interlux ultra blue	NA	Shelter Island Boatyard	12	2017
184	KKM	183	95%	S	42	20		NON	0%	INTERLUX Micron CF	NA	Boat Haven Boat Works	06	2018
185	KKM	184	90%	S	49	15	60061-50-ZE	NON	66%	Z-SPAR	B-90	SHELTER ISLAND	04	2015
186	KKM	185	95%	S	42	20		NON	0%	INTERLUX Micron CF	NA	Boat Haven Boat Works	06	2018
187	KKM	186	95%	P	50	17		LOW	NA	PETTIT TRINIDAD	NA	Shelter Island Boatyard	01	2010
188	KKM	187	90%	S	41	13		LOW	40%	PETTIT TRINIDAD	NA	KNIGHT AND CARVER	05	2010
189	KKM	188	VACANT											
190	KKM	189	100%	S	42	13		UNK	NA	NA	NA	NA	NA	NA
191	KKM	190	90%	P	50	17		COPPER	55%	INTERLUX ULTRA	NA	SHELTER ISLAND	04	2014
192	KKM	191	75%	P	55	16		UNK	NA	NA	NA	NA	NA	NA
193	KKM	192	70%	P	60	17		LOW	NA	NA	NA	NA	05	2011
194	KKM	193	60%	P	59	16		UNK	NA	NA	NA	NA	NA	NA
195	KKM	194	90%	P	52.5	16	577-550-ZE	COPPER	66%	proline	1088	The boat yard, marina del rey	03	2015
196	KKM	195	VACANT											
197	KKM	196	40%	S	70	15		UNK	NA	NA	NA	DRISCOL	11	2014
198	KKM	197	90%	P	58	16		UNK	40%	NA	4nk	SHELTER ISLAND BOAT YARD	03	2014
199	KKM	198	95%	P	75.8	17.8		COPPER	NA	interlux ultra kote	NA	Shelter Island Boatyard	05	2016
200	KKM	199	VACANT											
201	KKM	200	65%	P	86	22	577-550-ZE	LOW	40%	PROLINE 1088c	168	MARINE GROUP	09	2010
202	KKM	201	90%	P	57	14.5		LOW	40%	INTERLUX		Driscoll MB	03	2010
203	KKM	202	60%	P	57	16		UNK	NA	NA	NA	OXNARD	01	2012
204	KKM	203	100%	P	56	16		LOW	NA	INTERLUX	NA	SHELTER ISLAND	01	2014
205	KKM	204	90%	P	90	21		COPPER	NA	SHARKSKIN	NA	NA	01	2013
206	KKM	205	65%	P	72	20		UNK	NA	NA	NA	Shelter Island Boatyard	10	2016
207	KKM	206	45%	P	70	19		UNK	NA	NA	NA	NA	NA	NA
208	KKM	207	35%	P	74	22	60061-49-ZH	LOW	60%	PETTIT VSPAR	B94	Driscoll MB	10	2011
209	KKM	208	100%	P	48	17		UNK	NA	NA	NA	SHELTER ISLAND BOATYARD	10	2017
210	KKM	209	90%	P	56	15		LOW	40%	INTRULUX PACIFICA	yba163	SHELTER ISLAND BOAT YARD	MAR	2016
211	KKM	210	100%	P	50	15	60061-49-ZH	COPPER	NA	PETITE PROTECTOR Z-SPAR	B-94	DRISCOLL	02	2011
212	KKM	211	60%	P	54	16		UNK	NA	NA	NA	NA	NA	NA
213	KKM	212	65%	P	55	17.6		LOW	65%	Interluxe Ultra	160	Shelter Island Boatyard	05	2010
214	KKM	213	75%	S	70	18		UNK	NA	NA	NA	NA	NA	NA
215	KKM	214	90%	P	65	19		UNK	UKN	pettit protector	b49	Driscol	11	2015
216	KKM	215	95%	P	85	20		LOW	40%	PETIT TRINIDAD	NA	MARINE GROUP	12	2012

Kona Kai Marina

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Facility	Slip	% Year Occupied	Vessel Type Power or Sail (P or S)	Vessel Length	Vessel Beam	EPA REGISTRATION NUMBER	Paint Type (Copper, Low, NON, UNK)	% Copper	Paint Brand Name	Product Number	Boatyard Name	Month Painted	Year Painted
217	KKM	216	95%	P	57	17		copper	65%	INTERLUX ULTRA	NA	Shelter Island Boatyard	06	2014
218	KKM	217	90%	P	75	20		UNK	NA	NA	NA	NA	NA	NA
219	KKM	218	45%	P	60	18		UNK	NA	NA	NA	NA	NA	NA
220	KKM	219	100%	P	90	20	60061-94-ZB	LOW	NA	PROLINE	1088-6	NA	02	2009
221	KKM	220	95%	P	60	18		LOW	65%	PETTITT TRINIDAD SR	NA	Shelter Island Boatyard	12	2013
222	KKM	221	70%	P	70	15		UNK	NA	NA	NA	NA	NA	NA
223	KKM	222	95%	P	59	16		LOW	NA	PETTIT	NA	Shelter Island Boatyard	07	2011
224	KKM	223	35%	S	100	20		UNK	NA	NA	NA	MARINE GROUP	05	2013
225	KKM	224	90%	P	50	16		Copper	76%	INTERLUX ULTRAKOTE	NA	SHELTER ISLAND	05	2017
226	KKM	225	90%	P	92	23		UNK	NA	NA	NA	Shelter Island Boatyard	12	2015
227	KKM	226	45%	P	78	21		LOW	NA	NA	NA	NA	10	2005
228	KKM	227	60%	P	60	15		UNK	NA	NA	NA	NA	NA	NA
229	KKM	228	90%	P	57	15.6		LOW	40%	PETTIT TRINIDAD PRO	NA	THE BOAT YARD MARINA DEL REY	06	2017
230	KKM	229	100%	P	75	22		COPPER	50%	NA	NA	driscol	11	2014
231	KKM	230	60%	S	45	14		LOW	65%	INTERLUX	NA	SELF APPLIED	07	2011
232	KKM	231	70%	S	62	17		UNK	NA	NA	NA	NA	NA	NA
233	KKM	232	75%	P	58	16		LOW	40%	NA	NA	SHELTER ISLAND BOAT YARD	02	2010
234	KKM	233	95%	P	58	18		LOW	65%	Interlux Ultra	160	Shelter Island Boatyard	05	2010
235	KKM	234	75%	P	50	17		LOW	NA	NA	NA	NA	NA	NA
236	KKM	235	95%	S	57	16	23566-6-AA	LOW	NA	INTERLUX BOTTOM KOTE	79	ENSENADA	07	2008
237	KKM	236	35%	P	59	18		LOW	NA	NA	NA	NA	NA	NA
238	KKM	237	95%	P	70	18	60061-137-AA	NON	NA	PETTIT	1204G	Driscol	12	1013
239	KKM	238	50%	P	50	16		UNK	NA	NA	NA	NA	NA	NA
240	KKM	239	85%	S	52	15		UNK	NA	z-spar	NA	dricoll	04	2017
241	KKM	240	VACANT											
242	KKM	241	100%	P	50	16		UNK	NA	NA	NA	NA	09	2013
243	KKM	242	90%	P	48.8	16.8		unk	unk	unk	unk	Shelter Island Boatyard	02	2017
244	KKM	243	15%	P	75	18		UNK	NA	NA	NA	NA	NA	NA
245	KKM	244	90%	S	55	15		LOW	0%	Interlux VC	56	Driscoll MB	06	2010
246	KKM	245	80%	P	78	17	2693-119-ZD	COPPER	55%	ULTRA COTE BLACK	169	NEWPORT	02	2014
247	KKM	246	VACANT											
248	KKM	247	90%	P	57	17		UNK	NA	NA	NA	shelter island	05	2016
249	KKM	248	80%	S	52	14		UNK	NA	VIVID	72	Shelter Island Boatyard	05	2012
250	KKM	249	90%	S	44	9	2693-119-ZD	COPPER	76%	INTERLUX ULTRAKOTE	3449U	Driscoll MB	12	2017
251	KKM	250	95%	P	52	15.3		copper	55%	INTERLUX ULTRA	3779U	Shelter Island Boatyard	06	2016
252	KKM	251	95%	P	74	18.2	2693-212-AA	copper	65%	INTERLUX ULTRA	3779F	Shelter Island Boatyard	08	2015
253	KKM	252	35%	S	44	13		UNK	NA	PETTITE	NA	SHELTER ISLAND BOAT YARD	10	2014
254	KKM	253	95%	P	58	18	557-550-ZJ	UNK	NA	PROLINE	1088/01	SHELTER ISLAND BOAT YARD	02	2014
255	KKM	254	95%	S	47	13		LOW	40%	WEST BOTTOM PRO	NA	Shelter Island Boatyard	01	2015
256	KKM	255	90%	P	70	18		UNK	NA	NA	NA	NA	NA	NA
257	KKM	256	45%	S	52	13		UNK	NA	NA	NA	NA	NA	NA
258	KKM	257	85%	S	59	17		LOW	NA	INTERLUX ULTRA	NA	Shelter Island Boatyard	09	2010
259	KKM	258	45%	P	74	18.6		UNK	55%	INTERLUX ULTRA	3779U	Shelter Island Boatyard	08	2015
260	KKM	259	95%	P	43	14		UNK	NA	NA	NA	NA	NA	NA
261	KKM	260	95%	S	48	11		UNK	NA	WEST BOTTOM PRO	NA	KOEHLER	10	2013
262	KKM	261	VACANT											
263	KKM	262	95%	S	50	13	60061-49-ZH	UNK	60%	PETTIT Z-SPAR	B94	Shelter Island Boatyard	12	2012
264	KKM	263	90%	S	39	12		UNK	NA	NA	NA	NA	NA	NA

Kona Kai Marina

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1	Facility	Slip	% Year Occupied	Vessel Type Power or Sail (P or S)	Vessel Length	Vessel Beam	EPA REGISTRATION NUMBER	Paint Type (Copper, Low, NON, UNK)	% Copper	Paint Brand Name	Product Number	Boatyard Name	Month Painted	Year Painted
265	KKM	264	100%	HYDRAHOIST	31	10	60061-116-AA	LOW	NA	PETTIT	1261	Shelter Island Boatyard	04	2005
266	KKM	265	90%	P	47	15		UNK	NA	NA	NA	Shelter Island Boatyard	11	2012
267	KKM	266	90%	S	28	12		UNK	NA	NA	NA	NA	NA	NA
268	KKM	267	VACANT											
269	KKM	268	90%	S	27	10		UNK	NA	NA	NA	NA	NA	NA
270	KKM	269	100%	P	42	13		LOW	NA	NA	NA	NA	06	2002
271	KKM	270	80%	P	31	12		UNK	NA	NA	NA	NA	NA	NA
272	KKM	271	95%	S	45	14		Copper	NA	ULTRAKOTE	NA	JK3	10	2016
273	KKM	272	VACANT											
274	KKM	273	100%	P	44	13		UNK	NA	NA	NA	SHELTER ISLAND BOAT YARD	11	2013
275	KKM	274	80%	S	32	11.2		UNK	NA	INTERLUX ULTRA	NA	SHELTER ISLAND BOAT YARD	01	2014
276	KKM	275	100%	P	44	13.6		COPPER	NA	Interlux Ultra	NA	SHELTER ISLAND BOAT YARD	05	2015
277	KKM	276	50%	P	26	8.5		UNK	NA	intrerlux	na	NA	04	2017
278	KKM	277	100%	S	41	8	60061-49-ZG	COPPER	53%	PETTIT	B91	DRISCOLLS	07	2016
279	KKM	278	90%	P	37	12		LOW	NA	NA	NA	NA	01	2010
280	KKM	279	VACANT											
281	KKM	280	90%	P	32.9	12		COPPER	NA	INTERLUX ULTRA	NA	DRISCOLL	08	2017
282	KKM	281	90%	P	45	14		LOW	40%	interlux	yba163	SHELTER ISLAND BOATYARD	03	2014
283	KKM	282	80%	P	28	10		COPPER	66%	ZSPAR	NA	Bricks Marine	01	2018
284	KKM	283	95%	P	45	15		LOW	NA	NA	NA	NA	NA	NA
285	KKM	284	92%	S	27	8		LOW	NA	NA	NA	NA	NA	NA
286	KKM	285	90%	S	50	12	60061-49-ZH	LOW	40%	ZSPAR B94	164	Ventura Harbor Boat Yard	12	2011
287	KKM	286	95%	P	54	15		UNK	NA	NA	NA	NA	NA	NA
288	KKM	287	30%	P	26	8		UNK	NA	NA	NA	NA	NA	NA
289	KKM	288	VACANT											
290	KKM	289	20%	P	25	8		UNK	NA	NA	NA	NA	NA	NA
291	KKM	290	VACANT											
292	KKM	291	95%	P	34	12		LOW	NA	NA	NA	DRISCOLL	02	2011
293	KKM	292	30%	P	45	14		UNK	NA	NA	NA	NA	NA	NA
294	KKM	293	45%	S	42	14		UNK	NA	NA	NA	NA	NA	NA
295	KKM	294	95%	P	33	11		UNK	NA	NA	NA	NA	NA	NA
296	KKM	295	90%	s	44.5	14		non Copper	0%	NA	NA	NA	10	17
297	KKM	296	VACANT											
298	KKM	297	98%	S	35	11		LOW	65%	Interlux	NA	Driscoll MB	10	2010
299	KKM	298	45%	S	27	8		UNK	NA	NA	NA	NA	NA	NA
300	KKM	299	95%	P	41.3	15	1282999	UNK	NA	interlux	NA	NA	11	2017
301	KKM	300	80%	P	38	13	44891-11-AA	copper	45%	SEAHAWK	6145	Neilsen Beaumont	09	2006
302	KKM	301	85%	S	33	9		UNK	NA	NA	NA	NA	NA	NA
303	KKM	302	97%	S	42.9	12.6	577-550-ZE	UNK	NA	Petit Anti Foul	NA	Windward	06	2013
304	KKM	303	95%	S	24	5		LOW	NA	NA	NA	NA	NA	NA
305	KKM	304	85%	P	44	13.5		LOW	NA	NA	NA	NA	09	2004
306	KKM	305	25%	P	30	11		UNK	NA	NA	NA	NA	NA	NA
307	KKM	306	45%	P	28	10		UNK	NA	NA	NA	NA	NA	NA
308	KKM	307	45%	S	46	14		LOW	NA	PETTIT TRINIDAD	174	Ventura Harbor Boat Yard	12	2011
309	KKM	308	85%	S	46	14		LOW	NA	PETTIT TRINIDAD	174	Ventura Harbor Boat Yard	12	2011
310	KKM	309	90%	P	32	11		UNK	NA	NA	NA	NA	NA	NA
311	KKM	310	30%	P	37	10		UNK	NA	NA	NA	NA	NA	NA
312	KKM	311	VACANT											

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1	Facility	Slip	% Year Occupied	Vessel Type Power or Sail (P or S)	Vessel Length	Vessel Beam	EPA REGISTRATION NUMBER	Paint Type (Copper, Low, NON, UNK)	% Copper	Paint Brand Name	Product Number	Boatyard Name	Month Painted	Year Painted
313	KKM	312	15%	P	45	16		UNK	NA	NA	NA	NA	NA	NA
314	KKM	313	95%	P	29	10.4		copper	NA	INTERLUX ULTRA	NA	Shelter Island Boatyard	03	2016
315	KKM	314	35%	P	43	14		LOW	NA	PETTIT TRINIDAD	NA	Shelter Island Boatyard	07	2011
316	KKM	315	88%	S	30	10		UNK	NA	NA	NA	NA	NA	NA
317	KKM	316	VACANT											
318	KKM	317	100%	P	29	10		NON	0%	NA	NA	NA	NA	NA
319	KKM	318	95%	P	42	14		lOW	NA	Interlux ULTRAKOTE	NA	Shelter Island Boatyard	05	2016
320	KKM	319	45%	S	30	10		UNK	NA	NA	NA	NA	NA	NA
321	KKM	320	90%	P	45	14.9		Copper	60%	Le Pettit Trinidad	NA	Svedsens Marine	12	2018
322	KKM	321	85%	P	20	9		UNK	NA	NA	NA	NA	NA	NA
323	KKM	322	25%	P	47	12		UNK	NA	NA	NA	NA	NA	NA
324	KKM	323	95%	P	34	11		copper	65%	Interlux	160	Shelter Island Boatyard	01	2017
325	KKM	324	VACANT											
326	KKM	325	30%	S	35	11		UNK	NA	NA	NA	NA	NA	NA
327	KKM	326	95%	P	45	10		LOW	40%	Pettit Trinidad Pro	NA	SHELTER ISLAND	03	2016
328	KKM	327	95%	S	32	11		NON	NA	PETTIT	NA	KNIGHT AND CARVER	08	2011
329	KKM	328	60%	S	45	13		LOW	NA	PROLINE VINYL	NA	SHELTER ISLAND	06	2008
330	KKM	329	VACANT											
331	KKM	330	VACANT											
332	KKM	331	VACANT											
333	KKM	332	85%	P	43	14		UNK	NA	NA	NA	NA	NA	NA
334	KKM	333	75%	S	30	12		UNK	NA	NA	NA	NA	NA	NA
335	KKM	334	80%	S	45	12		UNK	NA	NA	NA	NA	NA	NA
336	KKM	335	VACANT											
337	KKM	336	100%	P	45	14		LOW	NA	PETIT TRINIDAD	NA	NA	07	2016
338	KKM	337	VACANT											
339	KKM	338	75%	P	42	14.5		copper	NA	tropikote	NA	BAJA NAVAL	02	2018
340	KKM	339	90%	P	32	11		LOW	20%	Epoxy Modified	147	Neilsen Beaumont	05	2007
341	KKM	340	VACANT											
342	KKM	341	30%	P	32	10.5		UNK	NA	INTERLUX Ultra	NA	Shelter Island	10	2017
343	KKM	342	95%	P	38	14		copper	55%	interlux ultra blue	36695	shelter island boatyard	01	2018
344	KKM	343	95%	P	30	9		LOW	NA	pettitt vivid white	NA	Shelter Island Boatyard	11	2015
345	KKM	344	98%	P	45	14		UNK	NA	NA	NA	HALES MARINE	06	2016
346	KKM	345	VACANT											
347	KKM	346	85%	P	45	15		LOW	NA	SEA HAWK SHARKSKIN	NA	NA	01	2010
348	KKM	347	95%	P	28	10		LOW	NA	NA	NA	NA	NA	NA
349	KKM	348	VACANT											
350	KKM	349	VACANT											
351	KKM	350	100%	HYDRAHOIST	30	12		UNK	NA	NA	NA	NA	NA	NA
352	KKM	351	VACANT											
353	KKM	352	100%	S	35	19		NON	NA	INTERSLEEK 900	NA	DRISCOLL	NA	2009
354	KKM	353	40%	S	40	15		UNK	NA	NA	NA	SHELTER ISLAND	07	2013
355	KKM	354	VACANT											
356	KKM	355	75%	P	38	14		UNK	NA	PETIT TRINIDAD	NA	NA	NA	NA
357	KKM	356	95%	S	32	8		UNK	NA	NA	NA	Shelter Island Boatyard	06	2012
358	KKM	357	92%	S	42	15		LOW	NA	NA	NA	Shelter Island Boatyard	11	2012
359	KKM	358	100%	P	40	12.6	2693-212-AA	COPPER	67%	INTERLUX ULTRA	3779F	SHELTER ISLAND BOATYARD	11	2012
360	KKM	359	100%	S	40	12.6		copper	NA	INTRULUX ULTRA	NA	NA	NA	NA

Kona Kai Marina

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1	Facility	Slip	% Year Occupied	Vessel Type Power or Sail (P or S)	Vessel Length	Vessel Beam	EPA REGISTRATION NUMBER	Paint Type (Copper, Low, NON, UNK)	% Copper	Paint Brand Name	Product Number	Boatyard Name	Month Painted	Year Painted
361	KKM	360	95%	P	42	13				INTRULUX ULTRA	NA	shelter island	08	2017
362	KKM	361	75%	P	42	14		LOW	65%	Interlux Ultra	160	Neilsen Beaumont	07	2011
363	KKM	362	90%	S	38	12		UNK	NA	NA	NA	NA	NA	NA
364	KKM	363	90%	S	40	14		LOW	NA	NA	NA	SHELTER ISLAND	09	2009
365	KKM	364	95%	P	33	12		UNK	NA	NA	NA	NA	NA	NA
366	KKM	365	90%	P	38	13		LOW	NA	NA	NA	DRISCOLL	08	2010
367	KKM	366	90%	S	36	13		LOW	NA	INTERLUX ULTRA	NA	SHELTER ISLAND	06	2009
368	KKM	367	30%	S	36	11		copper	65%	Pettit Trinidad Pro	174	Shelter Island Boatyard	09	2012
369	KKM	368	15%	P	38	13		UNK	NA	NA	NA	NA	NA	NA
370	KKM	369	35%	S	36	11		UNK	NA	NA	NA	NA	NA	NA
371	KKM	370	100%	S	38	13		UNK	NA	2/1 STANDARD PAINT	NA	DRISCOLL	11	2013
372	KKM	371	95%	S	36	11		copper	NA	Interlux Ultrakote Blue	NA	shelter island boatyard	02	2017
373	KKM	372	98%	P	38	13		UNK	NA	NA	NA	DRISCOLL	12	2013
374	KKM	373	90%	P	39	13		copper	NA	interlux ultra black	NA	shelter island boatyard	11	2015
375	KKM	374	85%	P	33	13	2693-212-AA	COPPER	NA	INTRULUX ULTRA	3779F	shelter island boatyard	11	2017
376	KKM	375	70%	P	39	14		LOW	67%	INTERLUX ULTRA	NA	Neilsen Beaumont	07	2012
377	KKM	376	90%	P	38	13		UNK	NA	NA	NA	NA	NA	NA
378	KKM	377	100%	S	42	13	577-550-ZE	COPPER	66%	PROLINE	1088	SHELTER ISLAND	06	2017
379	KKM	378	100%	P	39	13		LOW	NA	NA	NA	NA	10	2009
380	KKM	379	25%	S	40	10		UNK	NA	NA	NA	NA	NA	NA
381	KKM	380	40%	P	49	18		UNK	NA	NA	NA	NA	NA	NA
382	KKM	381	25%	P	37	13		UNK	NA	NA	NA	NA	NA	NA
383	KKM	382	VACANT											
384	KKM	383	95%	P	35	12		LOW	NA	interlux ultra	NA	NA	06	2017
385	KKM	384	90%	P	44	15		copper	65%	Interlux Ultra	160	Shelter Island Boatyard	05	2012
386	KKM	385	25%	S	37	12		UNK	NA	NA	NA	NA	NA	NA
387	KKM	386	45%	S	36	11		UNK	NA	NA	NA	NA	NA	NA
388	KKM	387	90%	P	48	15		UNK	NA	NA	NA	NA	NA	NA
389	KKM	388	95%	S	36	11		UNK	NA	NA	NA	NA	NA	NA
390	KKM	389	35%	S	43	14		UNK	NA	NA	NA	NA	NA	NA
391	KKM	390	95%	S	39	12		LOW	NA	PETTIT TRINIDAD	6	SHELTER ISLAND BOATYARD	09	2009
392	KKM	391	90%	P	45.6	15	2693-119-ZD	NA	NA	ULTRAKOTE	3779K	TIARA, HOLLAND MI	04	2016
393	KKM	392	85%	P	37	12		UNK	NA	NA	NA	SHELTER ISLAND BOATYARD	03	2014
394	KKM	393	100%	S	48	15	2693-119-ZD	LOW	67%	interlux ultrakote	168	Shelter Island Boatyard	08	2017
395	KKM	394	88%	P	38	14		UNK	NA	NA	NA	NA	NA	NA
396	KKM	395	50%	P	44	13.5		UNK	NA	NA	NA	NA	NA	NA
397	KKM	396	90%	S	38	11		UNK	NA	NA	NA	NA	NA	NA
398	KKM	397	40%	P	40	16		LOW	NA	pettit ultima ssa	NA	Basin Marine	NA	NA
399	KKM	398	90%	S	38	12.3		COPPER	60%	PETTIT TRINIDAD PRO	1082	SHELTER ISLAND	03	2014
400	KKM	399	80%	P	50	15.6		copper	67%	NA	NA	Shelter Island Boatyard	09	2014
401	KKM	400	90%	P	38	12		LOW	NA	PETTIT TRINIDAD		Shelter Island Boatyard	02	2010
402	KKM	401	VACANT		40	13		UNK	NA	NA	NA	NA	NA	NA
403	KKM	402	50%	S	41	14		LOW	NA	PETTIT TRINIDAD	NA	ENSENADA	04	2008
404	KKM	403	95%	S	46	14	2693-226-AA	NON	0%	trilux	33	Shelter Island	11	2017
405	KKM	404	30%	S	36	13		UNK	NA	NA	NA	NA	NA	NA
406	KKM	405	85%	P	40	13.5	2693-192-ZB	copper	55%	INTERLUX	3669	NA	06	2012
407	KKM	406	90%	S	36	11		LOW	NA	NA	NA	DRISCOLL	08	2010
408	KKM	407	90%	P	40	16		LOW	NA	PETTIT ULTIMA SSA	NA	BASIN MARINE	04	2013

Kona Kai Marina

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Facility	Slip	% Year Occupied	Vessel Type Power or Sail (P or S)	Vessel Length	Vessel Beam	EPA REGISTRATION NUMBER	Paint Type (Copper, Low, NON, UNK)	% Copper	Paint Brand Name	Product Number	Boatyard Name	Month Painted	Year Painted
409	KKM	408	65%	P	38	12		UNK	NA	NA	NA	NA	NA	NA
410	KKM	409	98%	P	41	13.11		low	40%	interlux	nt ybb379	jensens boatyard, WA	09	2013
411	KKM	410	90%	S	37	18		UNK	NA	NA	NA	NA	NA	NA
412	KKM	411	90%	P	38	13		UNK	NA	NA	NA	NA	NA	NA
413	KKM	412	35%	P	24	9		UNK	NA	NA	NA	NA	NA	NA
414	KKM	413	98%	P	36	13		UNK	NA	NA	NA	Shelter Island Boatyard	NA	NA
415	KKM	414	90%	S	38	12		UNK	NA	NA	NA	NA	NA	NA
416	KKM	415	40%	P	37	14		UNK	NA	NA	NA	NA	NA	NA
417	KKM	416	85%	S	38	12	60061-49-ZH	LOW	65%	ZSPAR B94	165	self applied	01	2007
418	KKM	417	35%	S	37	11		copper	65%	Interlux Ultra	160	Shelter Island Boatyard	07	2012
419	KKM	418	98%	S	38	11		UNK	NA	AWLGRIP	SR	SHELTER ISLAND	12	2016
420	KKM	419	95%	S	36	12		copper	NA	EPOXY COPPERCOAT	NA	NA	06	2014
421	KKM	420	20%	S	36.8	11.6		copper	55%	interlux ultracoat light	na	SHELTER ISLAND BOAT YARD	04	2017
422	KKM	421	55%	P	36	13		UNK	NA	NA	NA	SHELTER ISLAND BOAT YARD	08	2017
423	KKM	422	75%	S	42	13		copper	NA	Seagaurd	NA	Driscoll's Ship Yard	11	2014
424	KKM	423	90%	S	42	13		UNK	NA	NA	NA	NA	NA	NA
425	KKM	424	98%	p	40	15.9		unk	na	na	na	Hinkley, FL	09	2017
426	KKM	425	25%	S	36	11		UNK	NA	NA	NA	NA	NA	NA
427	KKM	426	60%	P	40	14		copper	65%	Interlux Ultra	160	Neilsen Beaumont	07	2012
428	KKM	427	85%	P	32	11		UNK	NA	NA	NA	NA	NA	NA
429	KKM	428	100%	S	37	11		UNK	NA	NA	NA	NA	NA	NA
430	KKM	429	90%	P	36	13		UNK	NA	INTERSLEEK 900 BLACK	NA	Shelter island	05	2013
431	KKM	430	90%	S	36	11		UNK	NA	NA	NA	NA	NA	NA
432	KKM	431	40%	S	39	12		LOW	NA	NA	NA	DRISCOLL	10	2010
433	KKM	432	90%	S	40	11		LOW	NA	NA	NA	Shelter Island Boatyard	12	2007
434	KKM	433	98%	S	42	13		LOW	67%	INTERLUX ULTRA	NA	Shelter Island Boatyard	06	2010
435	KKM	434	15%	S	36	11		UNK	NA	NA	NA	NA	NA	NA
436	KKM	435	95%	P	35	14		UNK	NA	Interlux Ultra Black	NA	SHELTER ISLAND	03	2015
437	KKM	436	95%	S	35	11		UNK	NA	NA	NA	NA	NA	NA
438	KKM	437	98%	S	36	12	2693-119-ZD	LOW	40%	INTERLUX ULTRAKOTE	3779U	Shelter Island Boatyard	06	2017
439	KKM	438	95%	S	37	12		UNK	NA	INTERLUX	NA	DRISCOLL	09	2014
440	KKM	439	65%	P	47	13		UNK	NA	NA	NA	NA	NA	NA
441	KKM	440	VACANT											
442	KKM	441	90%	p	44	16	2693-192-AA	UNK	NA	pettite	na	KKMI Sausalito	05	2018
443	KKM	442	90%	P	43	10		UNK	NA	NA	NA	NA	NA	NA
444	KKM	443	75%	S	46.9	12		UNK	NA	NA	NA	Marina Del Ray Boat Yard	09	2013
445	KKM	444	92%	P	48	16		LOW	NA	NA	NA	SHELTER ISLAND	11	2007
446	KKM	445	60%	P	43	12		UNK	NA	INTERLUX BOTTOM KOTE	NA	self applied	05	2013
447	KKM	446	90%	P	46	14		LOW	NA	NA	NA	SHELTER ISLAND	02	2007
448	KKM	447	VACANT											
449	KKM	448	90%	P	48	14		UNK	NA	NA	NA	NA	NA	NA
450	KKM	449	VACANT											
451	KKM	450	93%	P	43	16	577-550-ZE	LOW	40%	Proline 1088	168	Shelter Island Boatyard	11	2011
452	KKM	451	65%	P	48	16		UNK	NA	NA	NA	NA	NA	NA
453	KKM	452	100%	P	46	16		LOW	65%	TRINIDAD SR	174	Shelter Island Boatyard	05	2010
454	KKM	453	VACANT											
455	KKM	454	90%	P	48	15		LOW	NA	NA	NA	NA	NOV	2005
456	KKM	455	85%	P	44	15		LOW	NA	PROLINE 1088-6	NA	NA	03	2006

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Facility	Slip	% Year Occupied	Vessel Type Power or Sail (P or S)	Vessel Length	Vessel Beam	EPA REGISTRATION NUMBER	Paint Type (Copper, Low, NON, UNK)	% Copper	Paint Brand Name	Product Number	Boatyard Name	Month Painted	Year Painted
457	KKM	456	75%	P	48	16		UNK	NA	NA	NA	NA	NA	NA
458	KKM	457	95%	S	46	12.9		UNK	NA	INTRULUX ULTRA	NA	SHELTER ISLAND BOATYARD	JAN	2017
459	KKM	458	95%	S	46	15		copper	NA	pettit protector	NA	Driscoll MB	07	2015
460	KKM	459	90%	P	43	15		UNK	NA	NA	NA	DRISCOLL MB	11	2013
461	KKM	460	90%	P	50	16		LOW	NA	PROLINE 1088-6	NA	Shelter Island Boatyard	03	2008
462	KKM	461	VACANT											
463	KKM	462	88%	P	43	15'10"	577-550-ZE	LOW	NA	PROLINE LOLO	1088	SHELTER ISLAND BOATYARD	07	2013
464	KKM	463	25%	S	35	17.5		UNK	NA	INTERLUX HARD	NA	Shelter Island Boatyard	02	2014
465	KKM	464	92%	P	39	14		LOW	NA	PROIINE 1088-6	NA	Shelter Island Boatyard	10	2010
466	KKM	465	90%	S	34	12		LOW	65%	2000E EPOXY PRIMER WH	164	Driscoll MB	05	2011
467	KKM	466	90%	S	44	13	577-550-ZE	LOW	65%	Proline 1088	168		02	2010
468	KKM	467	75%	P	34	12		UNK	NA	NA	NA	NA	NA	NA
469	KKM	468	100%	P	48	15		copper	65%	Interlux Ultra	3669U	Shelter Island Boatyard	08	2017
470	KKM	469	65%	S	36	11		copper	NA	TRINIDAD SR	NA	DRISCOLLS MB	05	2015
471	KKM	470	90%	P	47.8	15		copper	67%	PETTIT/TRINIDAD	NA	DRISCOLLS	05	2015
472	KKM	471	25%	P	46	16		UNK	NA	NA	NA	DRISCOLLS MB	11	2014
473	KKM	472	80%	P	46	14		LOW	NA	NA	NA	NA	01	2007
474	KKM	473	25%	P	36	12		UNK	NA	NA	NA	NA	NA	NA
475	KKM	474	VACANT											
476	KKM	475	65%	S	35	12		UNK	NA	NA	NA	NA	NA	NA
477	KKM	476	20%	P	48	16		copper	60%	Interlux Ultra	160	Shelter Island Boatyard	12	2012
478	KKM	477	60%	P	27	9		UNK	NA	PROLINE	NA	DRISCOLLS MB	01	2014
479	KKM	478	85%	P	54	16	2693-212-AA	copper	NA	interlux ultra	3779f	Shelter Island Boatyard	07	2015
480	KKM	479	100%	P	35	13		UNK	NA	proline	1051	marine group	10	2018
481	KKM	480	95%	P	47	14		UNK	NA	NA	NA	NA	NA	NA
482	KKM	481	90%	P	32	12		UNK	NA	NA	NA	NA	NA	NA
483	KKM	482	98%	S	50	14		LOW	40%	NA	NA	SHELTER ISLAND	08	2002
484	KKM	483	90%	S	36	12		UNK	NA	NA	NA	NA	NA	NA
485	KKM	484	98%	P	49	15		LOW	NA	NA	NA	NA	12	2010
486	KKM	485	50%	S	34	12		UNK	NA	NA	NA	NA	NA	NA
487	KKM	486	85%	P	49.12	16		LOW	NA	pettit B-94	NA	DRISCOLLS	08	2014
488	KKM	487	93%	P	25	9		UNK	NA	NA	NA	NA	NA	NA
489	KKM	488	90%	S	44	14		COPPER	76%	INTERLUX ULTRAKOTE	NA	Shelter Island Boatyard	03	2016
490	KKM	489	40%	P	30	10		UNK	NA	NA	NA	NA	NA	NA
491	KKM	490	40%	S	48	15		UNK	NA	NA	NA	NA	NA	NA
492	KKM	491	40%	S	41	14		NON	NA	VC PERF	NA	SHELTER ISLAND BOAT YARD	11	2013
493	KKM	492	98%	S	50	16		LOW	NA	MISSION BAY BLUE	4002	DRISCOLL	09	2007
494	KKM	493	90%	P	45.4	15		UNK	NA	NA	NA	Sunset aquatic marine center	07	2016
495	KKM	494	95%	P	43	15		LOW	40%	Z Spar Gold	164	Driscoll MB	02	2012
496	KKM	495	80%	P	49	15		LOW	NA	INTERLUX KL-6	NA	Shelter Island Boatyard	03	2007
497	KKM	496	98%	P	51	15		LOW	40%	Blue Water 8601	NA	Driscolll MB	10	2008
498	KKM	497	85%	S	50	13		UNK	NA	Interlux Micro	NA	Shelter Island Boatyard	03	2014
499	KKM	498	100%	s	54	16		LOW	40%	interlux	na	shelter island boatyard	02	2017
500	KKM	499	40%	S	50	13		UNK	NA	NA	NA	NA	NA	NA
501	KKM	500	45%	P	47	15		UNK	NA	NA	NA	NA	NA	NA
502	KKM	501	100%	P	51	15.1		unk	na	Gal Cukote Antifowling Paint	SAW3445-1	La Conner Maritime Service	07	2018
503	KKM	502	90%	P	47	15	60061- 49-ZO	COPPER	65%	Woolsey Defense CA	593-4301G	Nielson Beumont	06	2017
504	KKM	503	80%	S	48	14		UNK	NA	SEA HAWK	NA	BAJA NAVAL	02	2015

Kona Kai Marina

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Facility	Slip	% Year Occupied	Vessel Type Power or Sail (P or S)	Vessel Length	Vessel Beam	EPA REGISTRATION NUMBER	Paint Type (Copper, Low, NON, UNK)	% Copper	Paint Brand Name	Product Number	Boatyard Name	Month Painted	Year Painted
505	KKM	504	100%	P	50	17		NON	NA	NA	NA	SHELTER ISLAND	04	2015
506	KKM	505	100%	P	43	14		COPPER	55%	Interlux Ultra	117598	SIBY	08	2016
507	KKM	506	20%	S	47	14		LOW	NA	NA	NA	NA	NA	NA
508	KKM	507	32%	P	47	14		UNK	NA	NA	NA	NA	NA	NA
509	KKM	508	90%	S	45	15		UNK	NA	NA	NA	SHELTER ISLAND	10	2015
510	KKM	509	80%	S	50	13		UNK	NA	NA	NA	NA	NA	NA
511	KKM	510	VACANT											
512	KKM	511	95%	P	48	16		UNK	NA	NA	NA	Shelter Island Boatyard	04	2014
513	KKM	512	50%	P	48	15		UNK	NA	NA	NA	NA	NA	NA
514	KKM	513	35%	P	53	15		UNK	NA	NA	NA	NA	NA	NA
515	KKM	514	93%	P	48	15		LOW	40%	NAUTICAL ABLATIVE	NA	Nielson Beumont	03	2017
516	KKM	515	75%	S	45	14		copper	40%	Interlux Ultra	160	Shelter Island Boatyard	11	2015
517	KKM	516	90%	P	54	17		UNK	NA	NA	NA	NA	NA	NA
518	KKM	517	60%	P	41	13		LOW	65%	Interlux Ultra	160	KNIGHT AND CARVER	11	2011
519	KKM	518	98%	P	44	16	60061- 49-ZO	COPPER	45%	Woolsey Defense CA	4501G	Neilsen Beaumont	04	2016
520	KKM	519	25%	P	41	14		UNK	NA	NA	NA	NA	NA	NA
521	KKM	520	90%	P	65	16		COPPER	76%	INTERLUX ULTRAKOTE	NA	SHELTER ISLAND	11	2016
522	KKM	521	60%	S	78	17		copper	67%	PETTIT TRINIDAD PRO	NA	DRISCOLLS	01	2018
523	KKM	522	80%	P	97.6	24.5	2693-226-AA	UNK	UKN	TRILUX	33	Marine Group	10	2016
524	KKM	523	88%	P	140	25		Combo	0%	SEA HAWK SHARKSKIN	NA	Marine Group	10	2015
525	KKM	524	70%	P	60	28.5		copper	NA	Proline 1088	NA	Marine Group Boat Works	08	2018
526	KKM	525	45%	P	142	25		UNK	NA	NA	NA	NA	NA	NA
527	KKM	526	60%	P	160	25		UNK	NA	NA	NA	NA	NA	NA
528	KKM	527	15%	P	205	25		UNK	NA	Micron	1317-39-1	Vancouver Drydock	09	2013
529	KKM	528	70%	S	40	16		UNK	NA	NA	NA	NA	NA	NA
530	KKM	529	65%	S	42	23	60061-129-AA	LOW	40%	West Marine Bottom Shield	10175156	Birkavitch La Paz MX	12	2016
531	KKM	530	10%	S	45	15		UNK	NA	NA	NA	NA	NA	NA
532	KKM	531	100%	HYDRAHOIST	15	8		NON	NA	NA	NA	NA	NA	NA

Facility (Marina or Yacht Club)	Slip/Mooring Reference Number	Percent of Time Occupied	Vessel Type (Power or Sail)	Vessel Length	Vessel Beam	Paint Type (Copper, Low, or Non, No Paint)	Paint Product Name	Product Number	Boatyard Name or Purchase Date	Painting Date Month (mm)	Painting Date Year (yyyy)	% Copper	DPR Category I Registration Number
Crows Nest	1	0	Power	70	20.9	Low	Interlux	3779			2017	Low	
Crows Nest	2	0	Power	58	17.9	Low					2015	Low	
Crows Nest	3	0	Power	60	17.2	Low	Interlux	3779	Shelter Isle		2018	Low	
Crows Nest	4	0	Power	46	14	Low	Interlux	3696			2015	Low	
Crows Nest	5	0	Power	38		Low					2015	Low	
Crows Nest	6	0	Power	60	17.5	None	Micro Non				2017	None	
Crows Nest	7	0	Power	36	12.6	Low	Prolene	01 Blue 1088			2014	Low	
Crows Nest	8	0	Power	56	15.4	Low	Interlux	3779			2018	Low	
Crows Nest	9	0	Power	54	15.3	Low	Prolene	02 Black			2016	Low	
Crows Nest	10	0											
Crows Nest	11	0											
Crows Nest	12	0	Power	40		Low	Interlux	3449			2013	Low	
Crows Nest	13	90	Sail	42	10	Low	Bilox Gr	5490	Walsh	July	2012	Low	2693-181-AA
Crows Nest	14	0											
Crows Nest	15	0											
Crows Nest	16	0											
Crows Nest	17	0											
Crows Nest													

APPENDIX D

WATER QUALITY RESULTS

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FIELD DATA SHEETS

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FIELD WATER QUALITY DATA SHEET

Station Identification: SIYB-FB

Date: (mm/dd/yyyy) 8/13/2018

Time Started: (hh:mm) 1530

Ended: (hh:mm)

GPS: (WGS84) Lat. on site at SIYB-1

Long. NA

Tide (ft): NA

Time of Slack High Tide: NA

Water Depth (ft): NA

Weather conditions: warm + sunny

Wind (mph):

Current Speed and Direction: NA

Water Visibility (ft): NA

Time of Measurement	pH	Salinity (ppt)	Temperature (°C)
Upon arrival on station	NA	NA	NA
During sample collection			
End of sample collection			
Average value			

*Water quality measured at the same depth as sample collection (i.e. within 1 meter from the surface).

Notes: Field blank

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL

FIELD WATER QUALITY DATA SHEET

Station Identification: SIYB-1

on station at 1415

Date: (mm/dd/yyyy) 8/18/2018

Time Started: (hh:mm) 1430

Ended: (hh:mm) 1505

GPS: (WGS84) Lat. 32.71821

Long. -117.22600

Tide (ft): +3.14 ↓

Time of Slack High Tide: 1144 (+5.04 ft)

Water Depth (ft): 18 ft

Weather conditions: sunny + warm + clear, some clouds on horizon

Wind (mph): 5.3 mph

TIME OF CTD CAST: ~~1450~~ 1500

Current Speed and Direction: calm conditions, some wind ripple

Water Visibility (ft): 9 ft

Time of Measurement	pH	Salinity (ppt)	Temperature (°C)	SP COND.	DO %
Upon arrival on station	7.88	33.66	25.8	51318	7.89
During sample collection	7.88	33.71	25.9	51352	7.87
End of sample collection	7.88	33.71	25.9	51222	7.88
Average value	7.88	33.69	25.9	51297	7.89

*Water quality measured at the same depth as sample collection (i.e. within 1 meter from the surface).

Notes: Extra volume collected for MS/MSD

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL

FIELD WATER QUALITY DATA SHEET

Station Identification: SIYB - 1 (REP)

Date: (mm/dd/yyyy) 8/13/2018

Time Started: (hh:mm) 1510

Ended: (hh:mm) 1525

GPS: (WGS84) Lat. 32.71825 Long. -117.22600

Tide (ft): ~~18~~ +2.15 ft ↓

Time of Slack High Tide: 1144 (+5.04 ft)

Water Depth (ft): 18 ft

Weather conditions: Sunny + warm, windy

Wind (mph): 10 mph

TIME OF CTD CAST: 1520

Current Speed and Direction: calm water, some wind ripple

Water Visibility (ft): 9.5 feet

Time of Measurement	pH	Salinity (ppt)	Temperature (°C)	SP COND	DO
Upon arrival on station	7.88	33.69	26.0	51362	7.90
During sample collection	7.88	33.70	26.0	52290	7.92
End of sample collection	7.88	33.70	26.0	52351	7.91
Average value	7.88	33.70	26.0	52001	7.91

*Water quality measured at the same depth as sample collection (i.e. within 1 meter from the surface).

Notes:
Topside hull cleaning ~ 20 m away

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL

FIELD WATER QUALITY DATA SHEET

Station Identification: SIYB-2 on site at 1325

Date: (mm/dd/yyyy) 8/13/2018 9m off target*

Time Started: (hh:mm) 1330 Ended: (hh:mm)

GPS: (WGS84) Lat. 32.71412 Long. -117.22930

Tide (ft): +3.66 ↓ Time of Slack High Tide: 1144 (+5.04ft)

Water Depth (ft): 16 ft

Weather conditions: ~~calm~~ sunny + warm, windy

Wind (mph): 9.2 mph TIME OF CTD CAST: 1350

Current Speed and Direction: small ripples in water, pushing E

Water Visibility (ft): 7 ft

Time of Measurement	pH	Salinity (ppt)	Temperature (°C)	SP COND	DO %
Upon arrival on station	7.88	33.72	25.6	51321	7.75
During sample collection	7.88	33.68	25.5	51302	7.73
End of sample collection	7.88	33.69	25.5	51300	7.76
Average value	7.88	33.69	25.5	51308	7.75

*Water quality measured at the same depth as sample collection (i.e. within 1 meter from the surface).

Notes: *vessel at our location, we collected mid-channel.

Hull cleaner showed up (~100 y South) at the end of collection (~1347). No water was taken during hull cleaning activities

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL

FIELD WATER QUALITY DATA SHEET

Station Identification: SIYB - 3

Date: (mm/dd/yyyy) 8/13/2018

onstation at 1210

Time Started: (hh:mm) 1230

Ended: (hh:mm) 1300

GPS: (WGS84) Lat. 32.71550

Long. -117.22990

Tide (ft): +4.86 ↓

Time of Slack High Tide: 1144 (+5.04ft)

Water Depth (ft): 21 ft

Weather conditions: Sunny, windy

Wind (mph): 7 mph

TIME OF CTD CAST = 1252

Current Speed and Direction: calm, ripples in water, direction

Water Visibility (ft): 8.0 ft

Time of Measurement	pH	Salinity (ppt)	Temperature (°C)	SP. COND.	DO %
Upon arrival on station	7.87	33.63	25.4	51088	7.69
During sample collection	7.88	33.51	25.5	51000	7.74
End of sample collection	7.88	33.53	25.2	51088	7.79
Average value	7.88	33.56	25.4	51059	7.74

*Water quality measured at the same depth as sample collection (i.e. within 1 meter from the surface).

Notes: Four winds left during arrival on station - what a beaut!

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL

FIELD WATER QUALITY DATA SHEET

Station Identification: SIYB-4

on site at 1105

Date: (mm/dd/yyyy) 8/13/2018

Time Started: (hh:mm) 1130

Ended: (hh:mm) 1200

GPS: (WGS84) Lat. 32.71681

Long. -117.23203

Tide (ft): +4.87 ft ↑

Time of Slack High Tide: 1144 (+5.04 ft)

Water Depth (ft): 17

Weather conditions: calm and sunny, windy

Wind (mph): 5.3

TIME OF CTD CAST: 1155

Current Speed and Direction: some ripples headed NW, mostly calm and pleasant.

Water Visibility (ft): 9 ft

Time of Measurement	pH	Salinity (ppt)	Temperature (°C)	SP. COND	DO
Upon arrival on station	7.87	33.57	25.2	51189	7.85
During sample collection	7.88	33.62	25.2	51303	7.84
End of sample collection	7.88	33.62	25.1	51114	7.79
Average value	7.88	33.60	25.2	51202	7.83

*Water quality measured at the same depth as sample collection (i.e. within 1 meter from the surface).

Notes: piece of debris floating in water ~200m away 1155 (picked up at 1205) → clean bilge pad

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL

FIELD WATER QUALITY DATA SHEET

Station Identification: SIYB-5 on station on 1020

Date: (mm/dd/yyyy) 8/13/2018

Time Started: (hh:mm) 1030 Ended: (hh:mm) 1100

GPS: (WGS84) Lat. 32.71213 Long. -117.23296

Tide (ft): +4.55 ft ↑ Time of Slack High Tide: 1144 (+5.04 ft)

Water Depth (ft): 23 ft

Weather conditions: sunny + warm

Wind (mph): 9 mph TIME OF CTD CAST: 1055

Current Speed and Direction: calm, ripples moving towards head of basin

Water Visibility (ft): 8 ft

Time of Measurement	pH	Salinity (ppt)	Temperature (°C)	SP. COND.	DO
Upon arrival on station	7.85	33.57	24.6	50831	7.30
During sample collection	7.84	33.58	24.7	51137	7.28
End of sample collection	7.85	33.50	24.6	51048	7.31
Average value	7.85	33.55	24.6	51005	7.30

*Water quality measured at the same depth as sample collection (i.e. within 1 meter from the surface).

Notes: Hosing off biminey, no hull scrubbing, 48m away

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL

FIELD WATER QUALITY DATA SHEET

Station Identification: SIYB-6

onsite at 0910

Date: (mm/dd/yyyy) 08/13/2018

Time Started: (hh:mm) 0930

Ended: (hh:mm) 1000

GPS: (WGS84) Lat. 32.70877 Long. -117.23510

Tide (ft): ~~+6ft~~ +3.52 ft ↑

Time of Slack High Tide: +5.04ft at 1144

Water Depth (ft): 16ft

Weather conditions: calm, sunny, warm and humid.

Wind (mph): 2

TIME OF CTD CAST: 0955

Current Speed and Direction: calm water, few ripples, water moving in NW direction.

Water Visibility (ft): 8 ft

Time of Measurement	pH	Salinity (ppt)	Temperature (°C)	SP. COND	DO
Upon arrival on station	7.83	33.98	24.3	51655	7.07
During sample collection	7.82	34.00	24.4	51659	6.97
End of sample collection	7.84	33.72	24.4	51291	7.22
Average value	7.83	33.90	24.4	51535	7.09

*Water quality measured at the same depth as sample collection (i.e. within 1 meter from the surface).

Notes: several hull cleaners motored by (heading into SIYB)

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL

FIELD WATER QUALITY DATA SHEET

Station Identification: SIYB- REF

onsite at 0755

Date: (mm/dd/yyyy) 8/13/2018

Time Started: (hh:mm) 0830

Ended: (hh:mm) 0900

GPS: (WGS84) Lat. 32. 70407

Long. -117. 23231

Tide (ft): +2.15 ft ↑

Time of Slack High Tide: 1144 (+5.04ft)
~~11:26 (+5.84 ft)~~ CCS

Water Depth (ft): 63 ft

Weather conditions: cloudy, humid and warm, calm conditions

Wind (mph): 1 ft

TIME OF CTD CAST : 0855

Current Speed and Direction: calm water conditions, some ripples moving NW

Water Visibility (ft): 10 ft

Time of Measurement	pH	Salinity (ppt)	Temperature (°C)	SP.C	DO
Upon arrival on station	7.97	33.41	22.6	50758	9.04
During sample collection	7.97	33.45	22.5	50895	9.08
End of sample collection	7.90	33.53	22.8	51032	7.88
Average value	7.95	33.46	22.6	50895	8.67

*Water quality measured at the same depth as sample collection (i.e. within 1 meter from the surface).

Notes: NAVY VESSEL DOCKING AT FUEL DOCK AT 0740

LOTS OF KELP + SEAGRASS IN WATER

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL

FIELD WATER QUALITY DATA SHEET

Station Identification: SIYB-ER

Date: (mm/dd/yyyy) 08/13/2018

Time Started: (hh:mm) 0700

Ended: (hh:mm) 0730

GPS: (WGS84) Lat. @ transient Dock

Long. NA

Tide (ft): NA

Time of Slack High Tide: NA

Water Depth (ft): NA

Weather conditions: Sunny, clear, light breeze

Wind (mph): 0-1

Current Speed and Direction: NA

Water Visibility (ft): NA

Time of Measurement	pH	Salinity (ppt)	Temperature (°C)
Upon arrival on station	NA	NA	NA
During sample collection	│	│	│
End of sample collection	│	│	│
Average value	NA	NA	NA

*Water quality measured at the same depth as sample collection (i.e. within 1 meter from the surface).

Notes:

FIELD QA/QC

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MOBILIZATION CHECKLIST

Date/Time: 8/13/18 0700

Mark each box with Y, N, or NA

Prior to Field Operations:

Mobilization and equipment check list has been evaluated by Port staff	Y
Health and Safety Briefing occurred prior to departure	Y
Sampling instrument cleaned with soap and deionized water	Y
Vessel uses copper free hull paint	Y
Monitoring Plan and QAPP readily available to persons in the field	Y
Staff has received proper training prior to field activities	Y
Sample transport to the lab(s) has been arranged to meet holding times	Y
The YSI and free copper instruments have been properly calibrated	Y

Reviewed by:

Barry J. Snyder 8/13/18

Ref

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL MONITORING
2018

FIELD SAMPLING QA CHECKLIST

Station Location: SIYB ~~[illegible]~~ LT FB **Date/Time:** 8/13/18 330

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are being recorded:

Vessel has been anchored (or tied off)	Y
Station GPS coordinates (approx. ± 3 m) and station identification verified and recorded	NA
Tide recorded	Y
Weather conditions recorded	Y
Surface water conditions (incl. currents) recorded (including H2O clarity by Secchi disk)	Y
Time of sampling recorded	Y
Water depth at sample site recorded	Y
General site observations recorded	Y
Check for boat cleaning operations in the area – if active, move to a new station	Y

2. Sampling procedures:

Vessel engine has been shut off for 3-5 minutes prior to sampling	Y
Field staff wearing fresh, powder free nitrile gloves	Y
Sampling depth delineated on sampling instrument with a clear marking (sampling must occur within 1 m of surface)	Y
Sampling instrument given site water rinse prior to deployment	Y
Sampling depth recorded	Y
SWAMP protocols utilized to avoid sample contamination (i.e., clean hands/dirty hands technique)	Y
Samples bottles and containers are the correct type in accordance with Table 10 in the QAPP	Y
Sample bottles contain correct preservative in accordance with Table 10 in the QAPP	Y
Sample bottles correctly labeled and match the station identification	Y
Sample bottles correctly labeled with date and time in accordance with Table 10 in the QAPP	Y
Bottles filled in the following order: metals, DOC, TOC, TSS, toxicity	Y*
COC seals have been placed over individual sample bottles	Y
Staff avoided contaminating samples at all times	Y
pH and salinity readings taken 3 times: when arriving on station, while water samples are collected and again while sample bottles are being filled	NA
CTD profile cast completed after water samples bottles are collected and preserved.	NA
Equipment rinsate blank and field blank have been collected (if applicable)	Y - this sample
Site replicate (i.e., duplicate) collected (if applicable)	NA

* No toxicity for the field blank

FIELD SAMPLING QA CHECKLIST

3. PPE properly removed and disposed of upon station completion Y

4. Data Recording:

Field notes have been recorded for this site before moving to the next	Y
CTD profile saved as an individual file for each station	NA
Water samples properly logged on COC form	Y
Proper persons have signed the COC	Y

5. Sample Storage:

Water samples properly stored on ice in a cooler	Y
Cooler and samples hand delivered to labs	Y
Completed COC included with courier to hand deliver to labs	Y

Additional Notes:

Barry J. Snyder 8/13/18 1600

Signature of QA/QC Personnel: Kelly Dart **Date/Time** 8/13/18 4:00pm

Print Name/Company: POSD

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL MONITORING
2018

FIELD SAMPLING QA CHECKLIST

Station Location: SIYB-1 **Date/Time:** 8/13/18 230

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are being recorded:

Vessel has been anchored (or tied off)	Y
Station GPS coordinates (approx. ± 3 m) and station identification verified and recorded	Y
Tide recorded	Y
Weather conditions recorded	Y
Surface water conditions (incl. currents) recorded (including H2O clarity by Secchi disk)	Y
Time of sampling recorded	Y
Water depth at sample site recorded	Y
General site observations recorded	Y
Check for boat cleaning operations in the area – if active, move to a new station	Y

2. Sampling procedures:

Vessel engine has been shut off for 3-5 minutes prior to sampling	Y
Field staff wearing fresh, powder free nitrile gloves	Y
Sampling depth delineated on sampling instrument with a clear marking (sampling must occur within 1 m of surface)	Y
Sampling instrument given site water rinse prior to deployment	Y
Sampling depth recorded	Y
SWAMP protocols utilized to avoid sample contamination (i.e., clean hands/dirty hands technique)	Y
Samples bottles and containers are the correct type in accordance with Table 10 in the QAPP	Y
Sample bottles contain correct preservative in accordance with Table 10 in the QAPP	Y
Sample bottles correctly labeled and match the station identification	Y
Sample bottles correctly labeled with date and time in accordance with Table 10 in the QAPP	Y
Bottles filled in the following order: metals, DOC, TOC, TSS, toxicity	Y
COC seals have been placed over individual sample bottles	Y
Staff avoided contaminating samples at all times	Y
pH and salinity readings taken 3 times: when arriving on station, while water samples are collected and again while sample bottles are being filled	Y
CTD profile cast completed after water samples bottles are collected and preserved.	Y
Equipment rinsate blank and field blank have been collected (if applicable)	NA
Site replicate (i.e., duplicate) collected (if applicable)	Y

FIELD SAMPLING QA CHECKLIST

3. PPE properly removed and disposed of upon station completion Y

4. Data Recording:

Field notes have been recorded for this site before moving to the next	Y
CTD profile saved as an individual file for each station	Y
Water samples properly logged on COC form	Y
Proper persons have signed the COC	Y

5. Sample Storage:

Water samples properly stored on ice in a cooler	Y
Cooler and samples hand delivered to labs	Y
Completed COC included with courier to hand deliver to labs	Y

Additional Notes:

Barry J. Snyder 8/13/18 1600

Signature of QA/QC Personnel: Kathy Dart **Date/Time** 8/13/18 04:00pm

Print Name/Company: POSD

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL MONITORING
2018

FIELD SAMPLING QA CHECKLIST

Station Location: SIYB-1-Rep **Date/Time:** 8/13/18 3:10

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are being recorded:

Vessel has been anchored (or tied off)	Y
Station GPS coordinates (approx. ± 3 m) and station identification verified and recorded	Y
Tide recorded	Y
Weather conditions recorded	Y
Surface water conditions (incl. currents) recorded (including H2O clarity by Secchi disk)	Y
Time of sampling recorded	Y
Water depth at sample site recorded	Y
General site observations recorded	Y
Check for boat cleaning operations in the area – if active, move to a new station	Y✱

2. Sampling procedures:

Vessel engine has been shut off for 3-5 minutes prior to sampling	Y
Field staff wearing fresh, powder free nitrile gloves	Y
Sampling depth delineated on sampling instrument with a clear marking (sampling must occur within 1 m of surface)	Y
Sampling instrument given site water rinse prior to deployment	Y
Sampling depth recorded	Y
SWAMP protocols utilized to avoid sample contamination (i.e., clean hands/dirty hands technique)	Y
Samples bottles and containers are the correct type in accordance with Table 10 in the QAPP	Y
Sample bottles contain correct preservative in accordance with Table 10 in the QAPP	Y
Sample bottles correctly labeled and match the station identification	Y
Sample bottles correctly labeled with date and time in accordance with Table 10 in the QAPP	Y
Bottles filled in the following order: metals, DOC, TOC, TSS, toxicity	Y
COC seals have been placed over individual sample bottles	Y
Staff avoided contaminating samples at all times	Y
pH and salinity readings taken 3 times: when arriving on station, while water samples are collected and again while sample bottles are being filled	Y
CTD profile cast completed after water samples bottles are collected and preserved.	Y
Equipment rinsate blank and field blank have been collected (if applicable)	Y
Site replicate (i.e., duplicate) collected (if applicable)	Y-this sample

✱Topside brushing + cleaning using soap about 15 yds away

FIELD SAMPLING QA CHECKLIST

3. PPE properly removed and disposed of upon station completion Y

4. Data Recording:

Field notes have been recorded for this site before moving to the next	Y
CTD profile saved as an individual file for each station	Y
Water samples properly logged on COC form	Y
Proper persons have signed the COC	Y

5. Sample Storage:

Water samples properly stored on ice in a cooler	Y
Cooler and samples hand delivered to labs	Y
Completed COC included with courier to hand deliver to labs	Y

Additional Notes:

Barry J. Snyder 8/13/18 1600

Signature of QA/QC Personnel: Kelly [illegible] **Date/Time** 8/13/18 400pm

Print Name/Company: POSD

FIELD SAMPLING QA CHECKLIST

Station Location: SIYB-2 **Date/Time:** 8/13/18 130

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are being recorded:

Vessel has been anchored (or tied off)	Y - anchored
Station GPS coordinates (approx. ± 3 m) and station identification verified and recorded	N☆
Tide recorded	Y
Weather conditions recorded	Y
Surface water conditions (incl. currents) recorded (including H2O clarity by Secchi disk)	Y
Time of sampling recorded	Y
Water depth at sample site recorded	Y
General site observations recorded	Y
Check for boat cleaning operations in the area – if active, move to a new station	Y ☆☆

2. Sampling procedures: ☆☆ hull cleaning barge pulled in to a slip 100 yds inland after samples collected. Not in water yet

Vessel engine has been shut off for 3-5 minutes prior to sampling	Y
Field staff wearing fresh, powder free nitrile gloves	Y
Sampling depth delineated on sampling instrument with a clear marking (sampling must occur within 1 m of surface)	Y
Sampling instrument given site water rinse prior to deployment	Y
Sampling depth recorded	Y
SWAMP protocols utilized to avoid sample contamination (i.e., clean hands/dirty hands technique)	Y
Samples bottles and containers are the correct type in accordance with Table 10 in the QAPP	Y
Sample bottles contain correct preservative in accordance with Table 10 in the QAPP	Y
Sample bottles correctly labeled and match the station identification	Y
Sample bottles correctly labeled with date and time in accordance with Table 10 in the QAPP	Y
Bottles filled in the following order: metals, DOC, TOC, TSS, toxicity	Y
COC seals have been placed over individual sample bottles	Y
Staff avoided contaminating samples at all times	Y
pH and salinity readings taken 3 times: when arriving on station, while water samples are collected and again while sample bottles are being filled	Y
CTD profile cast completed after water samples bottles are collected and preserved.	Y
Equipment rinsate blank and field blank have been collected (if applicable)	NA
Site replicate (i.e., duplicate) collected (if applicable)	NA

☆ 11m from site. In email from Joe Ravitch boat in usual spot lost keys + can't be moved. Got as close as one can safely to sample

FIELD SAMPLING QA CHECKLIST

3. PPE properly removed and disposed of upon station completion Y

4. Data Recording:

Field notes have been recorded for this site before moving to the next	Y
CTD profile saved as an individual file for each station	Y
Water samples properly logged on COC form	Y
Proper persons have signed the COC	Y

5. Sample Storage:

Water samples properly stored on ice in a cooler	Y
Cooler and samples hand delivered to labs	Y
Completed COC included with courier to hand deliver to labs	Y

Additional Notes:

Barry J. Snyder 8/13/18 1600

Signature of QA/QC Personnel: Kelly Tait **Date/Time** 8/13/18 0400

Print Name/Company: POSD

FIELD SAMPLING QA CHECKLIST

Station Location: SIYB-3 **Date/Time:** 8/13/18 12:30

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are being recorded:

Vessel has been anchored (or tied off)	Y
Station GPS coordinates (approx. ± 3 m) and station identification verified and recorded	Y
Tide recorded	Y
Weather conditions recorded	Y
Surface water conditions (incl. currents) recorded (including H2O clarity by Secchi disk)	Y
Time of sampling recorded	Y
Water depth at sample site recorded	Y
General site observations recorded	Y
Check for boat cleaning operations in the area – if active, move to a new station	Y

2. Sampling procedures:

Vessel engine has been shut off for 3-5 minutes prior to sampling	Y
Field staff wearing fresh, powder free nitrile gloves	Y
Sampling depth delineated on sampling instrument with a clear marking (sampling must occur within 1 m of surface)	Y
Sampling instrument given site water rinse prior to deployment	Y
Sampling depth recorded	Y
SWAMP protocols utilized to avoid sample contamination (i.e., clean hands/dirty hands technique)	Y
Samples bottles and containers are the correct type in accordance with Table 10 in the QAPP	Y
Sample bottles contain correct preservative in accordance with Table 10 in the QAPP	Y
Sample bottles correctly labeled and match the station identification	Y
Sample bottles correctly labeled with date and time in accordance with Table 10 in the QAPP	Y
Bottles filled in the following order: metals, DOC, TOC, TSS, toxicity	Y
COC seals have been placed over individual sample bottles	Y
Staff avoided contaminating samples at all times	Y
pH and salinity readings taken 3 times: when arriving on station, while water samples are collected and again while sample bottles are being filled	Y
CTD profile cast completed after water samples bottles are collected and preserved.	Y
Equipment rinsate blank and field blank have been collected (if applicable)	NA
Site replicate (i.e., duplicate) collected (if applicable)	NA

FIELD SAMPLING QA CHECKLIST

3. PPE properly removed and disposed of upon station completion Y

4. Data Recording:

Field notes have been recorded for this site before moving to the next	Y
CTD profile saved as an individual file for each station	Y
Water samples properly logged on COC form	Y
Proper persons have signed the COC	Y

5. Sample Storage:

Water samples properly stored on ice in a cooler	Y
Cooler and samples hand delivered to labs	Y
Completed COC included with courier to hand deliver to labs	Y

Additional Notes:

Barry J. Snyder 8/13/18 1600

Signature of QA/QC Personnel: Kelly Dao **Date/Time** 8/13/18 0400

Print Name/Company: POSD

FIELD SAMPLING QA CHECKLIST

Station Location: SIYB-4 **Date/Time:** 8/13/18 1130

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are being recorded:

Vessel has been anchored (or tied off)	Y
Station GPS coordinates (approx. ± 3 m) and station identification verified and recorded	Y
Tide recorded	Y
Weather conditions recorded	Y
Surface water conditions (incl. currents) recorded (including H2O clarity by Secchi disk)	Y
Time of sampling recorded	Y
Water depth at sample site recorded	Y
General site observations recorded	Y
Check for boat cleaning operations in the area – if active, move to a new station	Y

2. Sampling procedures:

Vessel engine has been shut off for 3-5 minutes prior to sampling	Y
Field staff wearing fresh, powder free nitrile gloves	Y
Sampling depth delineated on sampling instrument with a clear marking (sampling must occur within 1 m of surface)	Y
Sampling instrument given site water rinse prior to deployment	Y
Sampling depth recorded	Y
SWAMP protocols utilized to avoid sample contamination (i.e., clean hands/dirty hands technique)	Y
Samples bottles and containers are the correct type in accordance with Table 10 in the QAPP	Y
Sample bottles contain correct preservative in accordance with Table 10 in the QAPP	Y
Sample bottles correctly labeled and match the station identification	Y
Sample bottles correctly labeled with date and time in accordance with Table 10 in the QAPP	Y
Bottles filled in the following order: metals, DOC, TOC, TSS, toxicity	Y
COC seals have been placed over individual sample bottles	Y
Staff avoided contaminating samples at all times	Y
pH and salinity readings taken 3 times: when arriving on station, while water samples are collected and again while sample bottles are being filled	Y
CTD profile cast completed after water samples bottles are collected and preserved.	Y
Equipment rinsate blank and field blank have been collected (if applicable)	NA
Site replicate (i.e., duplicate) collected (if applicable)	NA

FIELD SAMPLING QA CHECKLIST

3. PPE properly removed and disposed of upon station completion Y

4. Data Recording:

Field notes have been recorded for this site before moving to the next	Y
CTD profile saved as an individual file for each station	Y
Water samples properly logged on COC form	Y
Proper persons have signed the COC	Y

5. Sample Storage:

Water samples properly stored on ice in a cooler	Y
Cooler and samples hand delivered to labs	Y
Completed COC included with courier to hand deliver to labs	Y

Additional Notes:

Barry J. Snyder 8/13/18 1600

Signature of QA/QC Personnel: Kelly Scot **Date/Time** 8/13/18 4:00pm

Print Name/Company: POSD

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL MONITORING
2018

FIELD SAMPLING QA CHECKLIST

Station Location: SIYB-5 **Date/Time:** 8/13/18 1030

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are being recorded:

Vessel has been anchored (or tied off)	Y
Station GPS coordinates (approx. ± 3 m) and station identification verified and recorded	Y
Tide recorded	Y
Weather conditions recorded	Y
Surface water conditions (incl. currents) recorded (including H2O clarity by Secchi disk)	Y
Time of sampling recorded	Y
Water depth at sample site recorded	Y
General site observations recorded	Y
Check for boat cleaning operations in the area – if active, move to a new station	Y ☆

2. Sampling procedures:

Vessel engine has been shut off for 3-5 minutes prior to sampling	Y
Field staff wearing fresh, powder free nitrile gloves	Y
Sampling depth delineated on sampling instrument with a clear marking (sampling must occur within 1 m of surface)	Y
Sampling instrument given site water rinse prior to deployment	Y
Sampling depth recorded	Y
SWAMP protocols utilized to avoid sample contamination (i.e., clean hands/dirty hands technique)	Y
Samples bottles and containers are the correct type in accordance with Table 10 in the QAPP	Y
Sample bottles contain correct preservative in accordance with Table 10 in the QAPP	Y
Sample bottles correctly labeled and match the station identification	Y
Sample bottles correctly labeled with date and time in accordance with Table 10 in the QAPP	Y
Bottles filled in the following order: metals, DOC, TOC, TSS, toxicity	Y
COC seals have been placed over individual sample bottles	Y
Staff avoided contaminating samples at all times	Y
pH and salinity readings taken 3 times: when arriving on station, while water samples are collected and again while sample bottles are being filled	Y
CTD profile cast completed after water samples bottles are collected and preserved.	Y
Equipment rinsate blank and field blank have been collected (if applicable)	NA
Site replicate (i.e., duplicate) collected (if applicable)	NA

☆ ~50 yds away someone hosing off the cover of a jetski

FIELD SAMPLING QA CHECKLIST

3. PPE properly removed and disposed of upon station completion Y

4. Data Recording:

Field notes have been recorded for this site before moving to the next	Y
CTD profile saved as an individual file for each station	Y
Water samples properly logged on COC form	Y
Proper persons have signed the COC	Y

5. Sample Storage:

Water samples properly stored on ice in a cooler	Y
Cooler and samples hand delivered to labs	Y
Completed COC included with courier to hand deliver to labs	Y

Additional Notes:

Barry J. Snyder 8/13/18 1600

Signature of QA/QC Personnel: Kelly Tait **Date/Time** 8/13/18 4:00pm

Print Name/Company: POSD

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL MONITORING
2018

FIELD SAMPLING QA CHECKLIST

Station Location: SIYB-6 **Date/Time:** 8/13/18 0930

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are being recorded:

Vessel has been anchored (or tied off)	Y
Station GPS coordinates (approx. ± 3 m) and station identification verified and recorded	N*
Tide recorded	Y
Weather conditions recorded	Y
Surface water conditions (incl. currents) recorded (including H2O clarity by Secchi disk)	Y
Time of sampling recorded	Y
Water depth at sample site recorded	Y
General site observations recorded	Y
Check for boat cleaning operations in the area – if active, move to a new station	Y

2. Sampling procedures:

Vessel engine has been shut off for 3-5 minutes prior to sampling	Y
Field staff wearing fresh, powder free nitrile gloves	Y
Sampling depth delineated on sampling instrument with a clear marking (sampling must occur within 1 m of surface)	Y
Sampling instrument given site water rinse prior to deployment	Y
Sampling depth recorded	Y
SWAMP protocols utilized to avoid sample contamination (i.e., clean hands/dirty hands technique)	Y
Samples bottles and containers are the correct type in accordance with Table 10 in the QAPP	Y
Sample bottles contain correct preservative in accordance with Table 10 in the QAPP	Y
Sample bottles correctly labeled and match the station identification	Y
Sample bottles correctly labeled with date and time in accordance with Table 10 in the QAPP	Y
Bottles filled in the following order: metals, DOC, TOC, TSS, toxicity	Y
COC seals have been placed over individual sample bottles	Y
Staff avoided contaminating samples at all times	Y
pH and salinity readings taken 3 times: when arriving on station, while water samples are collected and again while sample bottles are being filled	Y
CTD profile cast completed after water samples bottles are collected and preserved.	Y
Equipment rinsate blank and field blank have been collected (if applicable)	NA
Site replicate (i.e., duplicate) collected (if applicable)	NA

*same location as all previous locations from 2012 on

FIELD SAMPLING QA CHECKLIST

3. PPE properly removed and disposed of upon station completion ________

4. Data Recording:

Field notes have been recorded for this site before moving to the next	Y
CTD profile saved as an individual file for each station	Y
Water samples properly logged on COC form	Y
Proper persons have signed the COC	Y

5. Sample Storage:

Water samples properly stored on ice in a cooler	Y
Cooler and samples hand delivered to labs	Y
Completed COC included with courier to hand deliver to labs	Y

Additional Notes:

Barry J. Snyder 8/13/18 1600

Signature of QA/QC Personnel: Kelly Dav **Date/Time** 8/13/18 400pm

Print Name/Company: POSD

FIELD SAMPLING QA CHECKLIST

Station Location: SIYB-Ref **Date/Time:** 8/13/18 / 0830

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are being recorded:

Vessel has been anchored (or tied off)	Y
Station GPS coordinates (approx. ± 3 m) and station identification verified and recorded	Y
Tide recorded	Y
Weather conditions recorded	Y
Surface water conditions (incl. currents) recorded (including H2O clarity by Secchi disk)	Y
Time of sampling recorded	Y
Water depth at sample site recorded	Y
General site observations recorded	Y
Check for boat cleaning operations in the area – if active, move to a new station	Y

2. Sampling procedures:

Vessel engine has been shut off for 3-5 minutes prior to sampling	Y
Field staff wearing fresh, powder free nitrile gloves	Y
Sampling depth delineated on sampling instrument with a clear marking (sampling must occur within 1 m of surface)	Y
Sampling instrument given site water rinse prior to deployment	Y
Sampling depth recorded	Y
SWAMP protocols utilized to avoid sample contamination (i.e., clean hands/dirty hands technique)	Y
Samples bottles and containers are the correct type in accordance with Table 10 in the QAPP	Y
Sample bottles contain correct preservative in accordance with Table 10 in the QAPP	Y
Sample bottles correctly labeled and match the station identification	Y
Sample bottles correctly labeled with date and time in accordance with Table 10 in the QAPP	Y
Bottles filled in the following order: metals, DOC, TOC, TSS, toxicity	Y
COC seals have been placed over individual sample bottles	Y
Staff avoided contaminating samples at all times	Y
pH and salinity readings taken 3 times: when arriving on station, while water samples are collected and again while sample bottles are being filled	Y
CTD profile cast completed after water samples bottles are collected and preserved.	Y
Equipment rinsate blank and field blank have been collected (if applicable)	NA
Site replicate (i.e., duplicate) collected (if applicable)	NA

FIELD SAMPLING QA CHECKLIST

3. PPE properly removed and disposed of upon station completion Y

4. Data Recording:

Field notes have been recorded for this site before moving to the next	Y
CTD profile saved as an individual file for each station	Y
Water samples properly logged on COC form	Y
Proper persons have signed the COC	Y

5. Sample Storage:

Water samples properly stored on ice in a cooler	Y
Cooler and samples hand delivered to labs	Y
Completed COC included with courier to hand deliver to labs	Y

Additional Notes:

Barry J. Snyder 8/13/18 1600

Signature of QA/QC Personnel: Kelly Dass **Date/Time** 8/13/18 400pm

Print Name/Company: POSD

PORT OF SAN DIEGO
SHELTER ISLAND YACHT BASIN TMDL MONITORING
2018

FIELD SAMPLING QA CHECKLIST

Station Location: Equipment Blank. **Date/Time:** 8/13 0700

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are being recorded:

Vessel has been anchored (or tied off)	N/A
Station GPS coordinates (approx. ± 3 m) and station identification verified and recorded	N/A Transient Dock
Tide recorded	NA
Weather conditions recorded	Y
Surface water conditions (incl. currents) recorded (including H2O clarity by Secchi disk)	Y
Time of sampling recorded	Y
Water depth at sample site recorded	NA
General site observations recorded	Y
Check for boat cleaning operations in the area – if active, move to a new station	Y

2. Sampling procedures:

Vessel engine has been shut off for 3-5 minutes prior to sampling	NA
Field staff wearing fresh, powder free nitrile gloves	Y
Sampling depth delineated on sampling instrument with a clear marking (sampling must occur within 1 m of surface)	NA
Sampling instrument given site water rinse prior to deployment	Y
Sampling depth recorded	NA
SWAMP protocols utilized to avoid sample contamination (i.e., clean hands/dirty hands technique)	Y
Samples bottles and containers are the correct type in accordance with Table 10 in the QAPP	Y
Sample bottles contain correct preservative in accordance with Table 10 in the QAPP	Y
Sample bottles correctly labeled and match the station identification	Y
Sample bottles correctly labeled with date and time in accordance with Table 10 in the QAPP	Y
Bottles filled in the following order: metals, DOC, TOC, TSS, toxicity	N
COC seals have been placed over individual sample bottles	Y
Staff avoided contaminating samples at all times	Y
pH and salinity readings taken 3 times: when arriving on station, while water samples are collected and again while sample bottles are being filled	NA
CTD profile cast completed after water samples bottles are collected and preserved.	NA
Equipment rinsate blank and field blank have been collected (if applicable)	Y
Site replicate (i.e., duplicate) collected (if applicable)	NA

Equip. Blank conducted on transient dock prior

FIELD SAMPLING QA CHECKLIST

3. PPE properly removed and disposed of upon station completion Y

4. Data Recording:

Field notes have been recorded for this site before moving to the next	Y
CTD profile saved as an individual file for each station	NA
Water samples properly logged on COC form	Y
Proper persons have signed the COC	Y

5. Sample Storage:

Water samples properly stored on ice in a cooler	Y
Cooler and samples hand delivered to labs	Y
Completed COC included with courier to hand deliver to labs	Y

Additional Notes:

Barry J. Snyder 8/13/18 1600

Signature of QA/QC Personnel: Kelly **Date/Time** 8/13/18

Print Name/Company: POSD

ANALYTICAL TESTING REPORTS

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WECK LABORATORIES

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WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 8H14069

Project: Annual Shelter Island Yacht Basin TMDL Monitoring

Attn: Barry Snyder

Client: Wood - San Diego 2
9210 Sky Park Court, Suite 200
San Diego, CA 92123

Report Date: 10/04/2018

Received Date: 8/14/2018

Turnaround Time: Normal

Phones: (858) 300-4320

Fax: (858) 300-4301

P.O. #:

Billing Code:

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 • NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

Dear Barry Snyder,

Enclosed are the results of analyses for samples received 8/14/18 with the Chain-of-Custody document. The samples were received in good condition, at 7.5 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Chris Samatmanakit
Project Manager

Certificate of Analysis

FINAL REPORT

Wood - San Diego 2
9210 Sky Park Court, Suite 200
San Diego, CA 92123

Project Number: Annual Shelter Island Yacht Basin TMDL Monitoring

Project Manager: Barry Snyder

Reported:
10/04/2018 10:59

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
SIYB-1	Corey Sheredy/Tyler Huff	8H14069-01	Water	08/13/18 14:30	
SIYB-1 (REP)	Corey Sheredy/Tyler Huff	8H14069-02	Water	08/13/18 15:10	
SIYB-2	Corey Sheredy/Tyler Huff	8H14069-03	Water	08/13/18 13:30	
SIYB-3	Corey Sheredy/Tyler Huff	8H14069-04	Water	08/13/18 12:30	
SIYB-4	Corey Sheredy/Tyler Huff	8H14069-05	Water	08/13/18 11:30	
SIYB-5	Corey Sheredy/Tyler Huff	8H14069-06	Water	08/13/18 10:30	
SIYB-6	Corey Sheredy/Tyler Huff	8H14069-07	Water	08/13/18 09:30	
SIYB-REF	Corey Sheredy/Tyler Huff	8H14069-08	Water	08/13/18 08:30	
SIYB-ER	Corey Sheredy/Tyler Huff	8H14069-09	Water	08/13/18 07:00	
SIYBFB	Corey Sheredy/Tyler Huff	8H14069-10	Water	08/13/18 15:30	

Certificate of Analysis

FINAL REPORT

Wood - San Diego 2
9210 Sky Park Court, Suite 200
San Diego, CA 92123

Project Number: Annual Shelter Island Yacht Basin TMDL Monitoring

Project Manager: Barry Snyder

Reported: 10/04/2018 10:59

Sample Results

Sample: SIYB-1
8H14069-01 (Water)

Sampled: 08/13/18 14:30 by Corey Sheredy/Tyler Huff

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: SM 2540D **Batch ID:** W8H0893 **Instr:** OVEN11 **Prepared:** 08/14/18 17:04 **Analyst:** vll							
Total Suspended Solids	**11**		5	mg/l	1	08/14/18 19:37	
Method: SM 5310B **Batch ID:** W8H0994 **Instr:** TOC02 **Prepared:** 08/16/18 10:45 **Analyst:** jlp							
Total Organic Carbon (TOC)	**1.6**	0.016	0.10	mg/l	1	08/16/18 15:17	
Method: SM 5310B **Batch ID:** W8H1067 **Instr:** TOC02 **Prepared:** 08/17/18 11:47 **Analyst:** jlp							
Dissolved Organic Carbon	**1.7**	0.016	0.10	mg/l	1	08/17/18 16:02	
Metals - Low Level by 1600 Series Methods							
Method: EPA 1640 **Batch ID:** W8H1233 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:12 **Analyst:** aln							
Copper, Total	**11**	0.0038	0.010	ug/l	1	08/22/18 03:31	
Zinc, Total	**26**	0.036	0.20	ug/l	1	08/22/18 03:31	
Method: EPA 1640 **Batch ID:** W8H1234 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:13 **Analyst:** aln							
Copper, Dissolved	**10**	0.0038	0.010	ug/l	1	08/22/18 08:18	
Zinc, Dissolved	**24**	0.036	0.20	ug/l	1	08/22/18 08:18	

Sample: SIYB-1 (REP)
8H14069-02 (Water)

Sampled: 08/13/18 15:10 by Corey Sheredy/Tyler Huff

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: SM 2540D **Batch ID:** W8H0893 **Instr:** OVEN11 **Prepared:** 08/14/18 17:04 **Analyst:** vll							
Total Suspended Solids	**11**		5	mg/l	1	08/14/18 19:37	
Method: SM 5310B **Batch ID:** W8H0994 **Instr:** TOC02 **Prepared:** 08/16/18 10:45 **Analyst:** jlp							
Total Organic Carbon (TOC)	**1.6**	0.016	0.10	mg/l	1	08/16/18 15:17	
Method: SM 5310B **Batch ID:** W8H1067 **Instr:** TOC02 **Prepared:** 08/17/18 11:47 **Analyst:** jlp							
Dissolved Organic Carbon	**1.6**	0.016	0.10	mg/l	1	08/17/18 16:02	
Metals - Low Level by 1600 Series Methods							
Method: EPA 1640 **Batch ID:** W8H1233 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:12 **Analyst:** aln							
Copper, Total	**11**	0.0038	0.010	ug/l	1	08/22/18 04:39	
Method: EPA 1640 **Batch ID:** W8H1234 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:13 **Analyst:** aln							
Copper, Dissolved	**10**	0.0038	0.010	ug/l	1	08/22/18 09:27	
Method: EPA 1640 **Batch ID:** W8H1414 **Instr:** ICPMS03 **Prepared:** 08/22/18 14:55 **Analyst:** aln							
Zinc, Dissolved	**25**	0.036	0.20	ug/l	1	08/23/18 03:14	
Zinc, Total	**26**	0.036	0.20	ug/l	1	08/23/18 03:28	

Sample Results

(Continued)

Sample: SIYB-2 Sampled: 08/13/18 13:30 by Corey Sheredy/Tyler Huff
8H14069-03 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: SM 2540D **Batch ID:** W8H0893 **Instr:** OVEN11 **Prepared:** 08/14/18 17:04 **Analyst:** vll							
Total Suspended Solids	**10**		5	mg/l	1	08/14/18 19:37	
Method: SM 5310B **Batch ID:** W8H0994 **Instr:** TOC02 **Prepared:** 08/16/18 10:45 **Analyst:** jlp							
Total Organic Carbon (TOC)	**1.6**	0.016	0.10	mg/l	1	08/16/18 15:17	
Method: SM 5310B **Batch ID:** W8H1067 **Instr:** TOC02 **Prepared:** 08/17/18 11:47 **Analyst:** jlp							
Dissolved Organic Carbon	**1.6**	0.016	0.10	mg/l	1	08/17/18 16:02	
Metals - Low Level by 1600 Series Methods							
Method: EPA 1640 **Batch ID:** W8H1233 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:12 **Analyst:** aln							
Copper, Total	**8.1**	0.0038	0.010	ug/l	1	08/22/18 04:53	
Zinc, Total	**17**	0.036	0.20	ug/l	1	08/22/18 04:53	
Method: EPA 1640 **Batch ID:** W8H1234 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:13 **Analyst:** aln							
Copper, Dissolved	**7.0**	0.0038	0.010	ug/l	1	08/22/18 09:40	
Zinc, Dissolved	**16**	0.036	0.20	ug/l	1	08/22/18 09:40	

Sample: SIYB-3 Sampled: 08/13/18 12:30 by Corey Sheredy/Tyler Huff
8H14069-04 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: SM 2540D **Batch ID:** W8H0893 **Instr:** OVEN11 **Prepared:** 08/14/18 17:04 **Analyst:** vll							
Total Suspended Solids	**12**		5	mg/l	1	08/14/18 19:37	
Method: SM 5310B **Batch ID:** W8H0994 **Instr:** TOC02 **Prepared:** 08/16/18 10:45 **Analyst:** jlp							
Total Organic Carbon (TOC)	**1.7**	0.016	0.10	mg/l	1	08/16/18 15:17	
Method: SM 5310B **Batch ID:** W8H1067 **Instr:** TOC02 **Prepared:** 08/17/18 11:47 **Analyst:** jlp							
Dissolved Organic Carbon	**1.6**	0.016	0.10	mg/l	1	08/17/18 16:02	
Metals - Low Level by 1600 Series Methods							
Method: EPA 1640 **Batch ID:** W8H1233 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:12 **Analyst:** aln							
Copper, Total	**8.4**	0.0038	0.010	ug/l	1	08/22/18 05:07	
Zinc, Total	**19**	0.036	0.20	ug/l	1	08/22/18 05:07	
Method: EPA 1640 **Batch ID:** W8H1234 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:13 **Analyst:** aln							
Copper, Dissolved	**7.4**	0.0038	0.010	ug/l	1	08/22/18 09:54	
Zinc, Dissolved	**18**	0.036	0.20	ug/l	1	08/22/18 09:54	

Sample Results

(Continued)

Sample: SIYB-4
8H14069-05 (Water)

Sampled: 08/13/18 11:30 by Corey Sheredy/Tyler Huff

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: SM 2540D **Batch ID:** W8H0893 **Instr:** OVEN11 **Prepared:** 08/14/18 17:04 **Analyst:** vll

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Total Suspended Solids	**4**		5	mg/l	1	08/14/18 19:37	J

Method: SM 5310B **Batch ID:** W8H0994 **Instr:** TOC02 **Prepared:** 08/16/18 10:45 **Analyst:** jlp

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Total Organic Carbon (TOC)	**1.7**	0.016	0.10	mg/l	1	08/16/18 15:17	

Method: SM 5310B **Batch ID:** W8H1067 **Instr:** TOC02 **Prepared:** 08/17/18 11:47 **Analyst:** jlp

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Dissolved Organic Carbon	**1.8**	0.016	0.10	mg/l	1	08/17/18 16:02	

Metals - Low Level by 1600 Series Methods

Method: EPA 1640 **Batch ID:** W8H1233 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:12 **Analyst:** aln

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Copper, Total	**7.5**	0.0038	0.010	ug/l	1	08/22/18 05:20	
Zinc, Total	**18**	0.036	0.20	ug/l	1	08/22/18 05:20	

Method: EPA 1640 **Batch ID:** W8H1234 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:13 **Analyst:** aln

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Copper, Dissolved	**7.4**	0.0038	0.010	ug/l	1	08/22/18 10:07	
Zinc, Dissolved	**19**	0.036	0.20	ug/l	1	08/22/18 10:07	

Sample: SIYB-5
8H14069-06 (Water)

Sampled: 08/13/18 10:30 by Corey Sheredy/Tyler Huff

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: SM 2540D **Batch ID:** W8H0893 **Instr:** OVEN11 **Prepared:** 08/14/18 17:04 **Analyst:** vll

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Total Suspended Solids	**13**		5	mg/l	1	08/14/18 19:37	

Method: SM 5310B **Batch ID:** W8H0994 **Instr:** TOC02 **Prepared:** 08/16/18 10:45 **Analyst:** jlp

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Total Organic Carbon (TOC)	**1.6**	0.016	0.10	mg/l	1	08/16/18 15:17	

Method: SM 5310B **Batch ID:** W8H1067 **Instr:** TOC02 **Prepared:** 08/17/18 11:47 **Analyst:** jlp

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Dissolved Organic Carbon	**1.7**	0.016	0.10	mg/l	1	08/17/18 16:02	

Metals - Low Level by 1600 Series Methods

Method: EPA 1640 **Batch ID:** W8H1233 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:12 **Analyst:** aln

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Copper, Total	**6.5**	0.0038	0.010	ug/l	1	08/22/18 05:34	
Zinc, Total	**16**	0.036	0.20	ug/l	1	08/22/18 05:34	

Method: EPA 1640 **Batch ID:** W8H1234 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:13 **Analyst:** aln

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Copper, Dissolved	**6.2**	0.0038	0.010	ug/l	1	08/22/18 10:21	
Zinc, Dissolved	**16**	0.036	0.20	ug/l	1	08/22/18 10:21	

Sample Results

(Continued)

Sample: SIYB-6
8H14069-07 (Water)

Sampled: 08/13/18 9:30 by Corey Sheredy/Tyler Huff

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: SM 2540D **Batch ID:** W8H0893 **Instr:** OVEN11 **Prepared:** 08/14/18 17:04 **Analyst:** vll							
Total Suspended Solids	**12**		5	mg/l	1	08/14/18 19:37	
Method: SM 5310B **Batch ID:** W8H0994 **Instr:** TOC02 **Prepared:** 08/16/18 10:45 **Analyst:** jlp							
Total Organic Carbon (TOC)	**1.4**	0.016	0.10	mg/l	1	08/16/18 15:17	
Method: SM 5310B **Batch ID:** W8H1067 **Instr:** TOC02 **Prepared:** 08/17/18 11:47 **Analyst:** jlp							
Dissolved Organic Carbon	**2.0**	0.016	0.10	mg/l	1	08/17/18 16:02	
Metals - Low Level by 1600 Series Methods							
Method: EPA 1640 **Batch ID:** W8H1233 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:12 **Analyst:** aln							
Copper, Total	**2.4**	0.0038	0.010	ug/l	1	08/22/18 05:48	
Zinc, Total	**5.5**	0.036	0.20	ug/l	1	08/22/18 05:48	
Method: EPA 1640 **Batch ID:** W8H1234 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:13 **Analyst:** aln							
Copper, Dissolved	**1.9**	0.0038	0.010	ug/l	1	08/22/18 10:35	
Zinc, Dissolved	**4.6**	0.036	0.20	ug/l	1	08/22/18 10:35	

Sample: SIYB-REF
8H14069-08 (Water)

Sampled: 08/13/18 8:30 by Corey Sheredy/Tyler Huff

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: SM 2540D **Batch ID:** W8H0893 **Instr:** OVEN11 **Prepared:** 08/14/18 17:04 **Analyst:** vll							
Total Suspended Solids	**12**		5	mg/l	1	08/14/18 19:37	
Method: SM 5310B **Batch ID:** W8H0994 **Instr:** TOC02 **Prepared:** 08/16/18 10:45 **Analyst:** jlp							
Total Organic Carbon (TOC)	**1.7**	0.016	0.10	mg/l	1	08/16/18 15:17	
Method: SM 5310B **Batch ID:** W8H1067 **Instr:** TOC02 **Prepared:** 08/17/18 11:47 **Analyst:** jlp							
Dissolved Organic Carbon	**1.6**	0.016	0.10	mg/l	1	08/17/18 16:02	
Metals - Low Level by 1600 Series Methods							
Method: EPA 1640 **Batch ID:** W8H1233 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:12 **Analyst:** aln							
Copper, Total	**0.87**	0.0038	0.010	ug/l	1	08/22/18 06:01	
Zinc, Total	**2.6**	0.036	0.20	ug/l	1	08/22/18 06:01	
Method: EPA 1640 **Batch ID:** W8H1414 **Instr:** ICPMS03 **Prepared:** 08/22/18 14:55 **Analyst:** aln							
Copper, Dissolved	**0.65**	0.0038	0.010	ug/l	1	08/23/18 03:00	
Zinc, Dissolved	**1.9**	0.036	0.20	ug/l	1	08/23/18 03:00	

Sample Results

(Continued)

Sample: SIYB-ER
8H14069-09 (Water)

Sampled: 08/13/18 7:00 by Corey Sheredy/Tyler Huff

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: SM 2540D **Batch ID:** W8H0893 **Instr:** OVEN11 **Prepared:** 08/14/18 17:04 **Analyst:** vll

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Total Suspended Solids	ND		5	mg/l	1	08/14/18 19:37	

Method: SM 5310B **Batch ID:** W8H0994 **Instr:** TOC02 **Prepared:** 08/16/18 10:45 **Analyst:** jlp

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Total Organic Carbon (TOC)	**0.38**	0.016	0.10	mg/l	1	08/16/18 15:17	

Method: SM 5310B **Batch ID:** W8H1067 **Instr:** TOC02 **Prepared:** 08/17/18 11:47 **Analyst:** jlp

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Dissolved Organic Carbon	**0.46**	0.016	0.10	mg/l	1	08/17/18 16:02	

Metals - Low Level by 1600 Series Methods

Method: EPA 1640 **Batch ID:** W8H1233 **Instr:** ICPMS03 **Prepared:** 08/21/18 11:12 **Analyst:** aln

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Zinc, Total	**1.9**	0.036	0.20	ug/l	1	08/22/18 02:50	

Method: EPA 1640 **Batch ID:** W8H1414 **Instr:** ICPMS03 **Prepared:** 08/22/18 14:55 **Analyst:** aln

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Copper, Dissolved	**0.062**	0.0038	0.010	ug/l	1	08/23/18 00:16	
Copper, Total	**0.052**	0.0038	0.010	ug/l	1	08/22/18 23:49	
Zinc, Dissolved	**0.92**	0.036	0.20	ug/l	1	08/23/18 00:16	

Sample: SIYBFB
8H14069-10 (Water)

Sampled: 08/13/18 15:30 by Corey Sheredy/Tyler Huff

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: SM 2540D **Batch ID:** W8H0893 **Instr:** OVEN11 **Prepared:** 08/14/18 17:04 **Analyst:** vll

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Total Suspended Solids	ND		5	mg/l	1	08/14/18 19:37	

Method: SM 5310B **Batch ID:** W8H0994 **Instr:** TOC02 **Prepared:** 08/16/18 10:45 **Analyst:** jlp

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Total Organic Carbon (TOC)	**0.14**	0.016	0.10	mg/l	1	08/16/18 15:17	

Method: SM 5310B **Batch ID:** W8H1067 **Instr:** TOC02 **Prepared:** 08/17/18 11:47 **Analyst:** jlp

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Dissolved Organic Carbon	**0.61**	0.016	0.10	mg/l	1	08/17/18 16:02	

Metals - Low Level by 1600 Series Methods

Method: EPA 1640 **Batch ID:** W8H1414 **Instr:** ICPMS03 **Prepared:** 08/22/18 14:55 **Analyst:** aln

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Copper, Dissolved	**0.029**	0.0038	0.010	ug/l	1	08/23/18 00:30	
Copper, Total	**0.028**	0.0038	0.010	ug/l	1	08/23/18 00:03	
Zinc, Total	ND	0.036	0.20	ug/l	1	08/23/18 00:03	

Method: EPA 1640 **Batch ID:** W8H1506 **Instr:** ICPMS03 **Prepared:** 08/26/18 16:36 **Analyst:** aln

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Zinc, Dissolved	ND	0.036	0.20	ug/l	1	08/26/18 20:36	

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W8H0893 - SM 2540D											
Blank (W8H0893-BLK1)					**Prepared & Analyzed: 08/14/18**						
Total Suspended Solids	ND		5	mg/l							
LCS (W8H0893-BS1)					**Prepared & Analyzed: 08/14/18**						
Total Suspended Solids	50.0		5	mg/l	51.2		98	90-110			
Duplicate (W8H0893-DUP1)	**Source: 8H10088-01**				**Prepared & Analyzed: 08/14/18**						
Total Suspended Solids	3.00		5	mg/l		4.00			29	20	R-03, J
Duplicate (W8H0893-DUP2)	**Source: 8H14069-01**				**Prepared & Analyzed: 08/14/18**						
Total Suspended Solids	10.0		5	mg/l		11.0			10	20	
Batch: W8H0994 - SM 5310B											
Blank (W8H0994-BLK1)					**Prepared & Analyzed: 08/16/18**						
Total Organic Carbon (TOC)	ND	0.0090	0.10	mg/l							
LCS (W8H0994-BS1)					**Prepared & Analyzed: 08/16/18**						
Total Organic Carbon (TOC)	1.00	0.0090	0.10	mg/l	1.00		100	80-120		10	
Matrix Spike (W8H0994-MS1)	**Source: 8H14069-01**				**Prepared & Analyzed: 08/16/18**						
Total Organic Carbon (TOC)	3.61	0.0090	0.10	mg/l	2.00	1.61	100	80-120		10	
Matrix Spike Dup (W8H0994-MSD1)	**Source: 8H14069-01**				**Prepared & Analyzed: 08/16/18**						
Total Organic Carbon (TOC)	3.72	0.0090	0.10	mg/l	2.00	1.61	106	80-120	3	10	
Batch: W8H1067 - SM 5310B											
Blank (W8H1067-BLK1)					**Prepared & Analyzed: 08/17/18**						
Dissolved Organic Carbon	ND	0.013	0.10	mg/l							
LCS (W8H1067-BS1)					**Prepared & Analyzed: 08/17/18**						
Dissolved Organic Carbon	0.934	0.013	0.10	mg/l	1.00		93	80-120		20	
Matrix Spike (W8H1067-MS1)	**Source: 8H14069-01**				**Prepared & Analyzed: 08/17/18**						
Dissolved Organic Carbon	3.51	0.013	0.10	mg/l	2.00	1.67	92	80-120		20	
Matrix Spike Dup (W8H1067-MSD1)	**Source: 8H14069-01**				**Prepared & Analyzed: 08/17/18**						
Dissolved Organic Carbon	3.48	0.013	0.10	mg/l	2.00	1.67	91	80-120	0.7	20	

Quality Control Results

(Continued)

Metals - Low Level by 1600 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W8H1233 - EPA 1640											
Blank (W8H1233-BLK1)					**Prepared: 08/21/18 Analyzed: 08/22/18**						
Copper, Total	0.00435	0.0038	0.010	ug/l							B-07, J
Zinc, Total	0.0667	0.036	0.20	ug/l							B-07, J
LCS (W8H1233-BS1)					**Prepared: 08/21/18 Analyzed: 08/22/18**						
Copper, Total	1.99	0.0038	0.010	ug/l	2.00		100	73-122			
Zinc, Total	10.3	0.036	0.20	ug/l	10.0		103	75-127			
Matrix Spike (W8H1233-MS1)	**Source: 8H14069-01**				**Prepared: 08/21/18 Analyzed: 08/22/18**						
Copper, Total	44.0	0.0038	0.010	ug/l	30.0	11.1	110	60-138			
Zinc, Total	57.4	0.036	0.20	ug/l	30.0	25.6	106	68-132			
Matrix Spike Dup (W8H1233-MSD1)	**Source: 8H14069-01**				**Prepared: 08/21/18 Analyzed: 08/22/18**						
Copper, Total	43.8	0.0038	0.010	ug/l	30.0	11.1	109	60-138	0.5	30	
Zinc, Total	57.1	0.036	0.20	ug/l	30.0	25.6	105	68-132	0.5	30	
Batch: W8H1234 - EPA 1640											
Blank (W8H1234-BLK1)					**Prepared: 08/21/18 Analyzed: 08/22/18**						
Copper, Dissolved	ND	0.0038	0.010	ug/l							
Zinc, Dissolved	0.453	0.036	0.20	ug/l							B-06
LCS (W8H1234-BS1)					**Prepared: 08/21/18 Analyzed: 08/22/18**						
Copper, Dissolved	1.99	0.0038	0.010	ug/l	2.00		100	70-130			
Zinc, Dissolved	10.1	0.036	0.20	ug/l	10.0		101	75-127			
Matrix Spike (W8H1234-MS1)	**Source: 8H14069-01**				**Prepared: 08/21/18 Analyzed: 08/22/18**						
Copper, Dissolved	42.7	0.0038	0.010	ug/l	30.0	10.1	109	70-130			
Zinc, Dissolved	55.4	0.036	0.20	ug/l	30.0	24.3	104	68-132			
Matrix Spike Dup (W8H1234-MSD1)	**Source: 8H14069-01**				**Prepared: 08/21/18 Analyzed: 08/22/18**						
Copper, Dissolved	42.2	0.0038	0.010	ug/l	30.0	10.1	107	70-130	1	30	
Zinc, Dissolved	56.5	0.036	0.20	ug/l	30.0	24.3	107	68-132	2	30	
Batch: W8H1414 - EPA 1640											
Blank (W8H1414-BLK1)					**Prepared & Analyzed: 08/22/18**						
Copper, Dissolved	ND	0.0038	0.010	ug/l							
Copper, Total	ND	0.0038	0.010	ug/l							
Zinc, Dissolved	0.0388	0.036	0.20	ug/l							B-06, J
Zinc, Total	0.0388	0.036	0.20	ug/l							B-06, J
LCS (W8H1414-BS1)					**Prepared: 08/22/18 Analyzed: 08/23/18**						
Copper, Dissolved	2.03	0.0038	0.010	ug/l	2.00		101	70-130			
Copper, Total	2.03	0.0038	0.010	ug/l	2.00		101	73-122			
Zinc, Dissolved	10.2	0.036	0.20	ug/l	10.0		102	75-127			
Zinc, Total	10.2	0.036	0.20	ug/l	10.0		102	75-127			
Matrix Spike (W8H1414-MS1)	**Source: 8H14069-09**				**Prepared: 08/22/18 Analyzed: 08/23/18**						
Copper, Total	2.13	0.0038	0.010	ug/l	2.00	0.0524	104	60-138			
Zinc, Total	11.5	0.036	0.20	ug/l	10.0	1.79	97	68-132			

Quality Control Results

(Continued)

Metals - Low Level by 1600 Series Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W8H1414 - EPA 1640 (Continued)											
Matrix Spike (W8H1414-MS2)	**Source: 8H14069-10**				**Prepared: 08/22/18 Analyzed: 08/23/18**						
Copper, Total	1.98	0.0038	0.010	ug/l	2.00	0.0285	98	60-138			
Zinc, Total	10.1	0.036	0.20	ug/l	10.0	ND	101	68-132			
Matrix Spike Dup (W8H1414-MSD1)	**Source: 8H14069-09**				**Prepared: 08/22/18 Analyzed: 08/23/18**						
Copper, Total	2.14	0.0038	0.010	ug/l	2.00	0.0524	104	60-138	0.3	30	
Zinc, Total	12.2	0.036	0.20	ug/l	10.0	1.79	104	68-132	6	30	
Matrix Spike Dup (W8H1414-MSD2)	**Source: 8H14069-10**				**Prepared: 08/22/18 Analyzed: 08/23/18**						
Copper, Total	2.09	0.0038	0.010	ug/l	2.00	0.0285	103	60-138	5	30	
Zinc, Total	10.4	0.036	0.20	ug/l	10.0	ND	104	68-132	3	30	
Batch: W8H1506 - EPA 1640											
Blank (W8H1506-BLK1)					**Prepared & Analyzed: 08/26/18**						
Zinc, Dissolved	ND	0.036	0.20	ug/l							
LCS (W8H1506-BS1)					**Prepared & Analyzed: 08/26/18**						
Zinc, Dissolved	10.0	0.036	0.20	ug/l	10.0		100	75-127			
Matrix Spike (W8H1506-MS1)	**Source: 8H14069-10**				**Prepared & Analyzed: 08/26/18**						
Zinc, Dissolved	9.84	0.036	0.20	ug/l	10.0	ND	98	68-132			
Matrix Spike Dup (W8H1506-MSD1)	**Source: 8H14069-10**				**Prepared & Analyzed: 08/26/18**						
Zinc, Dissolved	10.3	0.036	0.20	ug/l	10.0	ND	103	68-132	4	30	

Wood - San Diego 2
9210 Sky Park Court, Suite 200
San Diego, CA 92123

Project Number: Annual Shelter Island Yacht Basin TMDL Monitoring

Project Manager: Barry Snyder

Reported: 10/04/2018 10:59

Notes and Definitions

Item	Definition
B-06	This analyte was found in the method blank, which was possibly contaminated during sample preparation. The batch was accepted since this analyte was either not detected or more than 10 times of the blank value for all the samples in the batch.
B-07	This analyte was found in the method blank at levels above the MDL but below the reporting limit.
J	Estimated conc. detected <MRL and >MDL.
R-03	The RPD is not applicable for result below the reporting limit (either ND or J value).
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.
An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)
All results are expressed on wet weight basis unless otherwise specified.
All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.

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NAUTILUS ENVIRONMENTAL
TOXICITY LABORATORY & CONSULTING

Toxicity Testing Results for the Shelter Island Yacht Basin Total Maximum Daily Load Monitoring Plan

Monitoring Period: August 2018

Prepared for:	Wood Environment & Infrastructure Solutions, Inc. 9210 Sky Park Court, Suite 200 San Diego, CA 92123
Prepared by:	Nautilus Environmental 4340 Vandever Avenue San Diego, CA 92120 (858) 587-7333
Report Submitted:	September 17, 2018

Data Quality Assurance:

- ○ Nautilus Environmental is accredited in accordance with NELAP by the State of Oregon Environmental Laboratory Accreditation Program (Certificate No. 4053). It is also certified by the State of California Water Resources Control Board Environmental Laboratory Accreditation Program (Certificate No. 1802) and the State of Washington Department of Ecology (Lab ID C552). Specific fields of testing applicable to each accreditation are available upon request. All data have been reviewed and verified.
- ○ All data have been reviewed and verified.
- ○ All test results have met minimum test acceptability criteria under their respective EPA protocols, unless otherwise noted in this report.
- ○ All test results have met internal Quality Assurance Program requirements.

Results verified by: Adrienne Cibor

Introduction

Ambient receiving water samples were collected in the Shelter Island Yacht Basin (SIYB), San Diego, California, in August 2018 to fulfill annual monitoring requirements for the SIYB Dissolved Copper Total Maximum Daily Load (TMDL) program. Samples were collected by Wood Environment & Infrastructure Solutions, Inc. (Wood) [formerly Amec Foster Wheeler] staff and delivered to the Nautilus laboratory for toxicity testing. Six samples were collected at previously monitored locations from the outer basin area nearest to the mouth of San Diego Bay (SIYB-6) inward toward the closed end of the yacht basin that receives the least amount of tidal flushing (SIYB-1). A reference sample (SIYB-REF) was also collected inside San Diego Bay, just outside of the SIYB. Samples were tested using a marine larval fish acute survival toxicity test and a bivalve larvae chronic survival and development test.

Materials and Methods

Sample Information

Client:	Wood/Port of San Diego
Sample ID (Sample Collection Date; Time):	1. SIYB-1 (8/13/18; 14:30) 2. SIYB-2 (8/13/18; 13:30) 3. SIYB-3 (8/13/18; 12:30) 4. SIYB-4 (8/13/18; 11:30) 5. SIYB-5 (8/13/18; 10:30) 6. SIYB-6 (8/13/18; 09:30) 7. SIYB-REF (8/13/18; 08:30)
Sample Receipt Date; Time:	8/13/18; 17:00
Sample Material (sample type):	Ambient Water (grab samples)

Bivalve Larvae Chronic Survival and Development Test Specifications

Test Period:	8/14/18; 16:00 – 8/16/18; 15:30
Test Organism:	*Mytilus galloprovincialis* (Mediterranean mussel)
Test Organism Source:	Mission Bay (San Diego, CA)
Control and Dilution Water:	Natural seawater from Scripps Institution of Oceanography inlet, 20 micron (μm)-filtered, 34 ± 2 parts per thousand (ppt). All replicates from each sample were randomized within in a single vial tray, each with its own separate lab control.
Additional Control:	A 0.45 μm-filtered method control was also tested (one filtered method control for all sites).
Test Concentrations:	100, 50, 25, 12.5 and 6.25 percent of each sample. A 100 percent sub-sample from each site was also tested after 0.45 μm filtration for the bivalve test to remove native algae that may interfere with test organisms.
Number of Organisms/Replicate:	~150 embryos
Number of Replicates/Concentration:	5
Test Temperature:	15 ± 1 degrees Celsius (°C)
Test Acceptability Criteria:	Lab control mean percent survival must be 50 percent, and 90 percent of surviving organisms must have normal shell development. The percent minimum significant difference (PMSD) in the test must be less than 25.
Concurrent Reference Toxicant Test:	Copper chloride
Protocol Used:	USEPA West Coast Manual, 1995 (EPA/600/R-95/136), ASTM 1998, PTI 1995

Pacific Topsmelt Acute Survival Test Specifications

Test Period:	8/14/18; 15:10 to 15:50 – 8/18/18; 13:15 to 14:05
Test Organism:	*Atherinops affinis* (Pacific topsmelt; 15 days old at test initiation)
0Test Organism Source:	Aquatic BioSystems (Fort Collins, CO)
Control and Dilution Water:	Natural Seawater from Scripps Institution of Oceanography inlet, 20 μm-filtered, at 34 ± 2 ppt. Samples were arranged on multiple shelves within an environmental chamber, each shelf containing its own lab control.
Test Concentrations:	100, 50, and 25 percent sample
Number of Organisms/Replicate:	5
Number of Replicates/Concentration:	6
Test Temperature:	21 ± 1°C
Test Acceptability Criterion:	Mean survival in the laboratory control must be ≥ 90 percent
Concurrent Reference Toxicant Test:	Copper chloride
Protocol Used:	USEPA Acute Manual, 2002 (EPA/821/R-02/012)

The mussel test was scored by counting all larvae in each test vial using an inverted compound microscope under 100x magnification; each larva was scored as normal or abnormal, and the total number of larvae is compared to the initial density to calculate survival. Mussels exhibiting normal 48-hour development are D-shaped prodissoconch I larvae with clearly defined edges. Embryos and larvae that exhibited an effect, had developmental patterns differing from those in control replicates, or did not reach the straight hinge D-shape stage at test termination were counted as abnormal.

An additional metric was added to the SIYB monitoring Quality Assurance Project Plan (QAPP) (Wood 2018) in order to provide information regarding the magnitude of effect in the development endpoint for the mussel test. If observed in the samples as in previous years, curve-hinged bivalve larvae are to be enumerated. Therefore, there were three development categories enumerated for 2018: (1) fully developed shell with a straight-hinge D-shape, (2) partially developed larvae with a concave or curved hinge, and (3) larvae that fail to develop a shell or display severe morphological defects. For data analysis and reporting purposes, if observed, larvae with curved hinges are reported in the abnormal category. A separate table has been included in the report, which summarizes the proportion of larvae in all three categories. Example photographs were taken by laboratory staff of the three types of larvae during the counting process.

Toxicity test responses were evaluated statistically using the Comprehensive Environmental Toxicity Information System™ (CETIS) software by Tidepool Scientific according to flowchart specifications provided in method guidance (USEPA 1995 and 2002). Organism performance in each sample was compared to that observed in concurrent laboratory control exposures. The filtration control was compared to the SIYB-1 lab control to ensure no adverse effects were observed due to the filtration procedure itself. A No Observed Effect Concentration (NOEC), Lowest Observed Effect Concentration (LOEC), median effect concentration (EC_{50}), and percent effect relative to the lab control were calculated for all samples.

Additionally, data were analyzed using the Test of Significant Toxicity (TST) t-test approach specified in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (USEPA 2010). The TST applies a modified t-test that takes into account both the statistical power of the test and magnitude of biological effects in determining the presence of a response; results are reported as "Pass" if a sample is considered non-toxic according to the TST calculation, or "Fail" if considered toxic according to TST. If the mean response in the sample was equal to or greater than that in the lab control, the TST analysis was not performed, and results are reported as "Pass".

Results and Discussion

Raw test data and statistical analyses for both species can be found in Appendix A. Sample receipt information is provided in Appendix B, and a copy of the chain-of-custody form is in Appendix C.

Bivalve Larvae Chronic Survival and Development Test

Results of the mussel larvae survival and development test indicated there were no statistically significant differences in the majority of the SIYB samples (Figure 1). Samples were tested unmanipulated and serially diluted per method directions. In addition, an aliquot of each undiluted (i.e., 100 percent only) sample was tested after filtration through a 0.45-µm nylon filter for comparison purposes, as described in the 2018 QAPP for this monitoring event. This step was performed due to interference from native organisms and potentially harmful algae, a confounding factor identified in previous years. Statistical results for the mussel tests are summarized in Table 1, and mean test results are summarized in Table 2.

There was an adverse effect observed in the undiluted, unfiltered SIYB-1 sample for the combined survival and development endpoint (Figures 1 and 2; Tables 1 and 2). A few copepods were observed in three of the five replicate vials from the undiluted unfiltered SIYB-1 sample, which may have accounted for the slightly lower mean survival rate of mussel larvae in this sample (88 percent in the sample compared to 100 in the lab control). Normal mussel development was reduced in the SIYB-1 undiluted sample compared to the lab control (62 percent of larvae exposed to the undiluted sample developed normally compared to 91 percent in the lab control). The effects observed in SIYB-1 were statistically significant using both the EPA 1995 flow-chart statistical approach and the TST analysis for the undiluted sample. The undiluted, unfiltered SIYB-1 sample resulted in 55 percent mean combined development, a 40 percent effect from the associated lab control. The 0.45-µm filtered SIYB-1 sample resulted in 87 percent mean combined development, a 5.2 percent effect from the associated lab control, which was significantly different from the lab control using the EPA 1995 flow-chart statistical approach but not with the TST analysis.

Approximately 2.5 to 30 percent of the total number of larvae in the undiluted, unfiltered SIYB-1 through SIYB-4 samples were partially developed, but did not possess a straight hinge (Table 3); this response was not observed in any of the control replicates. The fraction of embryos with curved hinges was generally observed in the highest concentrations, with a few larvae exhibiting this effect in the lower concentrations of unfiltered samples from sites SIYB-1 through SIYB-4. The undiluted samples from sites SIYB-1 through SIYB-4 that were filtered through a 0.45-µm screen prior to testing resulted in only 0.26 to 5.5 percent of the larvae with curved hinges, suggesting that this effect was reduced by filtration. The proportion of curved hinges observed in the samples overall is higher than that observed in the 2017 monitoring event; however, the total number of grossly abnormal larvae was reduced, indicating that the overall magnitude of effect in the sample was reduced from the previous year. There were no curved hinges observed in any test concentrations of the SIYB-5, SIYB-6, or SIYB-REF sites. Additionally, there were no statistically significant effects detected in any of the test concentrations for the SIYB-2, SIYB-3, SIYB-4, SIYB-5, SIYB-6, or SIYB-REF samples with regard to the combined development rate endpoint in the bivalve test.

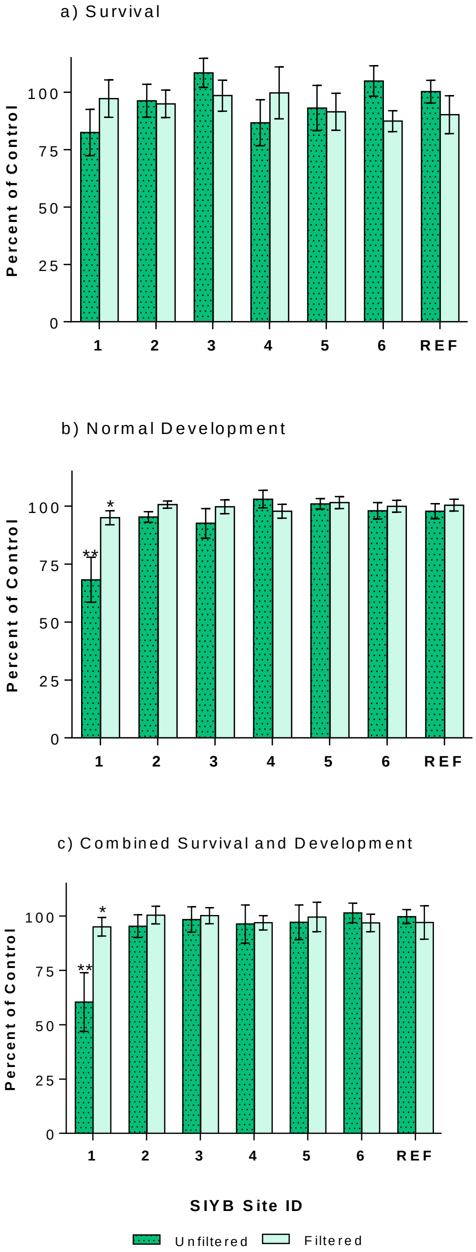
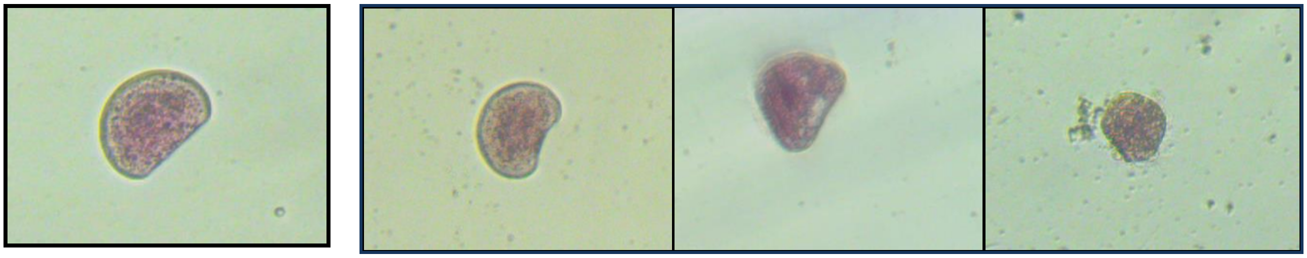


Figure 1. Results of the 48-hour larval bivalve survival and development test for each undiluted sample, a) survival, b) normal development, c) combined survival and normal development; presented as the mean result (± one standard deviation) normalized to the control. Note: all three endpoints are displayed separately here for additional information, but only the combined endpoint is used for NOEC/LOEC determination and TST pass/fail calculations. A single asterisk (*) indicates a significant decrease compared to control using the traditional EPA flow chart statistical methods, a double asterisk (**) indicates a significant decrease with both EPA flow chart methods and the TST.



a) Lab Control b) SIYB-1

Figure 2. Examples of a) normal mussel larvae development in the lab control, and b) varying degrees of abnormal development observed in the SIYB-1 sample. Note: 2 percent of the larvae counted as abnormal in the unfiltered SIYB-1 sample had curved hinges (see Table 3); the remaining larvae (approx. 52 percent of total) counted as abnormal had severe abnormalities.

Table 1. Statistical Results Summary - Bivalve 48-hr Combined Survival and Development

Sample ID		NOEC (% sample)	EC_{50} (% sample)	TU_c value	TST (Pass/Fail)	Percent Effect
SIYB-1	Unfiltered	50	>100	2.0	Fail	40
	Filtered	<100	> 100	>1.0	Pass	5.2
SIYB-2	Unfiltered	100	> 100	1.0	Pass	4.6
	Filtered	100	> 100	1.0	Pass	0.8
SIYB-3	Unfiltered	100	> 100	1.0	Pass	1.6
	Filtered	100	> 100	1.0	Pass	-4.8
SIYB-4	Unfiltered	100	> 100	1.0	Pass	3.7
	Filtered	100	> 100	1.0	Pass	2.2
SIYB-5	Unfiltered	100	> 100	1.0	Pass	2.9
	Filtered	100	> 100	1.0	Pass	-1.9
SIYB-6	Unfiltered	100	> 100	1.0	Pass	-1.5
	Filtered	100	> 100	1.0	Pass	-1.5
SIYB-REF	Unfiltered	100	> 100	1.0	Pass	0.3
	Filtered	100	> 100	1.0	Pass	2.6

NOEC: the highest concentration tested resulting in no observed effect

EC_{50}: concentration expected to cause an adverse effect to 50 percent of the organisms

TU_c: (Chronic Toxic Unit) = 100 ÷ NOEC. A TU_c value of 1.0 indicates no toxicity.

TST: Pass = sample is non-toxic according to the TST analysis; Fail = sample is toxic according to the TST analysis

Percent effect (PE) from control is calculated as: PE= ((mean response in control-mean response in undiluted sample)/mean response in control) *100. A negative PE results when organism performance in the sample is greater than that in the control.

Table 2. Bivalve 48-hr Development Test Detailed Summary

Test Concentration (% sample)	Mean Combined Survival and Normal Development (%)						
	Sample ID						
	SIYB-1	SIYB-2	SIYB-3	SIYB-4	SIYB-5	SIYB-6	SIYB-REF
Lab Control	91.2	92.2	87.0[a]	90.2	88.9[a]	86.9[a]	90.7
6.25	91.9	92.4	93.7	93.5	89.4	85.1	91.3
12.5	88.9	92.2	92.1	91.9	92.0	90.7	90.8
25	91.9	93.9	88.8	90.1	90.4	90.5	91.7
50	91.2	91.6	87.5	94.2	87.3	90.3	92.1
100	**55.2****	87.9	85.6	86.9	86.3	88.2	90.4
Filter Control	91.0	91.0	91.0	91.0	91.0	91.0	91.0
100 (filtered)	**86.5***	91.4	91.2	88.2	90.6	88.2	88.3

[a] The combined survival and normal development endpoint reported did not meet a mean of 90 percent in the lab control. However, normal development in these controls was over 90 percent, meeting the minimum TAC. Additionally, all controls resulted in well over 50 % survival. (SIYB-3: 93.9% normal, 90.7% survival; SIYB-5: 90.7% normal, 97.9% survival; SIYB-6: 92.0% normal, 94.4% survival).

*** A single bold asterisk** indicates a statistically significant decrease compared to the lab control using the traditional EPA flow-chart statistical methods, but no effect with TST.

**** Two bold asterisks** indicate a statistically significant decrease compared to the lab control using both the traditional EPA flow-chart statistical methods and the TST analysis.

Table 3. Bivalve 48-hr Development Summary of Percentage of Curved Hinges

Test Concentration (% sample)	Mean Number of Curved Hinges (%)						
	Sample ID						
	SIYB-1	SIYB-2	SIYB-3	SIYB-4	SIYB-5	SIYB-6	SIYB-REF
Lab Control	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Filter Control	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.5	0.0	0.0	0.24	0.23	0.0	0.0	0.0
25	0.25	0.11	0.64	0.10	0.0	0.0	0.0
50	1.5	0.76	0.55	0.37	0.0	0.0	0.0
100	30	5.2	7.0	2.5	0.0	0.0	0.0
100 (filtered)	5.5	1.0	1.6	0.26	0.0	0.0	0.0

Note: percentage curved expressed as percent of total number counted.

Pacific Topsmelt Acute Survival Test

There were no statistically significant effects to Pacific topsmelt in any of the concentrations tested for sites SIYB-1, 2, 3, or 5. A significant decrease in topsmelt survival was observed in the undiluted SIYB-4 sample relative to the control (43 percent effect) using bot the EPA 1995 statistical methods and the TST. Statistically significant reductions in survival were also observed in the 50 and 100 percent concentration of the SIYB-6 sample and the 25 percent concentration of the SIYB-REF site using the EPA 1995 methods, though both of these undiluted samples passed the TST. Statistical results for the topsmelt tests are summarized in Table 4, and mean test results are summarized in Table 5.

Table 4. Statistical Results Summary – Pacific Topsmelt 96-hour Survival

Sample ID	NOEC (% sample)	LC_{50} (% sample)	TU_a value	TST (Pass/Fail)
SIYB-1	100	> 100	0.59	Pass
SIYB-2	100	> 100	0.59	Pass
SIYB-3	100	> 100	0.59	Pass
SIYB-4	50	> 100	0.98	Fail
SIYB-5	100	> 100	0.31	Pass
SIYB-6	25	> 100	0.66	Pass
SIYB-REF	100	> 100	0.00	Pass

NOEC: the highest Concentration tested resulting in No Observed Effect

LC_{50}: concentration expected to cause a lethal effect to 50 percent of the organisms

TU_a: (Acute Toxic Unit) = 100 ÷ LC_{50}; or Log (100 - %survival) ÷ 1.7, if LC_{50} is >100%. TU_a = 0 if 100% survival in the undiluted sample

TST: Pass = sample is non-toxic according to the TST analysis; Fail = sample is toxic according to the TST analysis

Table 5. Pacific Topsmelt 96-hr Acute Survival Test Detailed Summary

Test Concentration (% sample)	Mean Survival (%)						
	Sample ID						
	SIYB-1	SIYB-2	SIYB-3	SIYB-4	SIYB-5	SIYB-6	SIYB-REF
Lab Control	93.3[a]	93.3[a]	93.3[a]	93.3	93.3	100	100
25	90.0	96.7	100	93.3	80.0	93.3	**70.0**
50	90.0	100	80.0	93.3	96.7	**83.3**	100
100	90.0	90.0	90.0	**53.3**	96.7	**86.7**	100

[a] The lab control associated with samples 1, 2, and 3 did not meet the minimum test acceptability criterion of 90 percent mean survival (result was 80 percent); therefore, the concurrent lab control with sites 4 and 5 was substituted for statistical analysis. Values in bold indicate a statistically significant decrease compared to the lab control using the EPA 2002 acute method guidance flowchart statistical methods.

Quality Assurance

All SIYB samples were received in good condition on the same day as collected. The samples were delivered on ice and received in the laboratory within the appropriate temperature range. All tests were initiated within the 36-hour holding time requirement. The controls for each test met the minimum test acceptability criteria (TAC) as set by US EPA and ASTM, as well as internal QA Program requirements, with the exception of the lab control associated with sites SIYB-1, SIYB-2, and SIYB-3 for the topsmelt acute survival test. The lab control resulted in 80 percent mean survival, below the TAC of 90 percent. However, the two concurrent controls met TAC and the lab control associated with sites SIYB-4 and SIYB-5 was substituted for test acceptability and statistical analysis purposes. Based on the dose responses observed during testing, the calculated effect concentration for each effluent test reported is deemed reliable.

The reference toxicant test results for both species are summarized in Table 6 and presented in full in Appendix D. The controls for both reference toxicant tests met the minimum test acceptability criteria. The calculated EC_{50} values for both reference toxicant tests fell within two standard deviations (SD) of the laboratory historical mean, indicating that the test organisms used during this round of testing were of typical sensitivity to copper. Any minor QA/QC issues that were not likely to have any bearing on the test results, such as slight temperature deviations, are noted on the data sheets, and a list of data qualifier codes is available in Appendix E.

Table 6. Reference Toxicant Test Results

Species & Endpoint	EC_{50}/LC_{50} (µg/L copper)	Historical Mean ±2 SD (µg/L copper)	CV (%)
Bivalve: Combined Survival and Development	7.65	8.46 ± 3.86	22.8
Pacific Topsmelt: 96-hr Survival	196	124 ± 136	54.7

EC_{50}/LC_{50}: concentration expected to cause an adverse or lethal effect to 50 percent of the test organisms

Historical Mean = the mean EC_{50} or LC_{50} value for previous reference toxicant tests performed by the laboratory, plus or minus two standard deviations

References

ASTM. 1998. Standard Guide for Conducting Static Acute Toxicity Tests Starting with Embryos of Four Species of Saltwater Bivalve Molluscs. ASTM E 724 – 98.

PTI Environmental Services for USEPA Region 10, Office of Puget Sound. Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments. July 1995.

Tidepool Scientific Software. 2000-2013. CETIS Comprehensive Environmental Toxicity Information System Software, Version 1.8.7.20.

US EPA. 1995. Short-Term Method for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms (EPA/600/R-95/136). Office of Research and Development, Washington DC. US EPA, 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition (EPA/821/R-02/012). Office of Water, Washington DC.

USEPA. 2010. National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document. EPA/833/R-10/003. June 2010.

Wood. 2018. Final Quality Assurance Project Plan for Shelter Island Yacht Basin Total Maximum Daily Load Monitoring Plan. August 2018.

Appendix A

Test Data and Statistical Analyses

Bivalve Survival and Development Test

CETIS Summary Report

Report Date: 16 Sep-18 17:04 (p 1 of 4)
Test Code: 1808-S114 | 06-7264-9367

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Batch ID:	11-6600-6329	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Sample ID:	02-3316-3804	**Code:**	18-0858	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 14:30	**Material:**	Ambient Water	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	26h (9.5 °C)	**Station:**	SIYB-1		

Batch Note: 101= 100 percent sample filtered to 0.45um

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
08-0078-2059	Combined Development Ra	50	100	70.71	7.27%	2	Dunnett Multiple Comparison Test
19-1527-6284	Development Rate	50	100	70.71	5.52%	2	Dunnett Multiple Comparison Test
20-7873-5533	Survival Rate	100	>100	NA	3.14%	1	Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
01-3519-2243	Combined Development Ra	EC25	81.23	71.08	102.5	1.231	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	
21-2471-7504	Development Rate	EC25	89.48	76.56	N/A	1.118	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
19-1527-6284	Development Rate	Control Resp	0.9124	0.9 - NL	Yes	Passes Acceptability Criteria
21-2471-7504	Development Rate	Control Resp	0.9124	0.9 - NL	Yes	Passes Acceptability Criteria
20-7873-5533	Survival Rate	Control Resp	1	0.5 - NL	Yes	Passes Acceptability Criteria
08-0078-2059	Combined Development Ra	PMSD	0.07271	NL - 0.25	No	Passes Acceptability Criteria

Analyst:____ QA: AC 9/14/18

Bivalve Larval Survival and Development Test | **Nautilus Environmental (CA)**

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9102	0.8516	0.9689	0.8301	0.9468	0.02112	0.04723	5.19%	0.0%
0	Lab Control	5	0.9124	0.8798	0.945	0.8795	0.9515	0.01173	0.02623	2.88%	-0.24%
6.25		5	0.9185	0.8679	0.9691	0.8497	0.9563	0.01824	0.04078	4.44%	-0.91%
12.5		5	0.8894	0.8557	0.9232	0.8562	0.9308	0.01215	0.02717	3.06%	2.28%
25		5	0.9193	0.8903	0.9482	0.8896	0.9477	0.01042	0.02331	2.54%	-0.99%
50		5	0.9119	0.8801	0.9436	0.8862	0.9477	0.01144	0.02558	2.81%	-0.18%
100		5	0.5515	0.3984	0.7046	0.4248	0.7576	0.05514	0.1233	22.36%	39.41%
101		5	0.8653	0.8175	0.9131	0.8105	0.9061	0.01722	0.03851	4.45%	4.93%

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9182	0.8799	0.9565	0.8699	0.9468	0.0138	0.03086	3.36%	0.0%
0	Lab Control	5	0.9124	0.8798	0.945	0.8795	0.9515	0.01173	0.02623	2.88%	0.63%
6.25		5	0.9279	0.9004	0.9553	0.8966	0.9563	0.009888	0.02211	2.38%	-1.06%
12.5		5	0.9197	0.8948	0.9445	0.894	0.9448	0.008967	0.02005	2.18%	-0.16%
25		5	0.9205	0.8891	0.9519	0.8896	0.9539	0.01131	0.02529	2.75%	-0.25%
50		5	0.9204	0.8919	0.9489	0.8862	0.9477	0.01027	0.02297	2.5%	-0.24%
100		5	0.6224	0.5121	0.7327	0.52	0.7576	0.03974	0.08886	14.28%	32.21%
101		5	0.8719	0.8369	0.9069	0.8435	0.9061	0.01261	0.02819	3.23%	5.04%

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9908	0.9654	1	0.9542	1	0.00915	0.02046	2.07%	0.0%
0	Lab Control	5	1	1	1	1	1	0	0	0.0%	-0.92%
6.25		5	0.9895	0.9605	1	0.9477	1	0.01046	0.02338	2.36%	0.13%
12.5		5	0.9673	0.931	1	0.9281	1	0.01307	0.02923	3.02%	2.38%
25		5	0.9987	0.9951	1	0.9935	1	0.001307	0.002923	0.29%	-0.79%
50		5	0.9908	0.9654	1	0.9542	1	0.00915	0.02046	2.07%	0.0%
100		5	0.8797	0.7816	0.9779	0.8105	1	0.03535	0.07906	8.99%	11.21%
101		5	0.9922	0.9704	1	0.9608	1	0.007843	0.01754	1.77%	-0.13%

Analyst:______ QA: AC 9/16/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9121	0.8301	0.9191	0.943	0.9468
0	Lab Control	0.9515	0.9136	0.8795	0.9162	0.9012
6.25		0.9253	0.8497	0.9563	0.9221	0.9392
12.5		0.8824	0.9308	0.8824	0.8954	0.8562
25		0.9477	0.9295	0.9017	0.9278	0.8896
50		0.9241	0.8862	0.9125	0.9477	0.8889
100		0.5229	0.7576	0.5163	0.4248	0.5359
101		0.8982	0.8547	0.8105	0.9061	0.8571

Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9121	0.8699	0.9191	0.943	0.9468
0	Lab Control	0.9515	0.9136	0.8795	0.9162	0.9012
6.25		0.9253	0.8966	0.9563	0.9221	0.9392
12.5		0.906	0.9308	0.894	0.9448	0.9225
25		0.9539	0.9295	0.9017	0.9278	0.8896
50		0.9241	0.8862	0.9125	0.9477	0.9315
100		0.5714	0.7576	0.6371	0.52	0.626
101		0.8982	0.8547	0.8435	0.9061	0.8571

Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	1	0.9542	1	1	1
0	Lab Control	1	1	1	1	1
6.25		1	0.9477	1	1	1
12.5		0.9739	1	0.9869	0.9477	0.9281
25		0.9935	1	1	1	1
50		1	1	1	1	0.9542
100		0.915	1	0.8105	0.817	0.8562
101		1	1	0.9608	1	1

Analyst: QA: AC 9/16/18

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Combined Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	166/182	127/153	159/173	149/158	178/188
0	Lab Control	157/165	148/162	146/166	153/167	155/172
6.25		161/174	130/153	153/160	142/154	170/181
12.5		135/153	148/159	135/153	137/153	131/153
25		145/153	145/156	156/173	167/180	137/154
50		146/158	148/167	146/160	163/172	136/153
100		80/153	125/165	79/153	65/153	82/153
101		150/167	147/172	124/153	164/181	132/154

Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	166/182	127/146	159/173	149/158	178/188
0	Lab Control	157/165	148/162	146/166	153/167	155/172
6.25		161/174	130/145	153/160	142/154	170/181
12.5		135/149	148/159	135/151	137/145	131/142
25		145/152	145/156	156/173	167/180	137/154
50		146/158	148/167	146/160	163/172	136/146
100		80/140	125/165	79/124	65/125	82/131
101		150/167	147/172	124/147	164/181	132/154

Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	153/153	146/153	153/153	153/153	153/153
0	Lab Control	153/153	153/153	153/153	153/153	153/153
6.25		153/153	145/153	153/153	153/153	153/153
12.5		149/153	153/153	151/153	145/153	142/153
25		152/153	153/153	153/153	153/153	153/153
50		153/153	153/153	153/153	153/153	146/153
100		140/153	153/153	124/153	125/153	131/153
101		153/153	153/153	147/153	153/153	153/153

Analyst: ______ QA: AC 9/16/18

CETIS Analytical Report

Report Date: 16 Sep-18 17:02 (p 1 of 12)
Test Code: 1808-S114 | 06-7264-9367

Bivalve Larval Survival and Development Test | **Nautilus Environmental (CA)**

Analysis ID:	08-0078-2059	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	16 Sep-18 16:59	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	11-6600-6329	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	7.27%	50	100	70.71	2

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	-0.3165	2.362	0.106	8	0.9100	CDF	Non-Significant Effect
		12.5	0.8781	2.362	0.106	8	0.4750	CDF	Non-Significant Effect
		25	-0.2656	2.362	0.106	8	0.8999	CDF	Non-Significant Effect
		50	0.02574	2.362	0.106	8	0.8256	CDF	Non-Significant Effect
		100*	9.706	2.362	0.106	8	<0.0001	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.782369	0.1564738	5	31.35	<0.0001	Significant Effect
Error	0.1197736	0.004990566	24			
Total	0.9021426		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	8.303	15.09	0.1403	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9153	0.9031	0.0203	Normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9124	0.8798	0.945	0.9136	0.8795	0.9515	0.01173	2.88%	0.0%
6.25		5	0.9185	0.8679	0.9691	0.9253	0.8497	0.9563	0.01824	4.44%	-0.67%
12.5		5	0.8894	0.8557	0.9232	0.8824	0.8562	0.9308	0.01215	3.06%	2.52%
25		5	0.9193	0.8903	0.9482	0.9278	0.8896	0.9477	0.01042	2.54%	-0.75%
50		5	0.9119	0.8801	0.9436	0.9125	0.8862	0.9477	0.01144	2.81%	0.06%
100		5	0.5515	0.3984	0.7046	0.5229	0.4248	0.7576	0.05514	22.36%	39.55%

Angular (Corrected) Transformed Summary

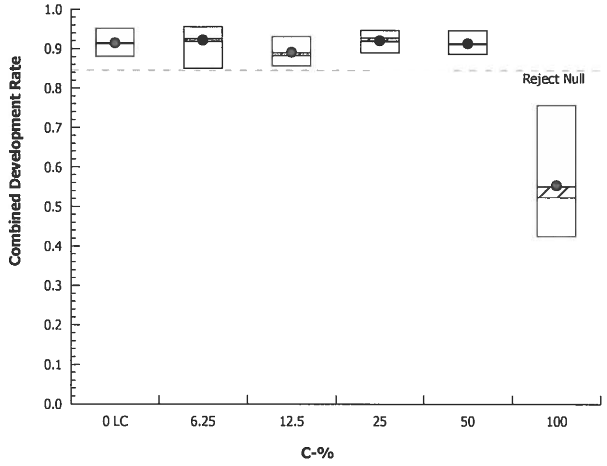
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.273	1.213	1.333	1.272	1.216	1.349	0.02175	3.82%	0.0%
6.25		5	1.287	1.2	1.374	1.294	1.173	1.36	0.03136	5.45%	-1.11%
12.5		5	1.234	1.178	1.29	1.221	1.182	1.305	0.02015	3.65%	3.08%
25		5	1.285	1.232	1.338	1.299	1.232	1.34	0.01924	3.35%	-0.93%
50		5	1.272	1.214	1.33	1.27	1.227	1.34	0.02091	3.68%	0.09%
100		5	0.8395	0.6795	0.9994	0.8083	0.7099	1.056	0.05761	15.35%	34.06%

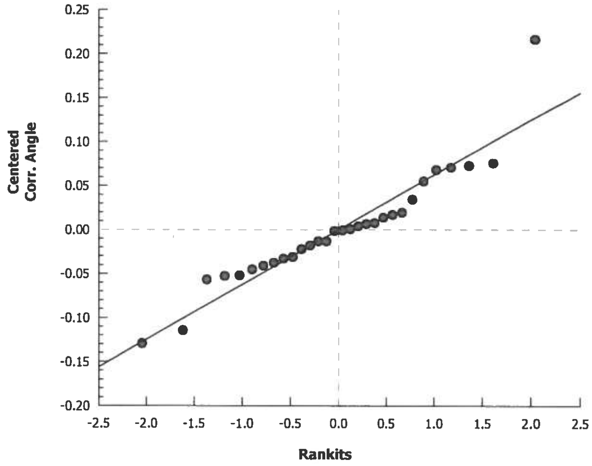
Analyst:______ QA: AC9/16/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	08-0078-2059	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	16 Sep-18 16:59	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst:______ QA: AC9/16/18

CETIS Analytical Report

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	18-9101-6374	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	16 Sep-18 17:00	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	11-6600-6329	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	3.96%	Fails combined development rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		101*	2.267	1.86	0.062	8	0.0266	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.01421069	0.01421069	1	5.141	0.0531	Non-Significant Effect
Error	0.0221119	0.002763987	8			
Total	0.03632259		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.338	23.15	0.7847	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9523	0.7411	0.6956	Normal Distribution

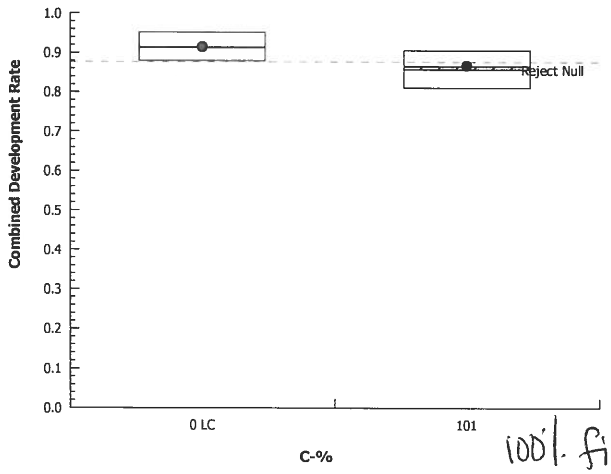
Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9124	0.8798	0.945	0.9136	0.8795	0.9515	0.01173	2.88%	0.0%
101		5	0.8653	0.8175	0.9131	0.8571	0.8105	0.9061	0.01722	4.45%	5.16%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.273	1.213	1.333	1.272	1.216	1.349	0.02175	3.82%	0.0%
101		5	1.198	1.128	1.268	1.183	1.12	1.259	0.02515	4.7%	5.92%

Graphics



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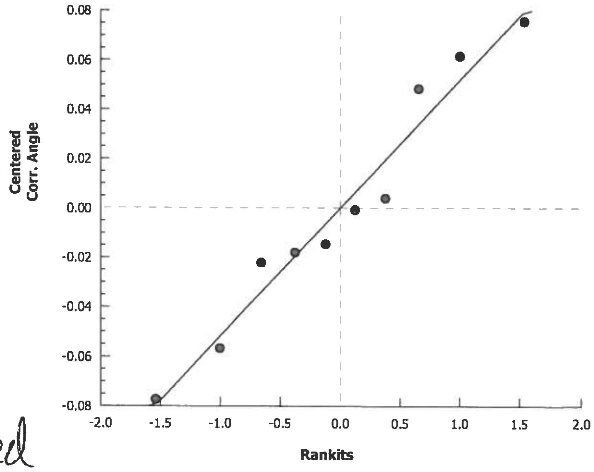


Analyst:____ QA: AC 9/16/18

TST

Bivalve Larval Survival and Development Test	**Nautilus Environmental (CA)**

Analysis ID:	07-2239-3617	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	16 Sep-18 17:01	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	11-6600-6329	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	9.06%	50	100	70.71	2

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	9.404	1.943	0.069	6	<0.0001	CDF	Non-Significant Effect
		12.5*	10.77	1.895	0.049	7	<0.0001	CDF	Non-Significant Effect
		25*	13.09	1.895	0.048	7	<0.0001	CDF	Non-Significant Effect
		50*	11.96	1.895	0.050	7	<0.0001	CDF	Non-Significant Effect
		100	-1.927	2.132	0.128	4	0.9369	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.782369	0.1564738	5	31.35	<0.0001	Significant Effect
Error	0.1197736	0.004990566	24			
Total	0.9021426		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	8.303	15.09	0.1403	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9153	0.9031	0.0203	Normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9124	0.8798	0.945	0.9136	0.8795	0.9515	0.01173	2.88%	0.0%
6.25		5	0.9185	0.8679	0.9691	0.9253	0.8497	0.9563	0.01824	4.44%	-0.67%
12.5		5	0.8894	0.8557	0.9232	0.8824	0.8562	0.9308	0.01215	3.06%	2.52%
25		5	0.9193	0.8903	0.9482	0.9278	0.8896	0.9477	0.01042	2.54%	-0.75%
50		5	0.9119	0.8801	0.9436	0.9125	0.8862	0.9477	0.01144	2.81%	0.06%
100		5	0.5515	0.3984	0.7046	0.5229	0.4248	0.7576	0.05514	22.36%	39.55%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.273	1.213	1.333	1.272	1.216	1.349	0.02175	3.82%	0.0%
6.25		5	1.287	1.2	1.374	1.294	1.173	1.36	0.03136	5.45%	-1.11%
12.5		5	1.234	1.178	1.29	1.221	1.182	1.305	0.02015	3.65%	3.08%
25		5	1.285	1.232	1.338	1.299	1.232	1.34	0.01924	3.35%	-0.93%
50		5	1.272	1.214	1.33	1.27	1.227	1.34	0.02091	3.68%	0.09%
100		5	0.8395	0.6795	0.9994	0.8083	0.7099	1.056	0.05761	15.35%	34.06%

Analyst:______ QA: AC 9/16/18

CETIS Analytical Report

TST

Report Date:	16 Sep-18 17:03 (p 6 of 12)
Test Code:	1808-S114 | 06-7264-9367

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	21-2463-5021	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	16 Sep-18 17:01	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	11-6600-6329	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	Test Result
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	3.71%	Passes combined development rate

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		101*	8.102	1.943	0.058	6	<0.0001	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.01421069	0.01421069	1	5.141	0.0531	Non-Significant Effect
Error	0.0221119	0.002763987	8			
Total	0.03632259		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.338	23.15	0.7847	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9523	0.7411	0.6956	Normal Distribution

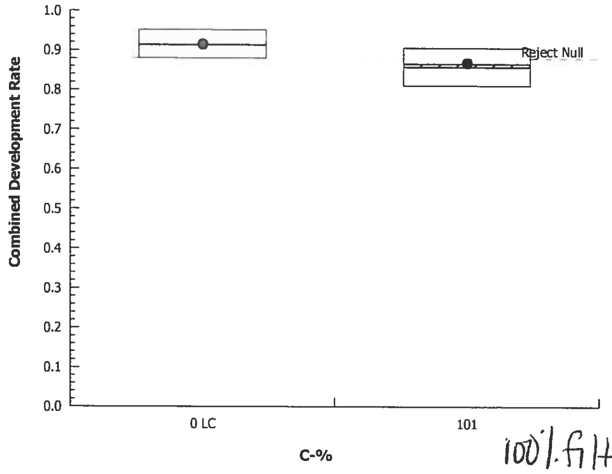
Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9124	0.8798	0.945	0.9136	0.8795	0.9515	0.01173	2.88%	0.0%
101		5	0.8653	0.8175	0.9131	0.8571	0.8105	0.9061	0.01722	4.45%	5.16%

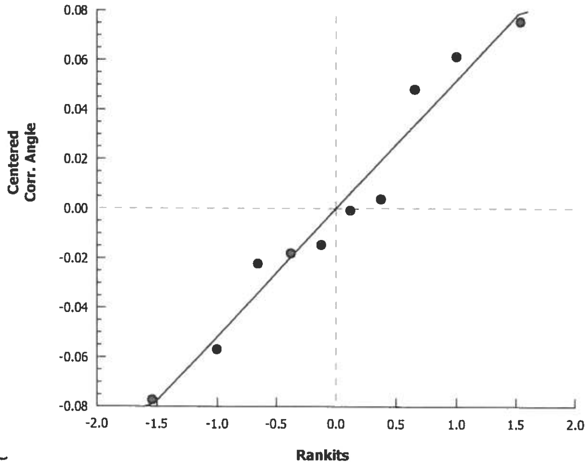
Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.273	1.213	1.333	1.272	1.216	1.349	0.02175	3.82%	0.0%
101		5	1.198	1.128	1.268	1.183	1.12	1.259	0.02515	4.7%	5.92%

Graphics



100% filtered



Analyst: K QA: AC 9/16/18

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	19-1527-6284	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	16 Sep-18 16:59	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	11-6600-6329	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	5.52%	50	100	70.71	2

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	-0.8054	2.362	0.083	8	0.9718	CDF	Non-Significant Effect
		12.5	-0.3419	2.362	0.083	8	0.9147	CDF	Non-Significant Effect
		25	-0.4201	2.362	0.083	8	0.9282	CDF	Non-Significant Effect
		50	-0.3947	2.362	0.083	8	0.9240	CDF	Non-Significant Effect
		100*	10.31	2.362	0.083	8	<0.0001	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.590451	0.1180902	5	38.32	<0.0001	Significant Effect
Error	0.07396328	0.003081803	24			
Total	0.6644143		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.985	15.09	0.4177	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9636	0.9031	0.3812	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9124	0.8798	0.945	0.9136	0.8795	0.9515	0.01173	2.88%	0.0%
6.25		5	0.9279	0.9004	0.9553	0.9253	0.8966	0.9563	0.009888	2.38%	-1.7%
12.5		5	0.9197	0.8948	0.9445	0.9225	0.894	0.9448	0.008967	2.18%	-0.8%
25		5	0.9205	0.8891	0.9519	0.9278	0.8896	0.9539	0.01131	2.75%	-0.89%
50		5	0.9204	0.8919	0.9489	0.9241	0.8862	0.9477	0.01027	2.5%	-0.88%
100		5	0.6224	0.5121	0.7327	0.626	0.52	0.7576	0.03974	14.28%	31.78%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.273	1.213	1.333	1.272	1.216	1.349	0.02175	3.82%	0.0%
6.25		5	1.301	1.248	1.355	1.294	1.243	1.36	0.01932	3.32%	-2.22%
12.5		5	1.285	1.239	1.331	1.289	1.239	1.334	0.01662	2.89%	-0.94%
25		5	1.288	1.228	1.347	1.299	1.232	1.355	0.0214	3.72%	-1.16%
50		5	1.287	1.235	1.339	1.292	1.227	1.34	0.01883	3.27%	-1.09%
100		5	0.9111	0.7945	1.028	0.9127	0.8054	1.056	0.04199	10.31%	28.44%

Analyst:______ QA: AC 9/16/18

CETIS Analytical Report

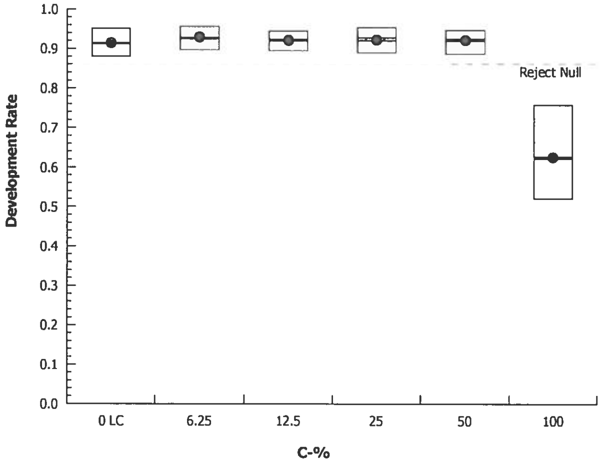
Report Date: 16 Sep-18 17:03 (p 8 of 12)
Test Code: 1808-S114 | 06-7264-9367

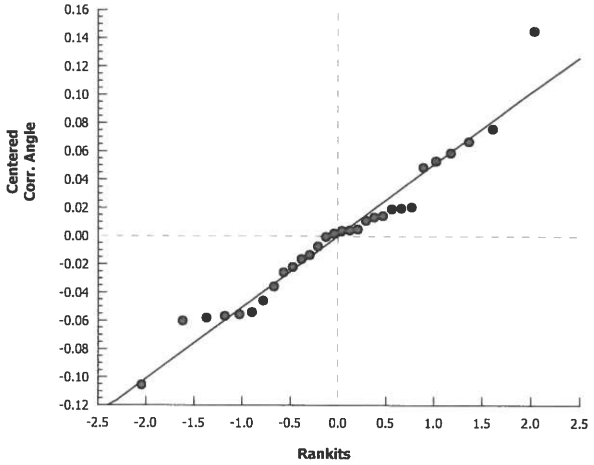
Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Analysis ID: 19-1527-6284
Endpoint: Development Rate
CETIS Version: CETISv1.8.7
Analyzed: 16 Sep-18 16:59
Analysis: Parametric-Control vs Treatments
Official Results: Yes

Graphics





Analyst: 8

QA: AG 9/16/18

CETIS Analytical Report

TST

Report Date:	16 Sep-18 17:03 (p 9 of 12)
Test Code:	1808-S114 | 06-7264-9367

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	01-2016-8384	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	16 Sep-18 17:02	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	11-6600-6329	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	6.12%	50	100	70.71	2

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	13.71	1.895	0.048	7	<0.0001	CDF	Non-Significant Effect
		12.5*	14.18	1.895	0.044	7	<0.0001	CDF	Non-Significant Effect
		25*	12.38	1.895	0.051	7	<0.0001	CDF	Non-Significant Effect
		50*	13.33	1.895	0.047	7	<0.0001	CDF	Non-Significant Effect
		100	-0.9711	2.015	0.091	5	0.8119	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.590451	0.1180902	5	38.32	<0.0001	Significant Effect
Error	0.07396328	0.003081803	24			
Total	0.6644143		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.985	15.09	0.4177	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9636	0.9031	0.3812	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9124	0.8798	0.945	0.9136	0.8795	0.9515	0.01173	2.88%	0.0%
6.25		5	0.9279	0.9004	0.9553	0.9253	0.8966	0.9563	0.009888	2.38%	-1.7%
12.5		5	0.9197	0.8948	0.9445	0.9225	0.894	0.9448	0.008967	2.18%	-0.8%
25		5	0.9205	0.8891	0.9519	0.9278	0.8896	0.9539	0.01131	2.75%	-0.89%
50		5	0.9204	0.8919	0.9489	0.9241	0.8862	0.9477	0.01027	2.5%	-0.88%
100		5	0.6224	0.5121	0.7327	0.626	0.52	0.7576	0.03974	14.28%	31.78%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.273	1.213	1.333	1.272	1.216	1.349	0.02175	3.82%	0.0%
6.25		5	1.301	1.248	1.355	1.294	1.243	1.36	0.01932	3.32%	-2.22%
12.5		5	1.285	1.239	1.331	1.289	1.239	1.334	0.01662	2.89%	-0.94%
25		5	1.288	1.228	1.347	1.299	1.232	1.355	0.0214	3.72%	-1.16%
50		5	1.287	1.235	1.339	1.292	1.227	1.34	0.01883	3.27%	-1.09%
100		5	0.9111	0.7945	1.028	0.9127	0.8054	1.056	0.04199	10.31%	28.44%

Analyst: QA: AC 9/16/18

Bivalve Larval Survival and Development Test | **Nautilus Environmental (CA)**

Analysis ID:	20-7873-5533	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	16 Sep-18 16:59	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	11-6600-6329	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	3.14%	100	>100	NA	1

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	25	16	1	8	0.6353	Asymp	Non-Significant Effect
		12.5	17.5	16	1	8	0.0695	Asymp	Non-Significant Effect
		25	25	16	1	8	0.6353	Asymp	Non-Significant Effect
		50	25	16	1	8	0.6353	Asymp	Non-Significant Effect
		100	17.5	16	1	8	0.0695	Asymp	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.2923992	0.05847985	5	6.885	0.0004	Significant Effect
Error	0.2038645	0.008494356	24			
Total	0.4962637		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1.674	4.248	0.1917	Equal Variances
Variances	Levene Equality of Variance	3.518	3.895	0.0158	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.855	0.9031	0.0008	Non-normal Distribution

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1	1	1	1	1	1	0	0.0%	0.0%
6.25		5	0.9895	0.9605	1	1	0.9477	1	0.01046	2.36%	1.05%
12.5		5	0.9673	0.931	1	0.9739	0.9281	1	0.01307	3.02%	3.27%
25		5	0.9987	0.9951	1	1	0.9935	1	0.001308	0.29%	0.13%
50		5	0.9908	0.9654	1	1	0.9542	1	0.00915	2.07%	0.92%
100		5	0.8797	0.7816	0.9779	0.8562	0.8105	1	0.03535	8.99%	12.03%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.53	1.53	1.531	1.53	1.53	1.53	0	0.0%	0.0%
6.25		5	1.492	1.387	1.598	1.53	1.34	1.53	0.03805	5.7%	2.49%
12.5		5	1.407	1.293	1.521	1.408	1.299	1.53	0.04105	6.53%	8.07%
25		5	1.522	1.5	1.545	1.53	1.49	1.53	0.0081	1.19%	0.53%
50		5	1.495	1.398	1.593	1.53	1.355	1.53	0.03503	5.24%	2.29%
100		5	1.247	1.036	1.458	1.182	1.12	1.53	0.07594	13.61%	18.5%

Analyst: 8 QA: AC 9/16/18

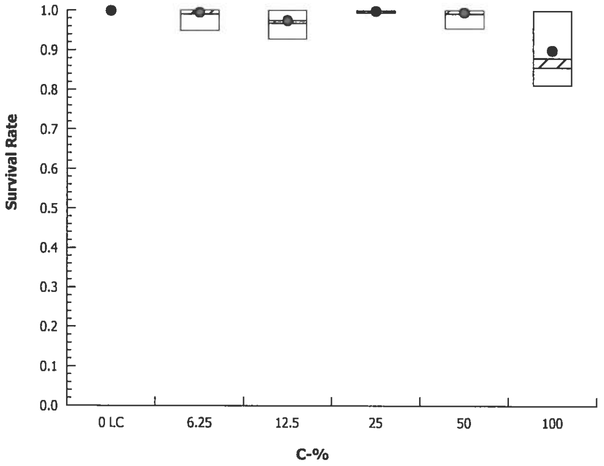
CETIS Analytical Report

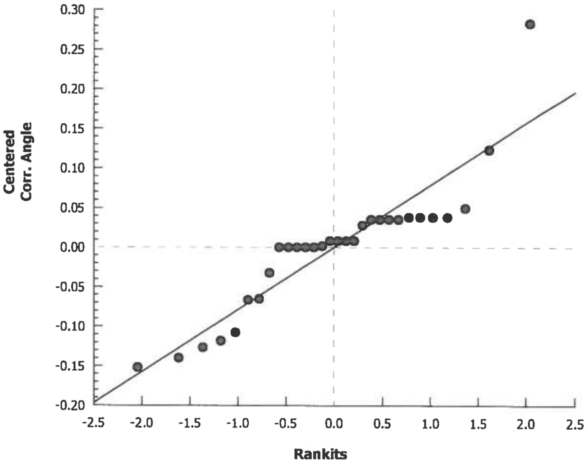
Report Date:	16 Sep-18 17:03 (p 12 of 12)
Test Code:	1808-S114 | 06-7264-9367

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	20-7873-5533	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	16 Sep-18 16:59	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst: 6 QA: AC 9/15/18

CETIS Analytical Report

Report Date: 16 Sep-18 17:03 (p 1 of 2)
Test Code: 1808-S114 | 06-7264-9367

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID: 01-3519-2243
Analyzed: 16 Sep-18 17:01
Endpoint: Combined Development Rate
Analysis: Linear Interpolation (ICPIN)
CETIS Version: CETISv1.8.7
Official Results: Yes

Batch ID: 11-6600-6329
Start Date: 14 Aug-18 16:00
Ending Date: 16 Aug-18 15:30
Duration: 48h
Test Type: Development-Survival
Protocol: EPA/600/R-95/136 (1995)
Species: Mytilus galloprovincialis
Source: Mission Bay
Analyst:
Diluent: Laboratory Seawater
Brine: Not Applicable
Age:

Batch Note: 101= 100 percent sample filtered to 0.45um

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1339348	1000	Yes	Two-Point Interpolation

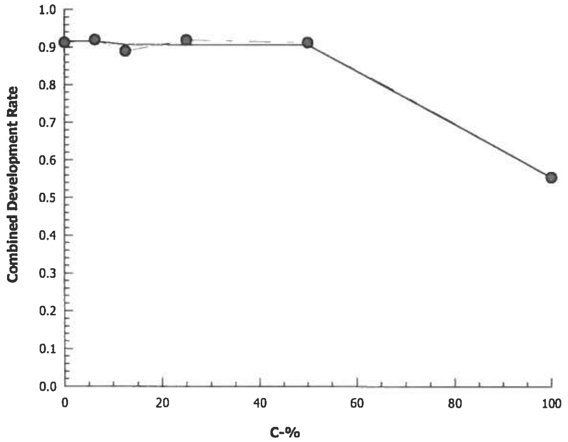
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	81.23	71.08	102.5	1.231	0.9759	1.407
EC50	>100	N/A	N/A	<1	NA	NA

Combined Development Rate Summary

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	Calculated Variate(A/B) A	B
0	Lab Control	5	0.9124	0.8795	0.9515	0.01173	0.02624	2.88%	0.0%	759	832
6.25		5	0.9185	0.8497	0.9563	0.01824	0.04078	4.44%	-0.67%	756	822
12.5		5	0.8894	0.8562	0.9308	0.01215	0.02717	3.06%	2.52%	686	771
25		5	0.9193	0.8896	0.9477	0.01042	0.02331	2.54%	-0.75%	750	816
50		5	0.9119	0.8862	0.9477	0.01144	0.02557	2.81%	0.06%	739	810
100		5	0.5515	0.4248	0.7576	0.05514	0.1233	22.36%	39.55%	431	777

Graphics



Analyst:_____ QA: AC 9/16/18

CETIS Analytical Report

Report Date: 16 Sep-18 17:03 (p 2 of 2)
Test Code: 1808-S114 | 06-7264-9367

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID: 21-2471-7504
Analyzed: 16 Sep-18 17:02
Endpoint: Development Rate
Analysis: Linear Interpolation (ICPIN)
CETIS Version: CETISv1.8.7
Official Results: Yes

Batch ID: 11-6600-6329
Start Date: 14 Aug-18 16:00
Ending Date: 16 Aug-18 15:30
Duration: 48h
Test Type: Development-Survival
Protocol: EPA/600/R-95/136 (1995)
Species: Mytilus galloprovincialis
Source: Mission Bay
Analyst:
Diluent: Laboratory Seawater
Brine: Not Applicable
Age:

Batch Note: 101= 100 percent sample filtered to 0.45um

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1059341	1000	Yes	Two-Point Interpolation

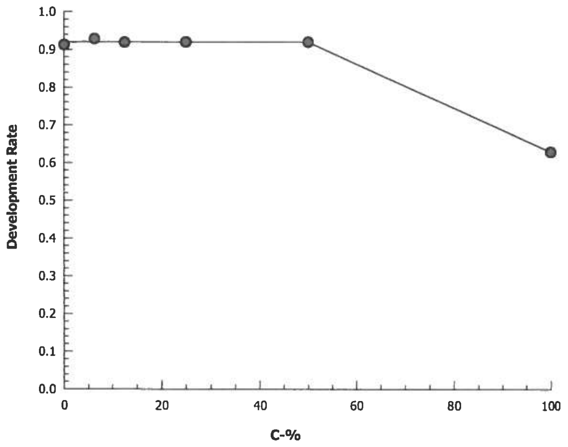
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	89.48	76.56	N/A	1.118	NA	1.306
EC50	>100	N/A	N/A	<1	NA	NA

Development Rate Summary

			Calculated Variate(A/B)								
C-%	**Control Type**	**Count**	**Mean**	**Min**	**Max**	**Std Err**	**Std Dev**	**CV%**	**%Effect**	**A**	**B**
0	Lab Control	5	0.9124	0.8795	0.9515	0.01173	0.02624	2.88%	0.0%	759	832
6.25		5	0.9279	0.8966	0.9563	0.009888	0.02211	2.38%	-1.7%	756	814
12.5		5	0.9197	0.894	0.9448	0.008967	0.02005	2.18%	-0.8%	686	746
25		5	0.9205	0.8896	0.9539	0.01131	0.02529	2.75%	-0.89%	750	815
50		5	0.9204	0.8862	0.9477	0.01027	0.02297	2.5%	-0.88%	739	803
100		5	0.6224	0.52	0.7576	0.03974	0.08886	14.28%	31.78%	431	685

Graphics



Analyst:_____ QA: AC 9/16/18

Embryo Larval Bioassay **48-hour Development**

Client: AMEC/POSD
Test Species: *M. galloprovincialis*
Sample ID: SIYB-1
Start Date/Time: 8/14/2018 1600
Test ID: 1808-S114
End Date/Time: 8/16/2018 1530

Random #	Number Normal	Number Abnormal		Total Number Counted	Intials/Date
		Number Curved Shell	All other abnormal		
31	82	45	4	131 (one copapod found)	8/31/18
32	145	1	6	152	
33	136	2	8	146	
34	146	2	12	160	
35	161	0	13	174	
36	147	10	15	172	
37	124	11	12	147	
38	170	0	11	181	
39	125	20	20	165	
40	146	0	20	166	
41	142	0	12	154	
42	137	0	8	145	
43	132	10	12	154	
44	146	2	10	158	
45	135	0	16	151	
46	159	0	14	173	
47	65	52	8	125 (one copapod found)	
48	145	0	11	156	
49	148	0	11	159	
50	135	0	14	149	
51	130	0	15	145	
52	153	0	7	160	
53	150	7	10	167	
54	178	0	10	188	
55	167	0	13	180	
56	80	49	11	140	
57	127	0	19	146	
58	153	0	14	167	
59	149	0	9	158	
60	164	6	11	181	
61	157	0	8	165	
62	155	0	17	172	
63	148	0	14	162	
64	163	1	8	172	
65	148	5	14	167	
66	137	0	17	154	
67	131	0	11	142	
68	166	Q18 8/31/18 ~~33~~ 0	16	182	
69	79	33	12	124 (Two copapods found)	
70	156	1	16	173	

Comments:

QC Check:

Final Review: AC 9/16/18

CETIS Test Data Worksheet

Report Date: 09 Aug-18 12:05 (p 1 of 1)
Test Code: 1808-S114 06-7264-9367/1808-S114

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Start Date: 14 Aug-18
End Date: 16 Aug-18
Sample Date: 13 Aug-18
Species: Mytilus galloprovincialis
Protocol: EPA/600/R-95/136 (1995)
Material: Ambient Water
Sample Code: 18-0858
Sample Source: Shelter Island Yacht Basin
Sample Station: SIYB-1

C-%	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	FC	1	68					
0	FC	2	57					
0	FC	3	46			175	159	RT 8/17/18
0	FC	4	59					
0	FC	5	54					
0	LC	1	61					
0	LC	2	63					
0	LC	3	40			148	132	RT
0	LC	4	58					
0	LC	5	62					
6.25		1	35					
6.25		2	51			134	120	RT
6.25		3	52					
6.25		4	41					
6.25		5	38					
12.5		1	50					
12.5		2	49					
12.5		3	45			141	127	RT
12.5		4	42					
12.5		5	67					
25		1	32					
25		2	48					
25		3	70			162	144	RT
25		4	55					
25		5	66					
50		1	44					
50		2	65					
50		3	34			159	144	RT
50		4	64					
50		5	33					
100		1	56			142	72	Eh 8/16/18 55 curved hinges
100		2	39					
100		3	69					
100		4	47					
100		5	31					
~~101~~ Q18		1	53			156	132	Eh 14 curved
~~101~~ AC 8/10		2	36					
~~101~~		3	37					
~~101~~		4	60					
~~101~~		5	43					

100% filt.

QC: [illegible] Eh

000-089-187-4 CETIS™ v1.8.7.20 Analyst: AC QA: 9/13/18

Marine Chronic Bioassay **Water Quality Measurements**

Client: AMEC/POSD
Sample ID: SIYB-1
Sample Log No.: 18-0958
Test No.: 1808-S114

Test Species: *M. galloprovincialis*
Start Date/Time: 8/14/2018 1600
End Date/Time: 8/16/2018 1530

Concentration (%)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	34.4	34.4	34.4	14.3	14.3	14.4	8.7	8.3	8.2	8.13	8.05	7.94
6.25	34.4	34.5	34.5	14.2	14.3	14.4	8.7	8.3	8.3	8.14	8.06	7.94
12.5	34.5	34.5	34.5	14.2	14.3	14.4	8.9	8.3	8.3	8.13	8.06	7.96
25	34.5	34.6	34.6	14.2	14.4	14.4	8.5	8.3	8.3	8.12	8.06	7.96
50	34.5	34.5	34.5	14.2	14.3	14.4	8.5	8.3	8.2	8.13	8.04	7.96
100	34.5	34.5	34.5	14.1	14.3	14.3	8.6	8.3	8.2	8.13	8.05	7.98
100 filtered	34.6	34.4	34.6	14.2	14.3	14.3	8.2	8.2	8.2	8.11	8.06	7.99

Technician Initials:

	0	24	48
WQ Readings:	EG	RT	EG
Dilutions made by:	EG		

Comments:
0 hrs:
24 hrs:
48 hrs:

QC Check: AC 8/31/18

Final Review: 9/13/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

Marine Chronic Bioassay **Water Quality Measurements**

Client: AMEC/POSD
Sample ID: Filtration Method Control
Sample Log No.: 18- 0858 to 864
Test No.: 1808-S 114 to S120

Test Species: *M. galloprovincialis*
Start Date/Time: 8/14/2018 1600
End Date/Time: 8/16/2018 1530

Concentration (%)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Filter Control	34.1	34.1	33.9	14.6	14.6	14.9	7.6	8.2	8.1	8.09	8.05	7.92

Technician Initials:

	0	24	48
WQ Readings:	Eh	RT	Eh
Dilutions made by:	AC		

Comments:
0 hrs:
24 hrs:
48 hrs:

QC Check: AC 8/21/18

Final Review: 9/13/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

Marine Chronic Bioassay **Larval Development Worksheet**

Client: AMEC/POSD - SIYB-1
Test No.: 1808-S114
Test Species: M. galloprovincialis
Animal Source: M. Bay
Date Received: 6/29/18
Test Chambers: 30mL glass shell vials
Sample Volume: 10 mL

Start Date/Time: 8/14/18 1600
End Date/Time: 8/16/18 1530
Technician Initials: g/AC/EG

Spawn Information

First Gamete Release Time: 1130

Sex	Number Spawning
Male	3
Female	2

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2	Light spawning, fair motility
Female 1	1	Uniform size, shape, color, low density, no fans
Female 2	2	Uniform size, shape, color, fair density, no fat
Female 3		

Egg Fertilization Time: 1245

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	98
Female 2	100
Female 3	

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 6 embryos

Number Counted:

7	3
7	8
5	5
3	8
4	7

Mean: 5.7

Mean 5.7 X 50 = 285 embryos/ml

Initial Density: 285 / Desired Final Density: 300 = 0.95 (dilution factor)
(to inoculate with 0.5 ml)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No.	No. Dividing	Total	% Dividing	Mean % Dividing
T01	161	161	100	99.7
T02	162	162	100	
T03	150	150	100	
T04	140	141	99.3	
T05	154	155	99.4	

Q18 AC 8/31/18
48-h QC: ~~T46~~ 143/156 = 91.7%

Comments: X̄ = 153.4

QC Check: AC 8/31/18

Final Review: g 9/3/18

CETIS Summary Report

Report Date: 03 Sep-18 13:44 (p 1 of 4)
Test Code: 1808-S115 | 19-8366-6729

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Batch ID:	15-6146-5672	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Sample ID:	02-3636-6309	**Code:**	18-0859	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 13:30	**Material:**	Ambient Water	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	26h (7.2 °C)	**Station:**	SIYB-2		

Batch Note: 101= 100 percent sample filtered to 0.45um

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
11-8457-5047	Combined Development Ra	100	>100	NA	6.01%	1	Dunnett Multiple Comparison Test
10-4779-9189	Development Rate	50	100	70.71	3.59%	2	Dunnett Multiple Comparison Test
13-7114-9873	Survival Rate	100	>100	NA	4.05%	1	Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
11-0522-4433	Combined Development Ra	EC25	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	
10-2072-9253	Development Rate	EC25	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
10-2072-9253	Development Rate	Control Resp	0.9429	0.9 - NL	Yes	Passes Acceptability Criteria
10-4779-9189	Development Rate	Control Resp	0.9429	0.9 - NL	Yes	Passes Acceptability Criteria
13-7114-9873	Survival Rate	Control Resp	0.9778	0.5 - NL	Yes	Passes Acceptability Criteria
11-8457-5047	Combined Development Ra	PMSD	0.06008	NL - 0.25	No	Passes Acceptability Criteria

Analyst:______ QA: AC 9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9102	0.8516	0.9689	0.8301	0.9468	0.02112	0.04723	5.19%	0.0%
0	Lab Control	5	0.9219	0.8515	0.9924	0.8366	0.9794	0.02538	0.05675	6.16%	-1.29%
6.25		5	0.9236	0.8919	0.9553	0.8889	0.9524	0.01142	0.02554	2.77%	-1.47%
12.5		5	0.9219	0.893	0.9508	0.8976	0.9542	0.0104	0.02326	2.52%	-1.29%
25		5	0.9389	0.8908	0.987	0.8889	0.9806	0.01731	0.03871	4.12%	-3.15%
50		5	0.9157	0.8855	0.946	0.8758	0.9345	0.0109	0.02438	2.66%	-0.61%
100		5	0.8792	0.8188	0.9396	0.8105	0.9281	0.02175	0.04864	5.53%	3.4%
101		5	0.9142	0.8687	0.9596	0.8497	0.9412	0.01637	0.03661	4.01%	-0.43%

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9182	0.8799	0.9565	0.8699	0.9468	0.0138	0.03086	3.36%	0.0%
0	Lab Control	5	0.9429	0.9047	0.981	0.9096	0.9794	0.01376	0.03076	3.26%	-2.69%
6.25		5	0.9334	0.9125	0.9543	0.9063	0.9524	0.007513	0.0168	1.8%	-1.66%
12.5		5	0.9219	0.893	0.9508	0.8976	0.9542	0.0104	0.02326	2.52%	-0.41%
25		5	0.954	0.92	0.9881	0.9096	0.9806	0.01226	0.02742	2.87%	-3.91%
50		5	0.9306	0.9123	0.949	0.9091	0.9504	0.006605	0.01477	1.59%	-1.36%
100		5	0.8988	0.8713	0.9262	0.8784	0.9281	0.009879	0.02209	2.46%	2.11%
101		5	0.9248	0.9076	0.942	0.9028	0.9412	0.006196	0.01385	1.5%	-0.72%

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9908	0.9654	1	0.9542	1	0.00915	0.02046	2.07%	0.0%
0	Lab Control	5	0.9778	0.9161	1	0.8889	1	0.02222	0.04969	5.08%	1.32%
6.25		5	0.9895	0.9605	1	0.9477	1	0.01046	0.02338	2.36%	0.13%
12.5		5	1	1	1	1	1	0	0	0.0%	-0.92%
25		5	0.9843	0.9408	1	0.9216	1	0.01569	0.03508	3.56%	0.66%
50		5	0.9843	0.9408	1	0.9216	1	0.01569	0.03508	3.56%	0.66%
100		5	0.9778	0.935	1	0.9216	1	0.01541	0.03446	3.52%	1.32%
101		5	0.9882	0.9556	1	0.9412	1	0.01176	0.02631	2.66%	0.26%

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9191	0.9468	0.8301	0.943	0.9121
0	Lab Control	0.9679	0.9794	0.9161	0.8366	0.9096
6.25		0.9524	0.9337	0.8889	0.9063	0.9367
12.5		0.9542	0.9195	0.9351	0.9032	0.8976
25		0.9096	0.9481	0.8889	0.9806	0.9673
50		0.9091	0.9306	0.9286	0.9345	0.8758
100		0.8929	0.9281	0.915	0.8497	0.8105
101		0.9277	0.9273	0.925	0.8497	0.9412

Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9191	0.9468	0.8699	0.943	0.9121
0	Lab Control	0.9679	0.9794	0.9161	0.9412	0.9096
6.25		0.9524	0.9337	0.9379	0.9063	0.9367
12.5		0.9542	0.9195	0.9351	0.9032	0.8976
25		0.9096	0.9481	0.9645	0.9806	0.9673
50		0.9091	0.9306	0.9286	0.9345	0.9504
100		0.8929	0.9281	0.915	0.8784	0.8794
101		0.9277	0.9273	0.925	0.9028	0.9412

Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	1	1	0.9542	1	1
0	Lab Control	1	1	1	0.8889	1
6.25		1	1	0.9477	1	1
12.5		1	1	1	1	1
25		1	1	0.9216	1	1
50		1	1	1	1	0.9216
100		1	1	1	0.9673	0.9216
101		1	1	1	0.9412	1

Analyst:______ QA: AC 9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	159/173	178/188	127/153	149/158	166/182
0	Lab Control	151/156	190/194	142/155	128/153	151/166
6.25		160/168	155/166	136/153	145/160	148/158
12.5		146/153	160/174	144/154	140/155	149/166
25		171/188	146/154	136/153	152/155	148/153
50		150/165	161/173	156/168	157/168	134/153
100		150/168	155/167	140/153	130/153	124/153
101		154/166	153/165	148/160	130/153	160/170

Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	159/173	178/188	127/146	149/158	166/182
0	Lab Control	151/156	190/194	142/155	128/136	151/166
6.25		160/168	155/166	136/145	145/160	148/158
12.5		146/153	160/174	144/154	140/155	149/166
25		171/188	146/154	136/141	152/155	148/153
50		150/165	161/173	156/168	157/168	134/141
100		150/168	155/167	140/153	130/148	124/141
101		154/166	153/165	148/160	130/144	160/170

Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	153/153	153/153	146/153	153/153	153/153
0	Lab Control	153/153	153/153	153/153	136/153	153/153
6.25		153/153	153/153	145/153	153/153	153/153
12.5		153/153	153/153	153/153	153/153	153/153
25		153/153	153/153	141/153	153/153	153/153
50		153/153	153/153	153/153	153/153	141/153
100		153/153	153/153	153/153	148/153	141/153
101		153/153	153/153	153/153	144/153	153/153

Analyst:

QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 13:44 (p 1 of 10)
Test Code: 1808-S115 | 19-8366-6729

Bivalve Larval Survival and Development Test | **Nautilus Environmental (CA)**

Analysis ID: 11-8457-5047
Analyzed: 03 Sep-18 13:43
Endpoint: Combined Development Rate
Analysis: Parametric-Control vs Treatments
CETIS Version: CETISv1.8.7
Official Results: Yes

Batch ID: 15-6146-5672
Start Date: 14 Aug-18 16:00
Ending Date: 16 Aug-18 15:30
Duration: 48h
Test Type: Development-Survival
Protocol: EPA/600/R-95/136 (1995)
Species: Mytilus galloprovincialis
Source: Mission Bay
Analyst:
Diluent: Laboratory Seawater
Brine: Not Applicable
Age:

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	6.01%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	0.2062	2.362	0.106	8	0.7653	CDF	Non-Significant Effect
		12.5	0.283	2.362	0.106	8	0.7365	CDF	Non-Significant Effect
		25	-0.6358	2.362	0.106	8	0.9566	CDF	Non-Significant Effect
		50	0.5471	2.362	0.106	8	0.6262	CDF	Non-Significant Effect
		100	1.825	2.362	0.106	8	0.1346	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.03360727	0.006721453	5	1.332	0.2844	Non-Significant Effect
Error	0.1210638	0.005044326	24			
Total	0.1546711		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	5.482	15.09	0.3599	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9863	0.9031	0.9569	Normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9219	0.8515	0.9924	0.9161	0.8366	0.9794	0.02538	6.16%	0.0%
6.25		5	0.9236	0.8919	0.9553	0.9337	0.8889	0.9524	0.01142	2.77%	-0.18%
12.5		5	0.9219	0.893	0.9508	0.9195	0.8976	0.9542	0.0104	2.52%	0.0%
25		5	0.9389	0.8908	0.987	0.9481	0.8889	0.9806	0.01731	4.12%	-1.84%
50		5	0.9157	0.8855	0.946	0.9286	0.8758	0.9345	0.0109	2.66%	0.67%
100		5	0.8792	0.8188	0.9396	0.8929	0.8105	0.9281	0.02175	5.53%	4.63%

Angular (Corrected) Transformed Summary

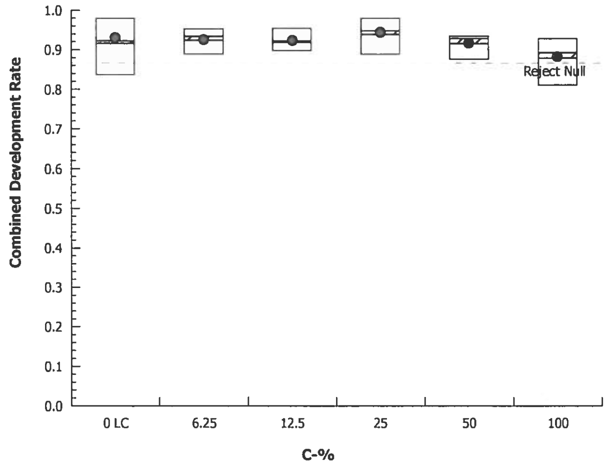
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.303	1.168	1.438	1.277	1.155	1.427	0.04853	8.33%	0.0%
6.25		5	1.294	1.234	1.353	1.31	1.231	1.351	0.0214	3.7%	0.71%
12.5		5	1.29	1.234	1.346	1.283	1.245	1.355	0.02015	3.49%	0.98%
25		5	1.331	1.228	1.435	1.341	1.231	1.431	0.0373	6.26%	-2.19%
50		5	1.278	1.226	1.331	1.3	1.211	1.312	0.01879	3.29%	1.89%
100		5	1.221	1.129	1.313	1.237	1.12	1.299	0.03302	6.05%	6.29%

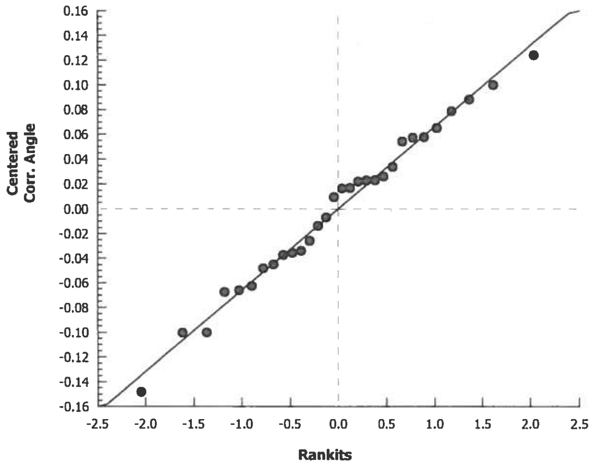
Analyst:_______ QA: AC 9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	11-8457-5047	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 13:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





CETIS Analytical Report

TST

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	19-0796-2740	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 13:43	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	15-6146-5672	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	5.06%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	7.495	1.943	0.082	6	0.0001	CDF	Non-Significant Effect
		12.5*	7.524	1.943	0.081	6	0.0001	CDF	Non-Significant Effect
		25*	6.798	1.895	0.099	7	0.0001	CDF	Non-Significant Effect
		50*	7.353	2.015	0.083	5	0.0004	CDF	Non-Significant Effect
		100*	4.96	1.895	0.093	7	0.0008	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.03360727	0.006721453	5	1.332	0.2844	Non-Significant Effect
Error	0.1210638	0.005044326	24			
Total	0.1546711		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	5.482	15.09	0.3599	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9863	0.9031	0.9569	Normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9219	0.8515	0.9924	0.9161	0.8366	0.9794	0.02538	6.16%	0.0%
6.25		5	0.9236	0.8919	0.9553	0.9337	0.8889	0.9524	0.01142	2.77%	-0.18%
12.5		5	0.9219	0.893	0.9508	0.9195	0.8976	0.9542	0.0104	2.52%	0.0%
25		5	0.9389	0.8908	0.987	0.9481	0.8889	0.9806	0.01731	4.12%	-1.84%
50		5	0.9157	0.8855	0.946	0.9286	0.8758	0.9345	0.0109	2.66%	0.67%
100		5	0.8792	0.8188	0.9396	0.8929	0.8105	0.9281	0.02175	5.53%	4.63%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.303	1.168	1.438	1.277	1.155	1.427	0.04853	8.33%	0.0%
6.25		5	1.294	1.234	1.353	1.31	1.231	1.351	0.0214	3.7%	0.71%
12.5		5	1.29	1.234	1.346	1.283	1.245	1.355	0.02015	3.49%	0.98%
25		5	1.331	1.228	1.435	1.341	1.231	1.431	0.0373	6.26%	-2.19%
50		5	1.278	1.226	1.331	1.3	1.211	1.312	0.01879	3.29%	1.89%
100		5	1.221	1.129	1.313	1.237	1.12	1.299	0.03302	6.05%	6.29%

Analyst:

QA: AC 9/12/18

Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Analysis ID:	10-4779-9189	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 13:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	15-6146-5672	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	3.59%	50	100	70.71	2

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	0.8403	2.362	0.073	8	0.4924	CDF	Non-Significant Effect
		12.5	1.524	2.362	0.073	8	0.2163	CDF	Non-Significant Effect
		25	-0.7924	2.362	0.073	8	0.9708	CDF	Non-Significant Effect
		50	1.03	2.362	0.073	8	0.4067	CDF	Non-Significant Effect
		100*	2.878	2.362	0.073	8	0.0168	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.03793276	0.007586551	5	3.199	0.0236	Significant Effect
Error	0.05692158	0.002371733	24			
Total	0.09485434		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.576	15.09	0.4697	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9932	0.9031	0.9992	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9429	0.9047	0.981	0.9412	0.9096	0.9794	0.01376	3.26%	0.0%
6.25		5	0.9334	0.9125	0.9543	0.9367	0.9063	0.9524	0.007513	1.8%	1.0%
12.5		5	0.9219	0.893	0.9508	0.9195	0.8976	0.9542	0.0104	2.52%	2.22%
25		5	0.954	0.92	0.9881	0.9645	0.9096	0.9806	0.01226	2.87%	-1.19%
50		5	0.9306	0.9123	0.949	0.9306	0.9091	0.9504	0.006605	1.59%	1.3%
100		5	0.8988	0.8713	0.9262	0.8929	0.8784	0.9281	0.009879	2.46%	4.68%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.337	1.25	1.424	1.326	1.265	1.427	0.03145	5.26%	0.0%
6.25		5	1.311	1.27	1.352	1.316	1.26	1.351	0.0147	2.51%	1.94%
12.5		5	1.29	1.234	1.346	1.283	1.245	1.355	0.02015	3.49%	3.51%
25		5	1.362	1.284	1.439	1.381	1.265	1.431	0.028	4.6%	-1.83%
50		5	1.305	1.269	1.342	1.304	1.265	1.346	0.01304	2.23%	2.37%
100		5	1.249	1.202	1.295	1.237	1.215	1.299	0.01676	3.0%	6.63%

Analyst:______ QA: AC 9/12/18

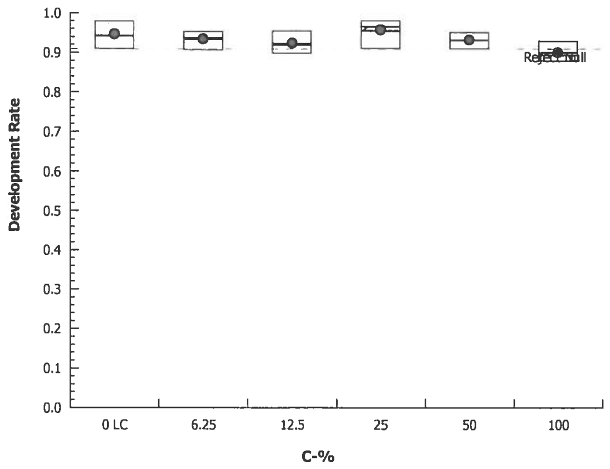
CETIS Analytical Report

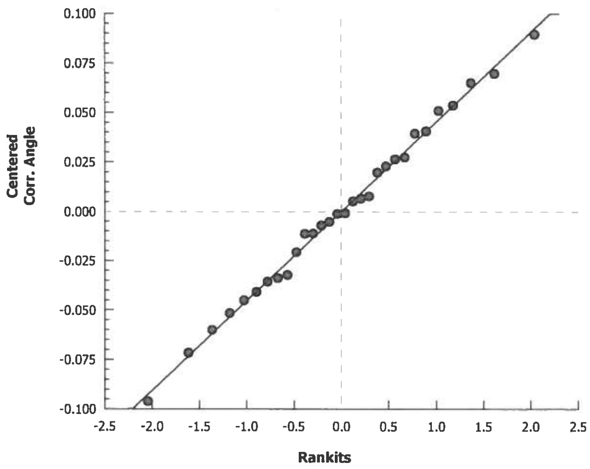
Report Date: 03 Sep-18 13:44 (p 6 of 10)
Test Code: 1808-S115 | 19-8366-6729

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	10-4779-9189	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 13:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst:______ QA: AC 9/12/18

CETIS Analytical Report

TST

Report Date: 03 Sep-18 13:44 (p 7 of 10)
Test Code: 1808-S115 | 19-8366-6729

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	09-4114-2919	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 13:43	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	15-6146-5672	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	2.52%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	11.1	1.943	0.054	6	<0.0001	CDF	Non-Significant Effect
		12.5*	9.262	1.895	0.059	7	<0.0001	CDF	Non-Significant Effect
		25*	9.797	1.895	0.069	7	<0.0001	CDF	Non-Significant Effect
		50*	11.23	1.943	0.052	6	<0.0001	CDF	Non-Significant Effect
		100*	8.489	1.895	0.055	7	<0.0001	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.03793276	0.007586551	5	3.199	0.0236	Significant Effect
Error	0.05692158	0.002371733	24			
Total	0.09485434		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.576	15.09	0.4697	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9932	0.9031	0.9992	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9429	0.9047	0.981	0.9412	0.9096	0.9794	0.01376	3.26%	0.0%
6.25		5	0.9334	0.9125	0.9543	0.9367	0.9063	0.9524	0.007513	1.8%	1.0%
12.5		5	0.9219	0.893	0.9508	0.9195	0.8976	0.9542	0.0104	2.52%	2.22%
25		5	0.954	0.92	0.9881	0.9645	0.9096	0.9806	0.01226	2.87%	-1.19%
50		5	0.9306	0.9123	0.949	0.9306	0.9091	0.9504	0.006605	1.59%	1.3%
100		5	0.8988	0.8713	0.9262	0.8929	0.8784	0.9281	0.009879	2.46%	4.68%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.337	1.25	1.424	1.326	1.265	1.427	0.03145	5.26%	0.0%
6.25		5	1.311	1.27	1.352	1.316	1.26	1.351	0.0147	2.51%	1.94%
12.5		5	1.29	1.234	1.346	1.283	1.245	1.355	0.02015	3.49%	3.51%
25		5	1.362	1.284	1.439	1.381	1.265	1.431	0.028	4.6%	-1.83%
50		5	1.305	1.269	1.342	1.304	1.265	1.346	0.01304	2.23%	2.37%
100		5	1.249	1.202	1.295	1.237	1.215	1.299	0.01676	3.0%	6.63%

Analyst:________ QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 13:44 (p 9 of 10)
Test Code: 1808-S115 | 19-8366-6729

Bivalve Larval Survival and Development Test	**Nautilus Environmental (CA)**

Analysis ID:	13-7114-9873	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 13:43	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	15-6146-5672	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	4.05%	100	>100	NA	1

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	28	16	1	8	0.8627	Asymp	Non-Significant Effect
		12.5	30	16	1	8	0.9446	Asymp	Non-Significant Effect
		25	28	16	1	8	0.8627	Asymp	Non-Significant Effect
		50	28	16	1	8	0.8627	Asymp	Non-Significant Effect
		100	26	16	1	8	0.7237	Asymp	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.01670949	0.003341898	5	0.3272	0.8915	Non-Significant Effect
Error	0.2451031	0.01021263	24			
Total	0.2618126		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	0.3335	4.248	0.8861	Equal Variances
Variances	Levene Equality of Variance	1.934	3.895	0.1258	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7182	0.9031	<0.0001	Non-normal Distribution

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9778	0.9161	1	1	0.8889	1	0.02222	5.08%	0.0%
6.25		5	0.9895	0.9605	1	1	0.9477	1	0.01046	2.36%	-1.2%
12.5		5	1	1	1	1	1	1	0	0.0%	-2.27%
25		5	0.9843	0.9408	1	1	0.9216	1	0.01569	3.56%	-0.67%
50		5	0.9843	0.9408	1	1	0.9216	1	0.01569	3.56%	-0.67%
100		5	0.9778	0.935	1	1	0.9216	1	0.01541	3.52%	0.0%

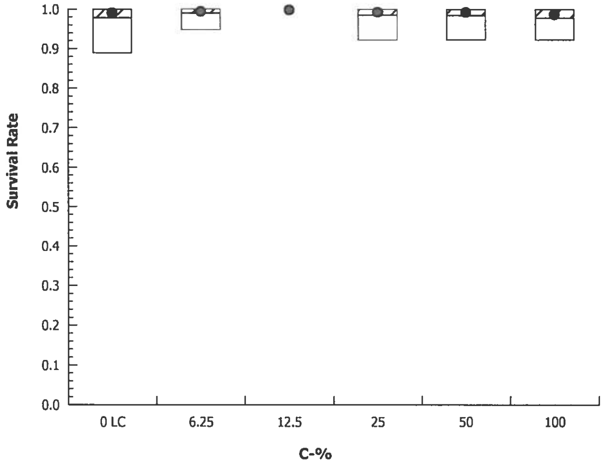
Angular (Corrected) Transformed Summary

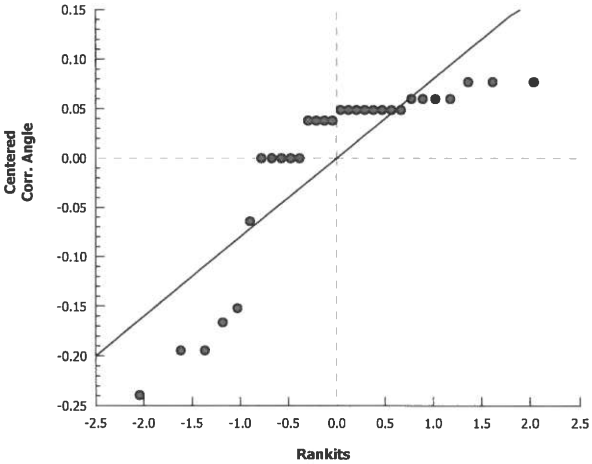
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.47	1.304	1.637	1.53	1.231	1.53	0.05988	9.11%	0.0%
6.25		5	1.492	1.387	1.598	1.53	1.34	1.53	0.03805	5.7%	-1.48%
12.5		5	1.53	1.53	1.531	1.53	1.53	1.53	0	0.0%	-4.07%
25		5	1.482	1.347	1.617	1.53	1.287	1.53	0.04868	7.35%	-0.76%
50		5	1.482	1.347	1.617	1.53	1.287	1.53	0.04868	7.35%	-0.76%
100		5	1.453	1.315	1.592	1.53	1.287	1.53	0.04981	7.66%	1.16%

Analyst: 8 QA: AC 9/12/18

Bivalve Larval Survival and Development Test			**Nautilus Environmental (CA)**
Analysis ID: 13-7114-9873	**Endpoint:** Survival Rate		**CETIS Version:** CETISv1.8.7
Analyzed: 03 Sep-18 13:43	**Analysis:** Nonparametric-Control vs Treatments		**Official Results:** Yes

Graphics





Analyst: G QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 14:46 (p 1 of 1)
Test Code: 1808-S115 | 19-8366-6729

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	11-5292-6991	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 14:46	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	5.79%	Passes combined development rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		101	0.456	1.86	0.103	8	0.3303	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.00159918	0.00159918	1	0.2079	0.6605	Non-Significant Effect
Error	0.06153709	0.007692137	8			
Total	0.06313627		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	3.263	23.15	0.2786	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.966	0.7411	0.8512	Normal Distribution

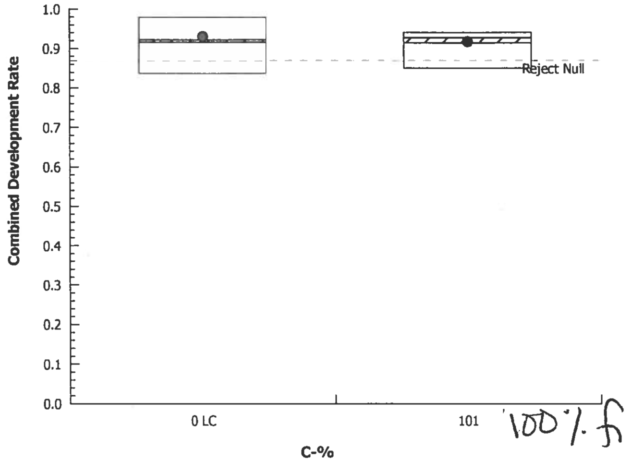
Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9219	0.8515	0.9924	0.9161	0.8366	0.9794	0.02538	6.16%	0.0%
101		5	0.9142	0.8687	0.9596	0.9273	0.8497	0.9412	0.01637	4.01%	0.84%

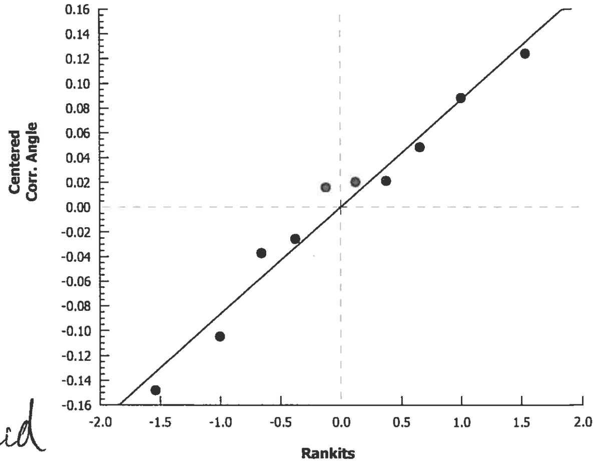
Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.303	1.168	1.438	1.277	1.155	1.427	0.04853	8.33%	0.0%
101		5	1.278	1.203	1.352	1.298	1.173	1.326	0.02687	4.7%	1.94%

Graphics



100% filtered



Analyst:______ QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 13:44 (p 1 of 2)
Test Code: 1808-S115 | 19-8366-6729

Bivalve Larval Survival and Development Test					**Nautilus Environmental (CA)**
Analysis ID:	11-0522-4433	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 13:43	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	15-6146-5672	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1645283	1000	Yes	Two-Point Interpolation

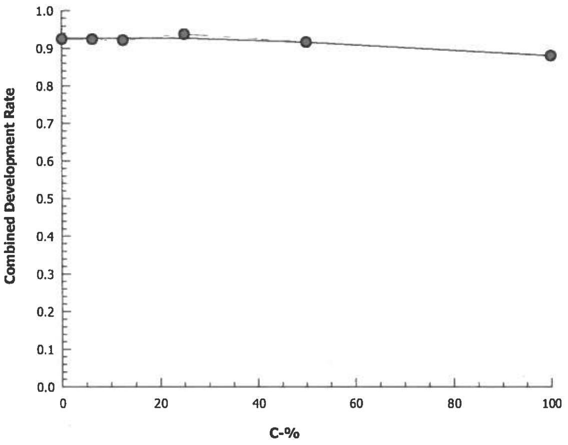
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Combined Development Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.9219	0.8366	0.9794	0.02538	0.05675	6.16%	0.0%	762	824
6.25		5	0.9236	0.8889	0.9524	0.01142	0.02554	2.77%	-0.18%	744	805
12.5		5	0.9219	0.8976	0.9542	0.0104	0.02326	2.52%	0.0%	739	802
25		5	0.9389	0.8889	0.9806	0.01731	0.03871	4.12%	-1.84%	753	803
50		5	0.9157	0.8758	0.9345	0.0109	0.02438	2.66%	0.67%	758	827
100		5	0.8792	0.8105	0.9281	0.02175	0.04864	5.53%	4.63%	699	794

Graphics



Analyst:______ QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 13:44 (p 2 of 2)
Test Code: 1808-S115 | 19-8366-6729

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	10-2072-9253	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 13:43	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	15-6146-5672	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	82709	1000	Yes	Two-Point Interpolation

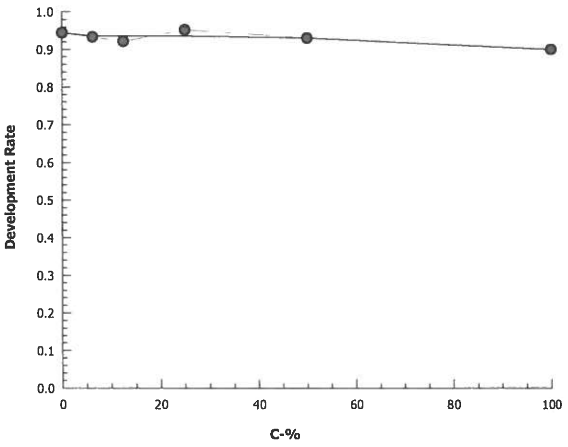
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Development Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.9429	0.9096	0.9794	0.01376	0.03076	3.26%	0.0%	762	807
6.25		5	0.9334	0.9063	0.9524	0.007513	0.0168	1.8%	1.0%	744	797
12.5		5	0.9219	0.8976	0.9542	0.0104	0.02326	2.52%	2.22%	739	802
25		5	0.954	0.9096	0.9806	0.01226	0.02742	2.87%	-1.19%	753	791
50		5	0.9306	0.9091	0.9504	0.006605	0.01477	1.59%	1.3%	758	815
100		5	0.8988	0.8784	0.9281	0.009879	0.02209	2.46%	4.68%	699	777

Graphics



Analyst:______ QA: AC 9/17/18

Embryo Larval Bioassay **48-hour Development**

Client: AMEC/POSD
Sample ID: SIYB-2
Test ID: 1808-S115

Test Species: *M. galloprovincialis*
Start Date/Time: 8/14/2018 1600
End Date/Time: 8/16/2018 1530

Random #	Number Normal	Number Abnormal		Total Number Counted	Intials/Date
		Number Curved Shell	All other abnormal		
71	130	2	12	144	YOBOSG 8/27/18
72	190	0	4	194	
73	145	0	15	160	
74	128	0	8	136	
75	155	0	11	166	
76	155	5	7	167	
77	148	0	10	158	
78	140	7	6	153	
79	171	1	17	188	
80	140	0	15	155	
81	146	0	6	154	
82	130	12	6	148	
83	136	0	9	145	
84	149	0	17	166	
85	160	0	8	168	
86	160	0	14	174	
87	154	0	12	166	
88	150	1	14	165	
89	156	1	11	168	
90	144	0	10	154	
91	150	9	9	168	
92	124	7	10	141	
93	146	0	7	153	
94	148	3	9	160	
95	157	0	11	168	
96	148	0	5	153	
97	142	0	13	155	
98	151	0	15	166	
99	153	1	11	165	
100	134	2	5	141	
101	160	2	8	170	
102	161	2	10	173	
103	151	0	5	156	
104	136	0	5	141	
105	152	0	3	155	

Comments:

QC Check: 9/3/18

Final Review: AC 9/12/18

CETIS Test Data Worksheet

Report Date: 09 Aug-18 12:13 (p 1 of 1)
Test Code: 1808-S115 19-8366-6729/1808-S115

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Start Date: 14 Aug-18
End Date: 16 Aug-18
Sample Date: 13 Aug-18
Species: Mytilus galloprovincialis
Protocol: EPA/600/R-95/136 (1995)
Material: Ambient Water
Sample Code: 18-0859
Sample Source: Shelter Island Yacht Basin
Sample Station: SIYB-2

C-%	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	LC	1	103					
0	LC	2	72			177	170	RT 8/17/18
0	LC	3	97					
0	LC	4	74					
0	LC	5	98					
6.25		1	85					
6.25		2	75					
6.25		3	83					
6.25		4	73			147	131	RT
6.25		5	77					
12.5		1	93					
12.5		2	86					
12.5		3	90					
12.5		4	80			111	102	RT
12.5		5	84					
25		1	79					
25		2	81					
25		3	104			124	119	RT
25		4	105					
25		5	96					
50		1	88					
50		2	102					
50		3	89			154	143	RT
50		4	95					
50		5	100					
100		1	91					
100		2	76					
100		3	78			154	140	RT 9 curved hinges
100		4	82					
100		5	92					
~~101~~ Q 8		1	87					
100% ~~101~~ AC 8/10		2	99			143	131	RT
filt. ~~101~~		3	94					
~~101~~		4	71					
~~101~~		5	101					

Analyst: AC

QA: 9/16/18

Marine Chronic Bioassay

Water Quality Measurements

Client: AMEC/POSD
Sample ID: SIYB-2
Sample Log No.: 18-~~08~~ Ⓑ 0859
Test No.: 1808-S 115

Test Species: *M. galloprovincialis*
Start Date/Time: 8/14/2018 1600
End Date/Time: 8/16/2018 1530

Concentration (%)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	34.5	34.4	34.2	14.6	14.6	14.8	8.5	8.3	8.1	8.13	8.08	Ⓐ ~~8~~ 7.96
6.25	34.4	34.5	34.5	14.4	14.4	14.4	8.7	8.3	8.2	8.12	8.05	7.94
12.5	34.6	34.5	34.6	14.4	14.3	14.3	8.7	8.2	8.2	8.11	8.05	7.95
25	34.6	34.5	34.6	14.3	14.3	14.2	8.7	8.2	8.2	8.11	8.05	7.96
50	34.5	34.6	34.6	14.3	14.4	14.4	8.7	8.3	8.2	8.09	8.04	7.97
100	34.5	34.6	34.6 ~~34.8~~ Ⓐ	14.3	14.4	14.3	8.7	8.2	8.2	8.08	8.05	7.97
100 filtered	34.3	34.3	34.6	14.4	14.3	14.3	7.7	8.2	8.2	8.10	8.05	7.98

Technician Initials:

	0	24	48
WQ Readings:	EG	RT	EG
Dilutions made by:	EG		

Comments:
0 hrs:
24 hrs:
48 hrs: Ⓐ EG Q18 8/16/18
Ⓑ Q18 AC 8/31/18

QC Check: AC 8/31/18

Final Review: G 9/16/18

Marine Chronic Bioassay **Larval Development Worksheet**

Client: AMEC/POSD- SI4B-2
Test No.: 1808-S115
Test Species: M. galloprovincialis
Animal Source: M. Bay
Date Received: 6/29/18
Test Chambers: 30mL glass shell vials
Sample Volume: 10 mL

Start Date/Time: 8/14/18 1600
End Date/Time: 8/16/18 1530
Technician Initials: &/AC/EG

Spawn Information

First Gamete Release Time: 1130

Sex	Number Spawning
Male	3
Female	2

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2	Light spawning, fair motility
Female 1	1	Uniform size, shape, color, low density, no fert
Female 2	2	Uniform size, shape, color, fair density, no fert
Female 3		

Egg Fertilization Time: 1245

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	98
Female 2	100
Female 3	

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 6 embryos

Number Counted

7	3
7	8
5	5
3	8
4	7

Mean: 5.7

Mean 5.7 X 50 = 285 embryos/ml

Initial Density: 285 / Desired Final Density: 300 (to inoculate with 0.5 ml) = 0.95 (dilution factor)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No	No. Dividing	Total	% Dividing	Mean % Dividing
TQ1	161	161	100	99.7
TQ2	162	162	100	
TQ3	150	150	100	
TQ4	140	141	99.3	
TQ5	154	155	99.4	

D18 AC 8/16/18
48-h QC: ~~146~~ 143/156 = 91.7%

Comments: X̄ = 153.4

QC Check: AC 8/31/18

Final Review: & 9/16/18

CETIS Summary Report

Report Date: 03 Sep-18 12:44 (p 1 of 4)
Test Code: 1808-S116 | 09-1846-0585

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Batch ID:	20-5381-0761	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Sample ID:	19-2882-8452	**Code:**	18-0860	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 12:30	**Material:**	Ambient Water	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	27h (11.5 °C)	**Station:**	SIYB-3		

Batch Note: 101= 100 percent sample filtered to 0.45um

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
07-9790-2965	Combined Development Ra	100	>100	NA	10.5%	1	Dunnett Multiple Comparison Test
04-4447-5578	Development Rate	50	100	70.71	4.65%	2	Dunnett Multiple Comparison Test
14-8343-8261	Survival Rate	100	>100	NA	11.3%	1	Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
18-0564-9966	Combined Development Ra	EC25	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	
02-1163-7877	Development Rate	EC25	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
02-1163-7877	Development Rate	Control Resp	0.9385	0.9 - NL	Yes	Passes Acceptability Criteria
04-4447-5578	Development Rate	Control Resp	0.9385	0.9 - NL	Yes	Passes Acceptability Criteria
14-8343-8261	Survival Rate	Control Resp	0.9268	0.5 - NL	Yes	Passes Acceptability Criteria
07-9790-2965	Combined Development Ra	PMSD	0.1053	NL - 0.25	No	Passes Acceptability Criteria

Analyst:________ QA AC 9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9102	0.8516	0.9689	0.8301	0.9468	0.02112	0.04723	5.19%	0.0%
0	Lab Control	5	0.87	0.8024	0.9376	0.817	0.9581	0.02435	0.05444	6.26%	4.41%
6.25		5	0.9374	0.9027	0.9721	0.8927	0.9613	0.0125	0.02794	2.98%	-2.99%
12.5		5	0.9208	0.8865	0.9552	0.8788	0.9497	0.01237	0.02767	3.0%	-1.17%
25		5	0.8876	0.7832	0.992	0.7451	0.9568	0.0376	0.08407	9.47%	2.49%
50		5	0.8749	0.7932	0.9566	0.7908	0.9512	0.02943	0.0658	7.52%	3.88%
100		5	0.8563	0.7929	0.9196	0.787	0.9085	0.02282	0.05102	5.96%	5.93%
101		5	0.9116	0.8699	0.9534	0.8562	0.9387	0.01503	0.03361	3.69%	-0.16%

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9182	0.8799	0.9565	0.8699	0.9468	0.0138	0.03086	3.36%	0.0%
0	Lab Control	5	0.9385	0.9125	0.9644	0.9085	0.9581	0.009343	0.02089	2.23%	-2.21%
6.25		5	0.9399	0.9058	0.974	0.8927	0.9613	0.01228	0.02745	2.92%	-2.36%
12.5		5	0.9208	0.8865	0.9552	0.8788	0.9497	0.01237	0.02767	3.0%	-0.29%
25		5	0.9348	0.9151	0.9545	0.9194	0.9568	0.007098	0.01587	1.7%	-1.81%
50		5	0.9236	0.8977	0.9495	0.9006	0.9512	0.009335	0.02087	2.26%	-0.59%
100		5	0.8681	0.7946	0.9416	0.787	0.9456	0.02646	0.05917	6.82%	5.45%
101		5	0.9151	0.8819	0.9482	0.8733	0.9387	0.01195	0.02672	2.92%	0.34%

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9908	0.9654	1	0.9542	1	0.00915	0.02046	2.07%	0.0%
0	Lab Control	5	0.9268	0.8684	0.9851	0.8693	1	0.02102	0.047	5.07%	6.46%
6.25		5	0.9974	0.9901	1	0.9869	1	0.002614	0.005846	0.59%	-0.66%
12.5		5	1	1	1	1	1	0	0	0.0%	-0.92%
25		5	0.949	0.8466	1	0.8105	1	0.03688	0.08247	8.69%	4.22%
50		5	0.9477	0.8559	1	0.8431	1	0.03307	0.07395	7.8%	4.35%
100		5	0.9869	0.964	1	0.9608	1	0.008267	0.01849	1.87%	0.4%
101		5	0.9961	0.9852	1	0.9804	1	0.003922	0.008769	0.88%	-0.53%

Analyst: QA: AC9/10/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9191	0.9468	0.8301	0.943	0.9121
0	Lab Control	0.8431	0.8497	0.9581	0.8824	0.817
6.25		0.9542	0.8927	0.9508	0.9613	0.9281
12.5		0.9107	0.939	0.9497	0.9259	0.8788
25		0.933	0.9207	0.9568	0.8824	0.7451
50		0.9512	0.9085	0.7908	0.9006	0.8235
100		0.787	0.8981	0.8235	0.9085	0.8642
101		0.9042	0.8562	0.9387	0.9266	0.9326

Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9191	0.9468	0.8699	0.943	0.9121
0	Lab Control	0.9085	0.9286	0.9581	0.9574	0.9398
6.25		0.9542	0.8927	0.9508	0.9613	0.9404
12.5		0.9107	0.939	0.9497	0.9259	0.8788
25		0.933	0.9207	0.9568	0.9441	0.9194
50		0.9512	0.9085	0.938	0.9006	0.9197
100		0.787	0.8981	0.8456	0.9456	0.8642
101		0.9042	0.8733	0.9387	0.9266	0.9326

Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	1	1	0.9542	1	1
0	Lab Control	0.9281	0.915	1	0.9216	0.8693
6.25		1	1	1	1	0.9869
12.5		1	1	1	1	1
25		1	1	1	0.9346	0.8105
50		1	1	0.8431	1	0.8954
100		1	1	0.9739	0.9608	1
101		1	0.9804	1	1	1

Analyst:______ QA: AC 9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	159/173	178/188	127/153	149/158	166/182
0	Lab Control	129/153	130/153	160/167	135/153	125/153
6.25		146/153	158/177	174/183	149/155	142/153
12.5		153/168	154/164	170/179	150/162	145/165
25		167/179	151/164	177/185	135/153	114/153
50		156/164	149/164	121/153	163/181	126/153
100		133/169	141/157	126/153	139/153	140/162
101		151/167	131/153	153/163	164/177	166/178

Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	159/173	178/188	127/146	149/158	166/182
0	Lab Control	129/142	130/140	160/167	135/141	125/133
6.25		146/153	158/177	174/183	149/155	142/151
12.5		153/168	154/164	170/179	150/162	145/165
25		167/179	151/164	177/185	135/143	114/124
50		156/164	149/164	121/129	163/181	126/137
100		133/169	141/157	126/149	139/147	140/162
101		151/167	131/150	153/163	164/177	166/178

Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	153/153	153/153	146/153	153/153	153/153
0	Lab Control	142/153	140/153	153/153	141/153	133/153
6.25		153/153	153/153	153/153	153/153	151/153
12.5		153/153	153/153	153/153	153/153	153/153
25		153/153	153/153	153/153	143/153	124/153
50		153/153	153/153	129/153	153/153	137/153
100		153/153	153/153	149/153	147/153	153/153
101		153/153	150/153	153/153	153/153	153/153

Analyst: ____ QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:45 (p 1 of 10)
Test Code: 1808-S116 | 09-1846-0585

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	07-9790-2965	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	20-5381-0761	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	10.5%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	-2.049	2.362	0.129	8	0.9994	CDF	Non-Significant Effect
		12.5	-1.436	2.362	0.129	8	0.9954	CDF	Non-Significant Effect
		25	-0.6119	2.362	0.129	8	0.9540	CDF	Non-Significant Effect
		50	-0.1622	2.362	0.129	8	0.8768	CDF	Non-Significant Effect
		100	0.4352	2.362	0.129	8	0.6748	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.06622819	0.01324564	5	1.766	0.1582	Non-Significant Effect
Error	0.1800283	0.007501178	24			
Total	0.2462565		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.34	15.09	0.5016	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9812	0.9031	0.8575	Normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.87	0.8024	0.9376	0.8497	0.817	0.9581	0.02435	6.26%	0.0%
6.25		5	0.9374	0.9027	0.9721	0.9508	0.8927	0.9613	0.0125	2.98%	-7.74%
12.5		5	0.9208	0.8865	0.9552	0.9259	0.8788	0.9497	0.01237	3.0%	-5.84%
25		5	0.8876	0.7832	0.992	0.9207	0.7451	0.9568	0.0376	9.47%	-2.02%
50		5	0.8749	0.7932	0.9566	0.9006	0.7908	0.9512	0.02943	7.52%	-0.56%
100		5	0.8563	0.7929	0.9196	0.8642	0.787	0.9085	0.02282	5.96%	1.59%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.21	1.095	1.325	1.173	1.129	1.365	0.04133	7.64%	0.0%
6.25		5	1.322	1.254	1.39	1.347	1.237	1.373	0.02455	4.15%	-9.28%
12.5		5	1.289	1.226	1.351	1.295	1.215	1.345	0.02246	3.9%	-6.5%
25		5	1.244	1.09	1.397	1.285	1.042	1.361	0.05532	9.95%	-2.77%
50		5	1.219	1.093	1.345	1.25	1.096	1.348	0.04553	8.35%	-0.73%
100		5	1.186	1.096	1.276	1.193	1.091	1.263	0.03243	6.11%	1.97%

Analyst:______ QA: AC 9/12/18

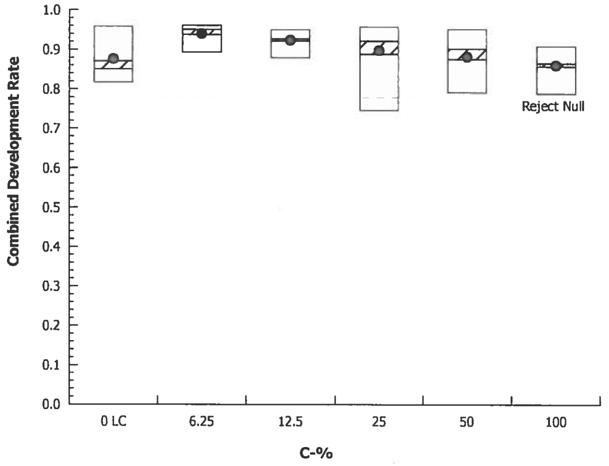
CETIS Analytical Report

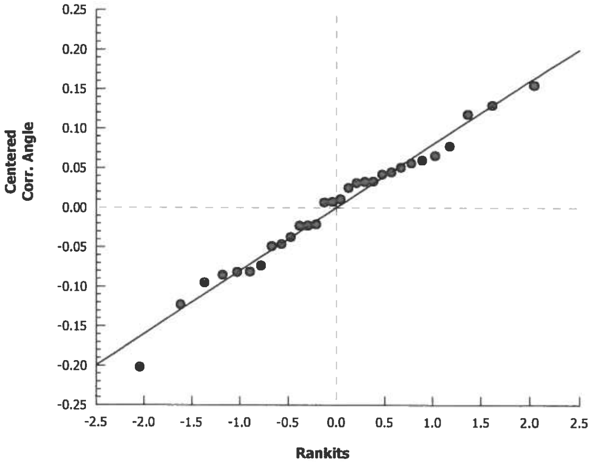
Report Date: 03 Sep-18 12:45 (p 2 of 10)
Test Code: 1808-S116 | 09-1846-0585

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	07-9790-2965	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst: g QA: AC 9/12/18

Bivalve Larval Survival and Development Test					**Nautilus Environmental (CA)**
Analysis ID:	04-1325-5102	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:44	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	20-5381-0761	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	6.43%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	10.49	1.895	0.075	7	<0.0001	CDF	Non-Significant Effect
		12.5*	9.957	1.895	0.073	7	<0.0001	CDF	Non-Significant Effect
		25*	5.299	1.943	0.123	6	0.0009	CDF	Non-Significant Effect
		50*	5.653	1.895	0.104	7	0.0004	CDF	Non-Significant Effect
		100*	6.212	1.895	0.085	7	0.0002	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.06622819	0.01324564	5	1.766	0.1582	Non-Significant Effect
Error	0.1800283	0.007501178	24			
Total	0.2462565		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.34	15.09	0.5016	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9812	0.9031	0.8575	Normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.87	0.8024	0.9376	0.8497	0.817	0.9581	0.02435	6.26%	0.0%
6.25		5	0.9374	0.9027	0.9721	0.9508	0.8927	0.9613	0.0125	2.98%	-7.74%
12.5		5	0.9208	0.8865	0.9552	0.9259	0.8788	0.9497	0.01237	3.0%	-5.84%
25		5	0.8876	0.7832	0.992	0.9207	0.7451	0.9568	0.0376	9.47%	-2.02%
50		5	0.8749	0.7932	0.9566	0.9006	0.7908	0.9512	0.02943	7.52%	-0.56%
100		5	0.8563	0.7929	0.9196	0.8642	0.787	0.9085	0.02282	5.96%	1.59%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.21	1.095	1.325	1.173	1.129	1.365	0.04133	7.64%	0.0%
6.25		5	1.322	1.254	1.39	1.347	1.237	1.373	0.02455	4.15%	-9.28%
12.5		5	1.289	1.226	1.351	1.295	1.215	1.345	0.02246	3.9%	-6.5%
25		5	1.244	1.09	1.397	1.285	1.042	1.361	0.05532	9.95%	-2.77%
50		5	1.219	1.093	1.345	1.25	1.096	1.348	0.04553	8.35%	-0.73%
100		5	1.186	1.096	1.276	1.193	1.091	1.263	0.03243	6.11%	1.97%

AC 9/12/18

Bivalve Larval Survival and Development Test					**Nautilus Environmental (CA)**
Analysis ID:	04-4447-5578	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	20-5381-0761	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	4.65%	50	100	70.71	2

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	-0.1263	2.362	0.082	8	0.8680	CDF	Non-Significant Effect
		12.5	0.9785	2.362	0.082	8	0.4295	CDF	Non-Significant Effect
		25	0.2513	2.362	0.082	8	0.7486	CDF	Non-Significant Effect
		50	0.8603	2.362	0.082	8	0.4832	CDF	Non-Significant Effect
		100*	3.335	2.362	0.082	8	0.0059	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0499948	0.009998959	5	3.287	0.0211	Significant Effect
Error	0.07300919	0.003042049	24			
Total	0.123004		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	5.068	15.09	0.4076	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9764	0.9031	0.7235	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9385	0.9125	0.9644	0.9398	0.9085	0.9581	0.009343	2.23%	0.0%
6.25		5	0.9399	0.9058	0.974	0.9508	0.8927	0.9613	0.01228	2.92%	-0.15%
12.5		5	0.9208	0.8865	0.9552	0.9259	0.8788	0.9497	0.01237	3.0%	1.88%
25		5	0.9348	0.9151	0.9545	0.933	0.9194	0.9568	0.007098	1.7%	0.4%
50		5	0.9236	0.8977	0.9495	0.9197	0.9006	0.9512	0.009335	2.26%	1.59%
100		5	0.8681	0.7946	0.9416	0.8642	0.787	0.9456	0.02646	6.82%	7.5%

Angular (Corrected) Transformed Summary

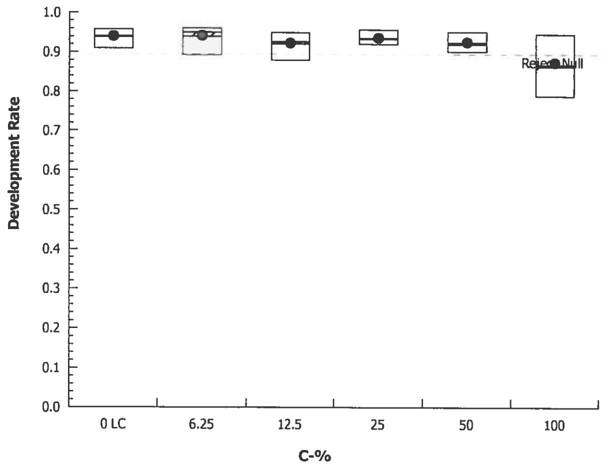
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.323	1.269	1.376	1.323	1.263	1.365	0.01924	3.25%	0.0%
6.25		5	1.327	1.261	1.394	1.347	1.237	1.373	0.02388	4.02%	-0.33%
12.5		5	1.289	1.226	1.351	1.295	1.215	1.345	0.02246	3.9%	2.58%
25		5	1.314	1.273	1.355	1.309	1.283	1.361	0.0148	2.52%	0.66%
50		5	1.293	1.243	1.343	1.284	1.25	1.348	0.01806	3.12%	2.27%
100		5	1.207	1.093	1.32	1.193	1.091	1.335	0.04075	7.55%	8.79%

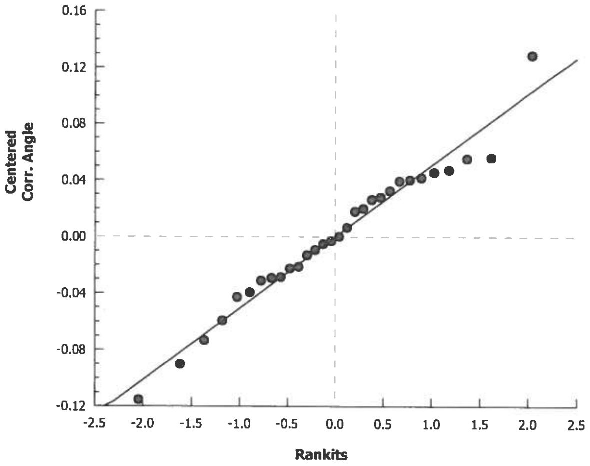
Analyst:______ QA: AC9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	04-4447-5578	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst:______ QA: AC 9/12/18

CETIS Analytical Report

TST

Report Date: 03 Sep-18 12:45 (p 7 of 10)
Test Code: 1808-S116 | 09-1846-0585

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	21-1984-3932	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:44	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	20-5381-0761	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	5.3%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	12.01	1.943	0.054	6	<0.0001	CDF	Non-Significant Effect
		12.5*	11.11	1.943	0.052	6	<0.0001	CDF	Non-Significant Effect
		25*	15.58	1.895	0.039	7	<0.0001	CDF	Non-Significant Effect
		50*	13.01	1.895	0.044	7	<0.0001	CDF	Non-Significant Effect
		100*	4.96	2.132	0.092	4	0.0039	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0499948	0.009998959	5	3.287	0.0211	Significant Effect
Error	0.07300919	0.003042049	24			
Total	0.123004		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	5.068	15.09	0.4076	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9764	0.9031	0.7235	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9385	0.9125	0.9644	0.9398	0.9085	0.9581	0.009343	2.23%	0.0%
6.25		5	0.9399	0.9058	0.974	0.9508	0.8927	0.9613	0.01228	2.92%	-0.15%
12.5		5	0.9208	0.8865	0.9552	0.9259	0.8788	0.9497	0.01237	3.0%	1.88%
25		5	0.9348	0.9151	0.9545	0.933	0.9194	0.9568	0.007098	1.7%	0.4%
50		5	0.9236	0.8977	0.9495	0.9197	0.9006	0.9512	0.009335	2.26%	1.59%
100		5	0.8681	0.7946	0.9416	0.8642	0.787	0.9456	0.02646	6.82%	7.5%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.323	1.269	1.376	1.323	1.263	1.365	0.01924	3.25%	0.0%
6.25		5	1.327	1.261	1.394	1.347	1.237	1.373	0.02388	4.02%	-0.33%
12.5		5	1.289	1.226	1.351	1.295	1.215	1.345	0.02246	3.9%	2.58%
25		5	1.314	1.273	1.355	1.309	1.283	1.361	0.0148	2.52%	0.66%
50		5	1.293	1.243	1.343	1.284	1.25	1.348	0.01806	3.12%	2.27%
100		5	1.207	1.093	1.32	1.193	1.091	1.335	0.04075	7.55%	8.79%

Analyst: g

QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:45 (p 9 of 10)
Test Code: 1808-S116 | 09-1846-0585

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	14-8343-8261	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	20-5381-0761	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	11.3%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control	6.25	-2.545	2.362	0.183	8	0.9999	CDF	Non-Significant Effect
	12.5	-2.737	2.362	0.183	8	0.9999	CDF	Non-Significant Effect
	25	-1.114	2.362	0.183	8	0.9879	CDF	Non-Significant Effect
	50	-1.043	2.362	0.183	8	0.9852	CDF	Non-Significant Effect
	100	-2.011	2.362	0.183	8	0.9996	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1635221	0.03270441	5	2.183	0.0897	Non-Significant Effect
Error	0.3594974	0.01497906	24			
Total	0.5230195		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1.164	4.248	0.3644	Equal Variances
Variances	Levene Equality of Variance	8.208	3.895	0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.9545	0.9031	0.2223	Normal Distribution

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9268	0.8684	0.9851	0.9216	0.8693	1	0.02102	5.07%	0.0%
6.25		5	0.9974	0.9901	1	1	0.9869	1	0.002614	0.59%	-7.62%
12.5		5	1	1	1	1	1	1	0	0.0%	-7.9%
25		5	0.949	0.8466	1	1	0.8105	1	0.03688	8.69%	-2.4%
50		5	0.9477	0.8559	1	1	0.8431	1	0.03307	7.8%	-2.26%
100		5	0.9869	0.964	1	1	0.9608	1	0.008267	1.87%	-6.49%

Angular (Corrected) Transformed Summary

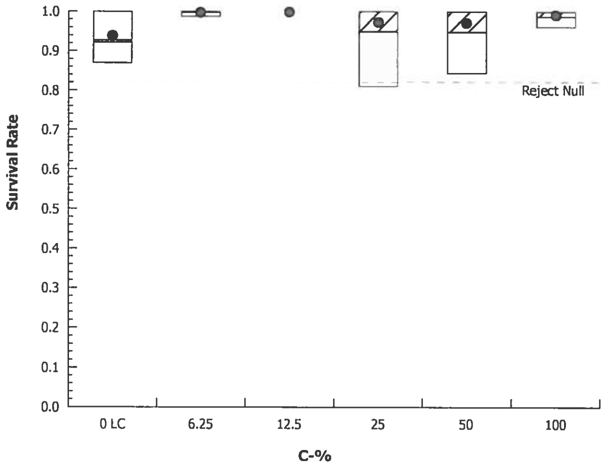
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.319	1.164	1.473	1.287	1.201	1.53	0.05567	9.44%	0.0%
6.25		5	1.516	1.474	1.557	1.53	1.456	1.53	0.01483	2.19%	-14.94%
12.5		5	1.53	1.53	1.531	1.53	1.53	1.53	0	0.0%	-16.07%
25		5	1.405	1.175	1.634	1.53	1.12	1.53	0.0827	13.16%	-6.54%
50		5	1.399	1.174	1.625	1.53	1.164	1.53	0.08124	12.98%	-6.12%
100		5	1.474	1.377	1.571	1.53	1.371	1.53	0.03489	5.29%	-11.81%

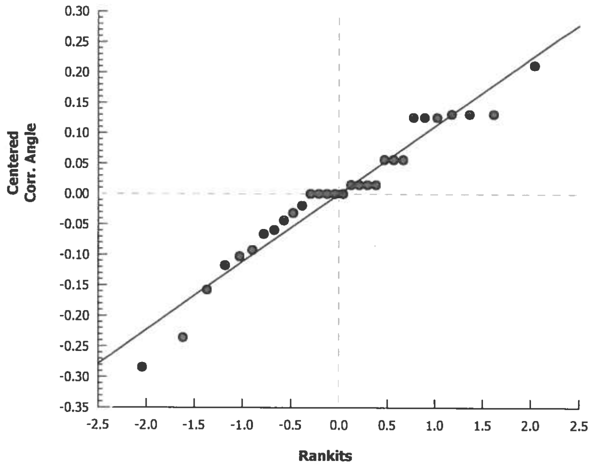
Analyst: ______ QA: AC 9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	14-8343-8261	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst:

QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 14:47 (p 1 of 1)
Test Code: 1808-S116 | 09-1846-0585

Bivalve Larval Survival and Development Test	**Nautilus Environmental (CA)**

Analysis ID:	04-1530-7486	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 14:47	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	6.87%	Passes combined development rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		101	-1.293	1.86	0.09	8	0.8839	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.009778582	0.009778582	1	1.672	0.2321	Non-Significant Effect
Error	0.04679658	0.005849572	8			
Total	0.05657516		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	2.706	23.15	0.3583	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9371	0.7411	0.5209	Normal Distribution

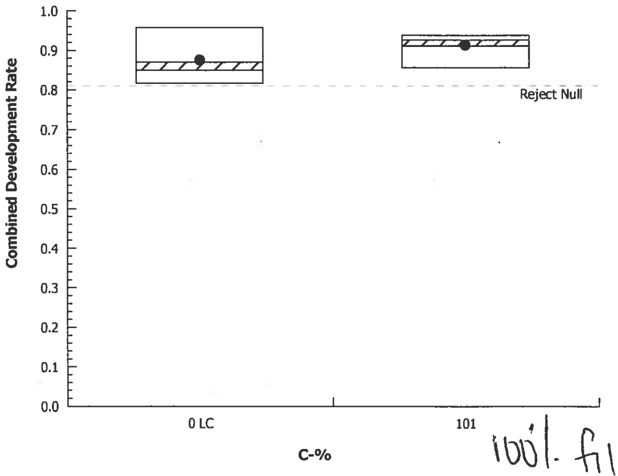
Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.87	0.8024	0.9376	0.8497	0.817	0.9581	0.02435	6.26%	0.0%
101		5	0.9116	0.8699	0.9534	0.9266	0.8562	0.9387	0.01503	3.69%	-4.78%

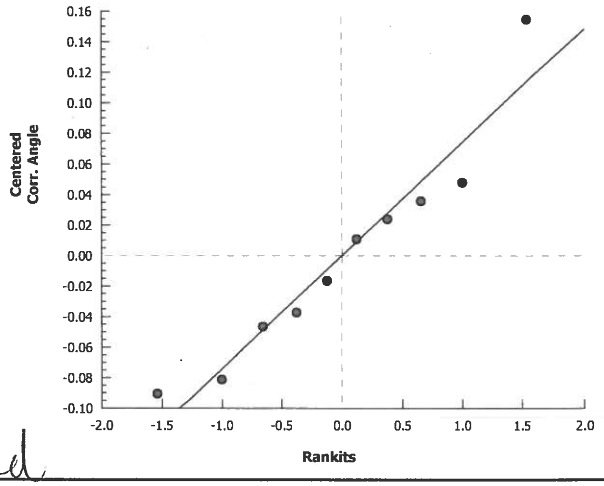
Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.21	1.095	1.325	1.173	1.129	1.365	0.04133	7.64%	0.0%
101		5	1.273	1.203	1.342	1.296	1.182	1.321	0.02513	4.42%	-5.17%

Graphics



100% filtered



Analyst:

QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:45 (p 2 of 2)
Test Code: 1808-S116 | 09-1846-0585

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	02-1163-7877	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:43	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	20-5381-0761	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	6673	1000	Yes	Two-Point Interpolation

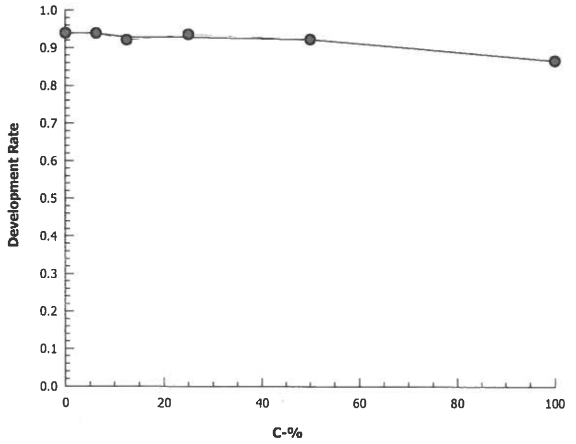
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Development Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.9385	0.9085	0.9581	0.009343	0.02089	2.23%	0.0%	679	723
6.25		5	0.9399	0.8927	0.9613	0.01228	0.02745	2.92%	-0.15%	769	819
12.5		5	0.9208	0.8788	0.9497	0.01237	0.02767	3.0%	1.88%	772	838
25		5	0.9348	0.9194	0.9568	0.007098	0.01587	1.7%	0.4%	744	795
50		5	0.9236	0.9006	0.9512	0.009335	0.02087	2.26%	1.59%	715	775
100		5	0.8681	0.787	0.9456	0.02646	0.05917	6.82%	7.5%	679	784

Graphics



Analyst:

QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:45 (p 1 of 2)
Test Code: 1808-S116 | 09-1846-0585

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	18-0564-9966	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:44	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	20-5381-0761	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	739265	1000	Yes	Two-Point Interpolation

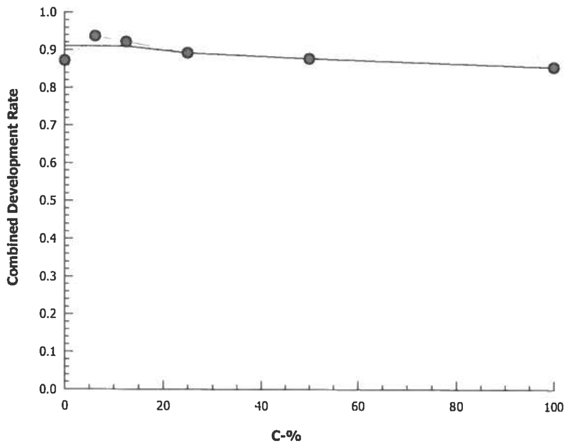
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Combined Development Rate Summary

										Calculated Variate(A/B)	
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.87	0.817	0.9581	0.02435	0.05444	6.26%	0.0%	679	779
6.25		5	0.9374	0.8927	0.9613	0.0125	0.02794	2.98%	-7.74%	769	821
12.5		5	0.9208	0.8788	0.9497	0.01237	0.02767	3.0%	-5.84%	772	838
25		5	0.8876	0.7451	0.9568	0.0376	0.08407	9.47%	-2.02%	744	834
50		5	0.8749	0.7908	0.9512	0.02943	0.0658	7.52%	-0.56%	715	815
100		5	0.8563	0.787	0.9085	0.02282	0.05102	5.96%	1.59%	679	794

Graphics



Analyst:______ QA: AC 9/12/18

Embryo Larval Bioassay **48-hour Development**

Client: AMEC/POSD
Test Species: *M. galloprovincialis*
Sample ID: SIYB-3
Start Date/Time: 8/14/2018 1600
Test ID: 1808-S116
End Date/Time: 8/16/2018 1530

Random #	Number Normal	Number Abnormal		Total Number Counted	Intials/Date
		Number Curved Shell	All other abnormal		
106	135	1	7	143	ACS 8/28/18
107	151	3	13	167	
108	Ⓑ ~~142~~ 146	Ⓑ ~~4~~ 0	7	153	↓
109	164	3	10	177	ACS 8/29/18
110	174	0	9	183	
111	126	0	11	137	
112	166	Ⓐ ~~0~~ 2	10	Ⓐ ~~176~~ 178	
113	129	0	13	142	
114	154	1	9	164	
115	145	1	19	165	
116	167	0	12	179	
117	131	3	16	150	
118	114	1	9	124	
119	121	2	6	129	
120	135	Ⓑ ~~2~~ 0	6	141	
121	151	1	12	164	
122	156	0	8	164	
123	139	4	4	147	
124	153	2	8	163	
125	149	0	6	155	
126	153	0	15	168	
127	160	0	7	167	
128	140	11	11	162	
129	149	2	13	164	
130	126	14	9	149	
131	170	0	9	179	
132	130	0	10	140	
133	150	0	Ⓐ ~~162~~ 12	162	↓
134	141	7	9	157	ACS 8/30/18
135	177	2	6	185	
136	158	0	19	177	
137	Ⓑ ~~123~~ 125	Ⓑ ~~2~~ 0	8	133	
138	163	0	18	181	
139	133	20	16	169	
140	142	0	9	151	↓

Comments: Ⓐ Q18 ACS 8/29/18 Ⓑ O-18 g 9/3/18

QC Check: AC 8/31/18

Final Review: g 9/3/18

CETIS Test Data Worksheet

Report Date: 09 Aug-18 12:17 (p 1 of 1)
Test Code: 09-1846-0585/1808-S116

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Start Date: 14 Aug-18
End Date: 16 Aug-18
Sample Date: 13 Aug-18
Species: Mytilus galloprovincialis
Protocol: EPA/600/R-95/136 (1995)
Material: Ambient Water
Sample Code: 18-08600
Sample Source: Shelter Island Yacht Basin
Sample Station: SIYB-3

C-%	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Q18 UTP 8/17/18 Notes
0	LC	1	113			144	~~129~~ 131	~~3 curved~~ 1 curved UTP 08/17/18
0	LC	2	132				Q18 UTP 8/17/18	
0	LC	3	127					
0	LC	4	120					
0	LC	5	137					
6.25		1	108			159	148	
6.25		2	136					
6.25		3	110					
6.25		4	125					
6.25		5	140					
12.5		1	126			166	152	
12.5		2	114					
12.5		3	131					
12.5		4	133					
12.5		5	115					
25		1	116			178	168	
25		2	121					
25		3	135					
25		4	106					
25		5	118					
50		1	122			170	158	
50		2	129					
50		3	119					
50		4	138					
50		5	111					
100		1	139			172	145	8 curved
100		2	134					
100		3	130					
100		4	123					
100		5	128					
~~101~~ Q18		1	107			167	151	
100% ~~101~~ AC	8/10	2	117					
filt. ~~101~~		3	124					
~~101~~		4	109					
~~101~~		5	112					

Analyst: AC QA: 9/13/18

Marine Chronic Bioassay **Water Quality Measurements**

Client: AMEC/POSD
Sample ID: SIYB-3
Sample Log No.: 18-0860
Test No.: 1808-S116

Test Species: *M. galloprovincialis*
Start Date/Time: 8/14/2018 1600
End Date/Time: 8/16/2018 1530

Concentration (%)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	33.9	34.0	34.1	14.6	14.7	14.6	8.9	8.3	8.1	8.08	8.06	7.98
6.25	34.2	34.4	34.6	14.1	14.4	14.5	8.9	8.4	8.2	8.09	8.07	7.99
12.5	34.4	34.4	34.7	14.1	14.3	14.4	8.9	8.3	8.2	8.09	8.07	8.00
25	34.4	34.5	34.6	14.4	14.5	14.5	8.8	8.3	8.2	8.16	8.06	7.99
50	34.4	34.5	34.6	14.3	14.5	14.4	8.8	8.3	8.2	8.11	8.05	7.98
100	34.6	34.5	34.6	14.0	14.4	14.3	8.8	8.3	8.2	8.12	8.06	7.99
100 filtered	34.3	34.3	34.5	14.3	14.3	14.3	7.9	8.2	8.2	8.10	8.06	8.00

Technician Initials:

	0	24	48
WQ Readings:	EG	RT	EG
Dilutions made by:	EG		

Comments:
0 hrs:
24 hrs:
48 hrs:

QC Check: AC 8/31/18

Final Review: 9/3/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

Marine Chronic Bioassay **Larval Development Worksheet**

Client: AMEC/POSD - SIYB-3
Test No.: 1808-S116
Test Species: M. galloprovincialis
Animal Source: M. Bay
Date Received: 6/29/18
Test Chambers: 30mL glass shell vials
Sample Volume: 10 mL

Start Date/Time: 8/14/18 1600
End Date/Time: 8/16/18 1530
Technician Initials: /AC/EG

Spawn Information

First Gamete Release Time: 1130

Sex	Number Spawning
Male	3
Female	2

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2	Light spawning, fair motility
Female 1	1	Uniform size, shape, color, low density, no tint
Female 2	2	Uniform size, shape, color, fair density, no tint
Female 3		

Egg Fertilization Time: 1245

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	98
Female 2	100
Female 3	

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 6 embryos

Number Counted:

7	3
7	8
5	5
3	8
4	7

Mean: 5.7

Mean 5.7 X 50 = 285 embryos/ml

Initial Density: 285 / Desired Final Density: 300 = 0.95 (dilution factor)
(to inoculate with 0.5 ml)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No	No. Dividing	Total	% Dividing	Mean % Dividing
TQ1	161	161	100	99.7
TQ2	162	162	100	
TQ3	150	150	100	
TQ4	140	141	99.3	
TQ5	154	155	99.4	

018 AC 8/16
48-h QC: ~~146~~ 143/156 = 91.7%

Comments: $\bar{X}$ = 153.4

QC Check: AC 8/31/18

Final Review: 9/3/18

Nautilus Environmental. 4340 Vandever Avenue San Diego, CA 92120.

CETIS Summary Report

Report Date: 03 Sep-18 12:38 (p 1 of 4)
Test Code: 1808-S117 | 17-1636-7858

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Batch ID:	02-4452-3557	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Sample ID:	01-2281-1445	**Code:**	18-0861	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 11:30	**Material:**	Ambient Water	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	28h (11 °C)	**Station:**	SIYB-4		

Batch Note: 101= 100 percent sample filtered to 0.45um

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
15-9873-3148	Combined Development Ra	100	>100	NA	6.52%	1	Steel Many-One Rank Sum Test
05-2388-6269	Development Rate	100	>100	NA	4.55%	1	Dunnett Multiple Comparison Test
00-4856-9174	Survival Rate	100	>100	NA	3.31%	1	Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
00-4971-8617	Combined Development Ra	EC25	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	
03-1555-6691	Development Rate	EC25	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
03-1555-6691	Development Rate	Control Resp	0.902	0.9 - NL	Yes	Passes Acceptability Criteria
05-2388-6269	Development Rate	Control Resp	0.902	0.9 - NL	Yes	Passes Acceptability Criteria
00-4856-9174	Survival Rate	Control Resp	1	0.5 - NL	Yes	Passes Acceptability Criteria
15-9873-3148	Combined Development Ra	PMSD	0.06522	NL - 0.25	No	Passes Acceptability Criteria

Analyst:______ QA: AC 9/12/18

Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9102	0.8516	0.9689	0.8301	0.9468	0.02112	0.04723	5.19%	0.0%
0	Lab Control	5	0.902	0.8611	0.943	0.8779	0.9593	0.01476	0.03301	3.66%	0.9%
6.25		5	0.9346	0.9189	0.9503	0.9193	0.948	0.005651	0.01263	1.35%	-2.68%
12.5		5	0.919	0.9033	0.9347	0.9048	0.9326	0.005651	0.01264	1.38%	-0.96%
25		5	0.9013	0.8446	0.9581	0.8235	0.9412	0.02044	0.0457	5.07%	0.98%
50		5	0.9415	0.9328	0.9502	0.9346	0.9494	0.00312	0.006977	0.74%	-3.44%
100		5	0.869	0.7705	0.9674	0.7451	0.9367	0.03547	0.0793	9.13%	4.53%
101		5	0.8822	0.8451	0.9193	0.8431	0.9266	0.01337	0.0299	3.39%	3.08%

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9182	0.8799	0.9565	0.8699	0.9468	0.0138	0.03086	3.36%	0.0%
0	Lab Control	5	0.902	0.8611	0.943	0.8779	0.9593	0.01476	0.03301	3.66%	1.76%
6.25		5	0.9346	0.9189	0.9503	0.9193	0.948	0.005651	0.01263	1.35%	-1.79%
12.5		5	0.919	0.9033	0.9347	0.9048	0.9326	0.005651	0.01264	1.38%	-0.09%
25		5	0.9293	0.9037	0.9548	0.9026	0.9524	0.009192	0.02055	2.21%	-1.21%
50		5	0.9528	0.9358	0.9699	0.9408	0.9732	0.006138	0.01372	1.44%	-3.78%
100		5	0.9287	0.8843	0.973	0.8707	0.9661	0.01599	0.03575	3.85%	-1.14%
101		5	0.8992	0.8669	0.9315	0.8735	0.9281	0.01164	0.02603	2.9%	2.07%

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9908	0.9654	1	0.9542	1	0.00915	0.02046	2.07%	0.0%
0	Lab Control	5	1	1	1	1	1	0	0	0.0%	-0.92%
6.25		5	1	1	1	1	1	0	0	0.0%	-0.92%
12.5		5	1	1	1	1	1	0	0	0.0%	-0.92%
25		5	0.9699	0.9144	1	0.8954	1	0.02	0.04471	4.61%	2.11%
50		5	0.9882	0.9716	1	0.9739	1	0.00599	0.01339	1.36%	0.26%
100		5	0.9373	0.819	1	0.7712	1	0.04259	0.09523	10.16%	5.41%
101		5	0.9817	0.9309	1	0.9085	1	0.0183	0.04092	4.17%	0.92%

Analyst:

QA: AC 9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9191	0.9468	0.8301	0.943	0.9121
0	Lab Control	0.9593	0.8889	0.8779	0.9	0.8841
6.25		0.948	0.9193	0.9464	0.9337	0.9255
12.5		0.9135	0.9321	0.9048	0.9326	0.9119
25		0.9242	0.9026	0.9412	0.8235	0.915
50		0.9346	0.9346	0.9412	0.9477	0.9494
100		0.8366	0.7451	0.902	0.9367	0.9245
101		0.8735	0.8431	0.883	0.8848	0.9266

Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9191	0.9468	0.8699	0.943	0.9121
0	Lab Control	0.9593	0.8889	0.8779	0.9	0.8841
6.25		0.948	0.9193	0.9464	0.9337	0.9255
12.5		0.9135	0.9321	0.9048	0.9326	0.9119
25		0.9242	0.9026	0.9474	0.9197	0.9524
50		0.9408	0.9597	0.9412	0.9732	0.9494
100		0.8707	0.9661	0.9452	0.9367	0.9245
101		0.8735	0.9281	0.883	0.8848	0.9266

Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	1	1	0.9542	1	1
0	Lab Control	1	1	1	1	1
6.25		1	1	1	1	1
12.5		1	1	1	1	1
25		1	1	0.9935	0.8954	0.9608
50		0.9935	0.9739	1	0.9739	1
100		0.9608	0.7712	0.9542	1	1
101		1	0.9085	1	1	1

Analyst:______ QA: AC 9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	159/173	178/188	127/153	149/158	166/182
0	Lab Control	165/172	144/162	151/172	153/170	145/164
6.25		164/173	148/161	159/168	169/181	149/161
12.5		169/185	151/162	152/168	166/178	145/159
25		183/198	139/154	144/153	126/153	140/153
50		143/153	143/153	160/170	145/153	150/158
100		128/153	114/153	138/153	148/158	147/159
101		145/166	129/153	151/171	169/191	164/177

Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	159/173	178/188	127/146	149/158	166/182
0	Lab Control	165/172	144/162	151/172	153/170	145/164
6.25		164/173	148/161	159/168	169/181	149/161
12.5		169/185	151/162	152/168	166/178	145/159
25		183/198	139/154	144/152	126/137	140/147
50		143/152	143/149	160/170	145/149	150/158
100		128/147	114/118	138/146	148/158	147/159
101		145/166	129/139	151/171	169/191	164/177

Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	153/153	153/153	146/153	153/153	153/153
0	Lab Control	153/153	153/153	153/153	153/153	153/153
6.25		153/153	153/153	153/153	153/153	153/153
12.5		153/153	153/153	153/153	153/153	153/153
25		153/153	153/153	152/153	137/153	147/153
50		152/153	149/153	153/153	149/153	153/153
100		147/153	118/153	146/153	153/153	153/153
101		153/153	139/153	153/153	153/153	153/153

Analyst: cg QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:35 (p 1 of 10)
Test Code: 1808-S117 | 17-1636-7858

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	15-9873-3148	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:33	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	02-4452-3557	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	6.52%	100	>100	NA	1

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	35	16	0	8	0.9979	Asymp	Non-Significant Effect
		12.5	35	16	0	8	0.9979	Asymp	Non-Significant Effect
		25	31	16	0	8	0.9676	Asymp	Non-Significant Effect
		50	35	16	0	8	0.9979	Asymp	Non-Significant Effect
		100	27	16	0	8	0.8003	Asymp	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.04444126	0.008888251	5	2.277	0.0790	Non-Significant Effect
Error	0.09367317	0.003903049	24			
Total	0.1381144		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	18.66	15.09	0.0022	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.928	0.9031	0.0433	Normal Distribution

Combined Development Rate Summary

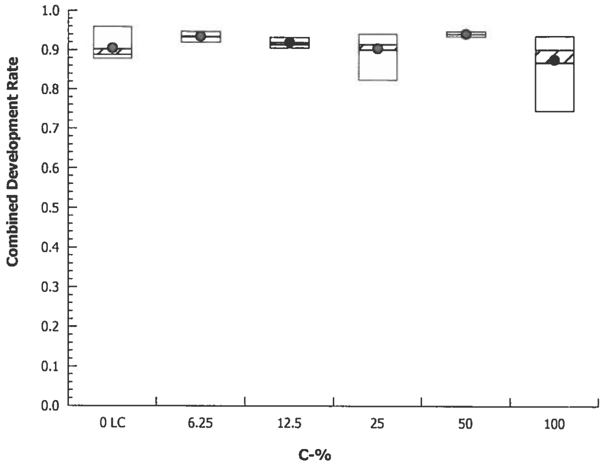
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.902	0.8611	0.943	0.8889	0.8779	0.9593	0.01476	3.66%	0.0%
6.25		5	0.9346	0.9189	0.9503	0.9337	0.9193	0.948	0.005651	1.35%	-3.61%
12.5		5	0.919	0.9033	0.9347	0.9135	0.9048	0.9326	0.005651	1.38%	-1.88%
25		5	0.9013	0.8446	0.9581	0.915	0.8235	0.9412	0.02044	5.07%	0.08%
50		5	0.9415	0.9328	0.9502	0.9412	0.9346	0.9494	0.003121	0.74%	-4.37%
100		5	0.869	0.7705	0.9674	0.902	0.7451	0.9367	0.03547	9.13%	3.67%

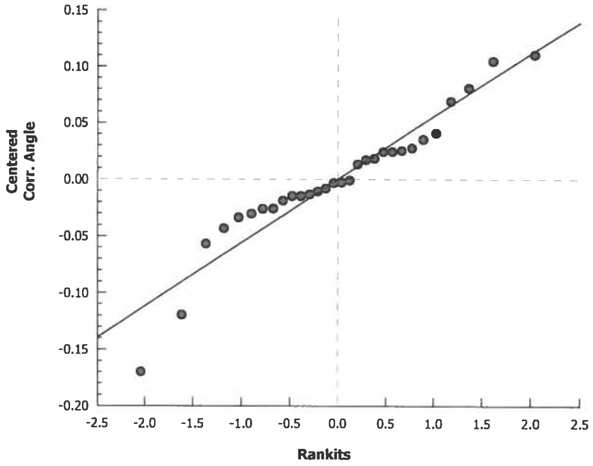
Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.257	1.179	1.335	1.231	1.214	1.368	0.02826	5.03%	0.0%
6.25		5	1.313	1.281	1.345	1.31	1.283	1.341	0.01147	1.95%	-4.46%
12.5		5	1.283	1.254	1.312	1.272	1.257	1.308	0.01045	1.82%	-2.06%
25		5	1.257	1.168	1.346	1.275	1.137	1.326	0.03212	5.72%	0.02%
50		5	1.327	1.308	1.345	1.326	1.312	1.344	0.006671	1.12%	-5.56%
100		5	1.212	1.071	1.352	1.252	1.042	1.316	0.05068	9.35%	3.62%

Bivalve Larval Survival and Development Test					**Nautilus Environmental (CA)**
Analysis ID:	15-9873-3148	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:33	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst:

QA: AC 9/12/18

CETIS Analytical Report

TST

Report Date: 03 Sep-18 12:35 (p 3 of 10)
Test Code: 1808-S117 | 17-1636-7858

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	17-6531-3378	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:34	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	02-4452-3557	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	7.95%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	15.37	1.943	0.047	6	<0.0001	CDF	Non-Significant Effect
		12.5*	14.39	2.015	0.048	5	<0.0001	CDF	Non-Significant Effect
		25*	8.158	1.943	0.075	6	<0.0001	CDF	Non-Significant Effect
		50*	17.29	2.132	0.047	4	<0.0001	CDF	Non-Significant Effect
		100*	4.893	2.015	0.111	5	0.0023	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.04444126	0.008888251	5	2.277	0.0790	Non-Significant Effect
Error	0.09367317	0.003903049	24			
Total	0.1381144		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	18.66	15.09	0.0022	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.928	0.9031	0.0433	Normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.902	0.8611	0.943	0.8889	0.8779	0.9593	0.01476	3.66%	0.0%
6.25		5	0.9346	0.9189	0.9503	0.9337	0.9193	0.948	0.005651	1.35%	-3.61%
12.5		5	0.919	0.9033	0.9347	0.9135	0.9048	0.9326	0.005651	1.38%	-1.88%
25		5	0.9013	0.8446	0.9581	0.915	0.8235	0.9412	0.02044	5.07%	0.08%
50		5	0.9415	0.9328	0.9502	0.9412	0.9346	0.9494	0.003121	0.74%	-4.37%
100		5	0.869	0.7705	0.9674	0.902	0.7451	0.9367	0.03547	9.13%	3.67%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.257	1.179	1.335	1.231	1.214	1.368	0.02826	5.03%	0.0%
6.25		5	1.313	1.281	1.345	1.31	1.283	1.341	0.01147	1.95%	-4.46%
12.5		5	1.283	1.254	1.312	1.272	1.257	1.308	0.01045	1.82%	-2.06%
25		5	1.257	1.168	1.346	1.275	1.137	1.326	0.03212	5.72%	0.02%
50		5	1.327	1.308	1.345	1.326	1.312	1.344	0.006671	1.12%	-5.56%
100		5	1.212	1.071	1.352	1.252	1.042	1.316	0.05068	9.35%	3.62%

Analyst: G QA: AC 9/10/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID: 05-2388-6269
Analyzed: 03 Sep-18 12:33
Endpoint: Development Rate
Analysis: Parametric-Control vs Treatments
CETIS Version: CETISv1.8.7
Official Results: Yes

Batch ID: 02-4452-3557
Start Date: 14 Aug-18 16:00
Ending Date: 16 Aug-18 15:30
Duration: 48h
Test Type: Development-Survival
Protocol: EPA/600/R-95/136 (1995)
Species: Mytilus galloprovincialis
Source: Mission Bay
Analyst:
Diluent: Laboratory Seawater
Brine: Not Applicable
Age:

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	4.55%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	-1.94	2.362	0.068	8	0.9991	CDF	Non-Significant Effect
		12.5	-0.8945	2.362	0.068	8	0.9777	CDF	Non-Significant Effect
		25	-1.62	2.362	0.068	8	0.9974	CDF	Non-Significant Effect
		50	-3.355	2.362	0.068	8	1.0000	CDF	Non-Significant Effect
		100	-1.711	2.362	0.068	8	0.9981	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02614328	0.005228655	5	2.506	0.0582	Non-Significant Effect
Error	0.05007961	0.00208665	24			
Total	0.07622289		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	6.902	15.09	0.2280	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.956	0.9031	0.2433	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.902	0.8611	0.943	0.8889	0.8779	0.9593	0.01476	3.66%	0.0%
6.25		5	0.9346	0.9189	0.9503	0.9337	0.9193	0.948	0.005651	1.35%	-3.61%
12.5		5	0.919	0.9033	0.9347	0.9135	0.9048	0.9326	0.005651	1.38%	-1.88%
25		5	0.9293	0.9037	0.9548	0.9242	0.9026	0.9524	0.009192	2.21%	-3.02%
50		5	0.9528	0.9358	0.9699	0.9494	0.9408	0.9732	0.006138	1.44%	-5.63%
100		5	0.9287	0.8843	0.973	0.9367	0.8707	0.9661	0.01599	3.85%	-2.95%

Angular (Corrected) Transformed Summary

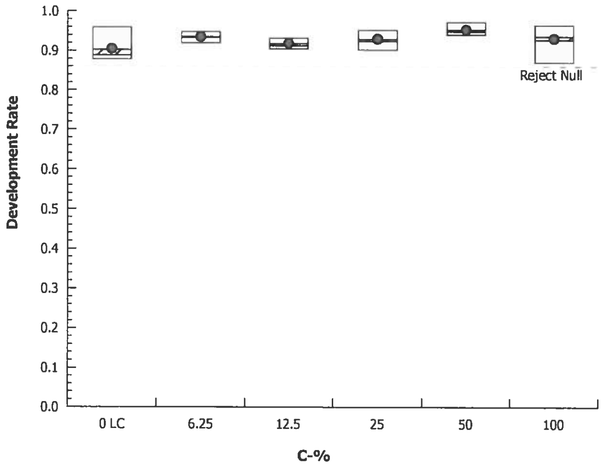
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.257	1.179	1.335	1.231	1.214	1.368	0.02826	5.03%	0.0%
6.25		5	1.313	1.281	1.345	1.31	1.283	1.341	0.01147	1.95%	-4.46%
12.5		5	1.283	1.254	1.312	1.272	1.257	1.308	0.01045	1.82%	-2.06%
25		5	1.304	1.253	1.354	1.292	1.253	1.351	0.01812	3.11%	-3.72%
50		5	1.354	1.311	1.396	1.344	1.325	1.406	0.0153	2.53%	-7.71%
100		5	1.306	1.223	1.39	1.316	1.203	1.386	0.03004	5.14%	-3.93%

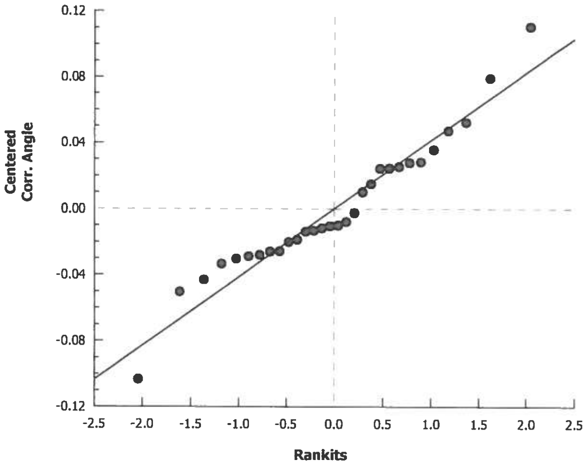
Analyst:______ QA: AC 9/17/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	05-2388-6269	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:33	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst: ℊ QA: AC 9/12/18

CETIS Analytical Report

TST

Report Date: 03 Sep-18 12:35 (p 7 of 10)
Test Code: 1808-S117 | 17-1636-7858

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	18-0503-5009	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:34	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	02-4452-3557	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	4.66%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	15.37	1.943	0.047	6	<0.0001	CDF	Non-Significant Effect
		12.5*	14.39	2.015	0.048	5	<0.0001	CDF	Non-Significant Effect
		25*	12.95	1.895	0.053	7	<0.0001	CDF	Non-Significant Effect
		50*	15.73	1.895	0.05	7	<0.0001	CDF	Non-Significant Effect
		100*	9.893	1.895	0.07	7	<0.0001	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02614328	0.005228655	5	2.506	0.0582	Non-Significant Effect
Error	0.05007961	0.00208665	24			
Total	0.07622289		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	6.902	15.09	0.2280	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.956	0.9031	0.2433	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.902	0.8611	0.943	0.8889	0.8779	0.9593	0.01476	3.66%	0.0%
6.25		5	0.9346	0.9189	0.9503	0.9337	0.9193	0.948	0.005651	1.35%	-3.61%
12.5		5	0.919	0.9033	0.9347	0.9135	0.9048	0.9326	0.005651	1.38%	-1.88%
25		5	0.9293	0.9037	0.9548	0.9242	0.9026	0.9524	0.009192	2.21%	-3.02%
50		5	0.9528	0.9358	0.9699	0.9494	0.9408	0.9732	0.006138	1.44%	-5.63%
100		5	0.9287	0.8843	0.973	0.9367	0.8707	0.9661	0.01599	3.85%	-2.95%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.257	1.179	1.335	1.231	1.214	1.368	0.02826	5.03%	0.0%
6.25		5	1.313	1.281	1.345	1.31	1.283	1.341	0.01147	1.95%	-4.46%
12.5		5	1.283	1.254	1.312	1.272	1.257	1.308	0.01045	1.82%	-2.06%
25		5	1.304	1.253	1.354	1.292	1.253	1.351	0.01812	3.11%	-3.72%
50		5	1.354	1.311	1.396	1.344	1.325	1.406	0.0153	2.53%	-7.71%
100		5	1.306	1.223	1.39	1.316	1.203	1.386	0.03004	5.14%	-3.93%

Analyst: QA: AC 9/17/18

CETIS Analytical Report

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	00-4856-9174	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:33	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	02-4452-3557	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	3.31%	100	>100	NA	1

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect
		12.5	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect
		25	20	16	1	8	0.1899	Asymp	Non-Significant Effect
		50	20	16	1	8	0.1899	Asymp	Non-Significant Effect
		100	20	16	1	8	0.1899	Asymp	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.107772	0.02155439	5	2.37	0.0698	Non-Significant Effect
Error	0.2182492	0.009093716	24			
Total	0.3260211		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	4.697	4.248	0.0064	Unequal Variances
Variances	Levene Equality of Variance	5.212	3.895	0.0022	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.7952	0.9031	<0.0001	Non-normal Distribution

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1	1	1	1	1	1	0	0.0%	0.0%
6.25		5	1	1	1	1	1	1	0	0.0%	0.0%
12.5		5	1	1	1	1	1	1	0	0.0%	0.0%
25		5	0.9699	0.9144	1	0.9935	0.8954	1	0.02	4.61%	3.01%
50		5	0.9882	0.9716	1	0.9935	0.9739	1	0.00599	1.36%	1.18%
100		5	0.9373	0.819	1	0.9608	0.7712	1	0.04259	10.16%	6.28%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.53	1.53	1.531	1.53	1.53	1.53	0	0.0%	0.0%
6.25		5	1.53	1.53	1.531	1.53	1.53	1.53	0	0.0%	0.0%
12.5		5	1.53	1.53	1.531	1.53	1.53	1.53	0	0.0%	0.0%
25		5	1.433	1.277	1.588	1.49	1.241	1.53	0.05597	8.74%	6.38%
50		5	1.473	1.397	1.55	1.49	1.408	1.53	0.02758	4.19%	3.72%
100		5	1.372	1.139	1.605	1.371	1.072	1.53	0.08378	13.66%	10.35%

Analyst: QA: AC 9/10/18

CETIS Analytical Report

Report Date: 03 Sep-18 14:48 (p 1 of 1)
Test Code: 1808-S117 | 17-1636-7858

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID: 03-1435-8425 **Endpoint:** Combined Development Rate **CETIS Version:** CETISv1.8.7
Analyzed: 03 Sep-18 14:47 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	4.37%	Passes combined development rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		101	0.9681	1.86	0.066	8	0.1807	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.002945374	0.002945374	1	0.9373	0.3613	Non-Significant Effect
Error	0.02514036	0.003142545	8			
Total	0.02808573		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.743	23.15	0.6038	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8572	0.7411	0.0708	Normal Distribution

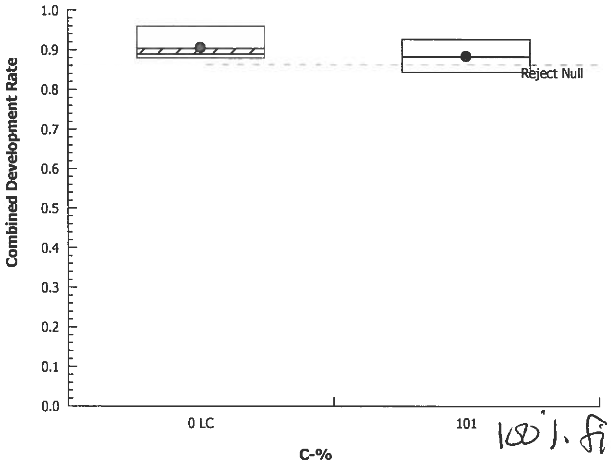
Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.902	0.8611	0.943	0.8889	0.8779	0.9593	0.01476	3.66%	0.0%
101		5	0.8822	0.8451	0.9193	0.883	0.8431	0.9266	0.01337	3.39%	2.2%

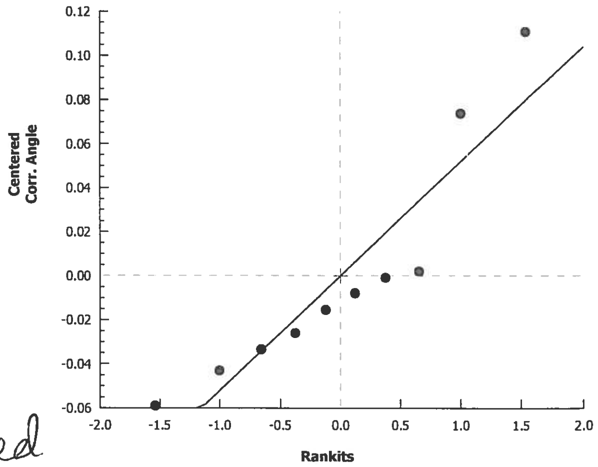
Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.257	1.179	1.335	1.231	1.214	1.368	0.02826	5.03%	0.0%
101		5	1.223	1.163	1.282	1.222	1.164	1.296	0.02141	3.92%	2.73%

Graphics



100% filtered



Analyst: S QA: AC 9/17/1

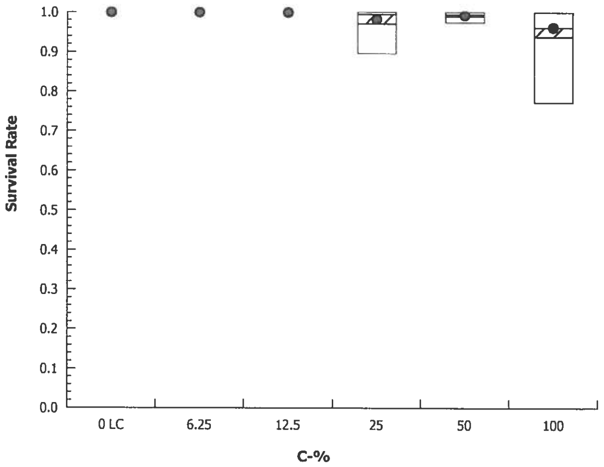
CETIS Analytical Report

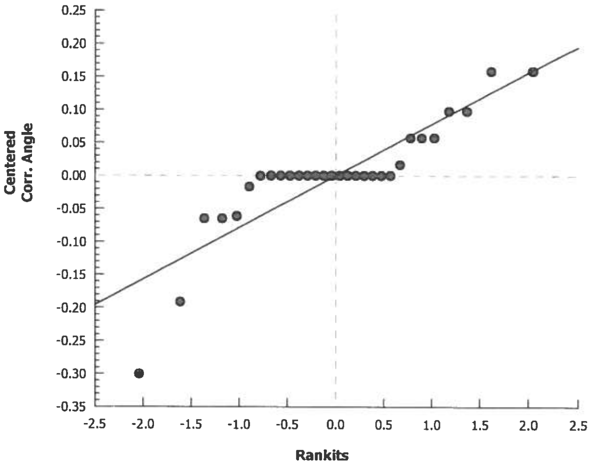
Report Date:	03 Sep-18 12:35 (p 10 of 10)
Test Code:	1808-S117 | 17-1636-7858

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	00-4856-9174	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:33	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst:______ QA: AC9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:35 (p 1 of 2)
Test Code: 1808-S117 | 17-1636-7858

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	00-4971-8617	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:34	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	02-4452-3557	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1099501	1000	Yes	Two-Point Interpolation

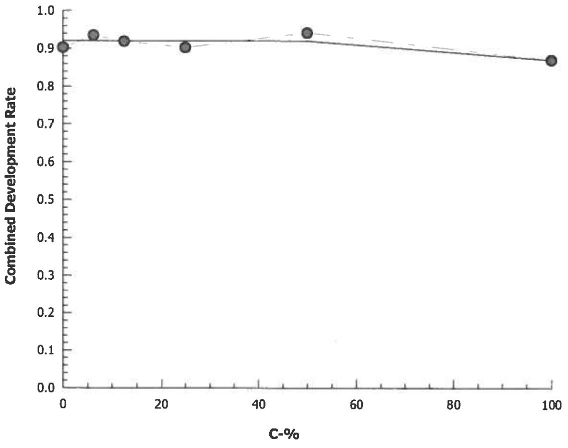
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Combined Development Rate Summary

			Calculated Variate(A/B)								
C-%	**Control Type**	**Count**	**Mean**	**Min**	**Max**	**Std Err**	**Std Dev**	**CV%**	**%Effect**	**A**	**B**
0	Lab Control	5	0.902	0.8779	0.9593	0.01476	0.03301	3.66%	0.0%	758	840
6.25		5	0.9346	0.9193	0.948	0.005651	0.01263	1.35%	-3.61%	789	844
12.5		5	0.919	0.9048	0.9326	0.005651	0.01264	1.38%	-1.88%	783	852
25		5	0.9013	0.8235	0.9412	0.02044	0.0457	5.07%	0.08%	732	811
50		5	0.9415	0.9346	0.9494	0.003121	0.006978	0.74%	-4.37%	741	787
100		5	0.869	0.7451	0.9367	0.03547	0.0793	9.13%	3.67%	675	776

Graphics



Analyst:
QA: AC 9/12/18

Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Analysis ID:	03-1555-6691	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:34	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	02-4452-3557	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	2116836	1000	Yes	Two-Point Interpolation

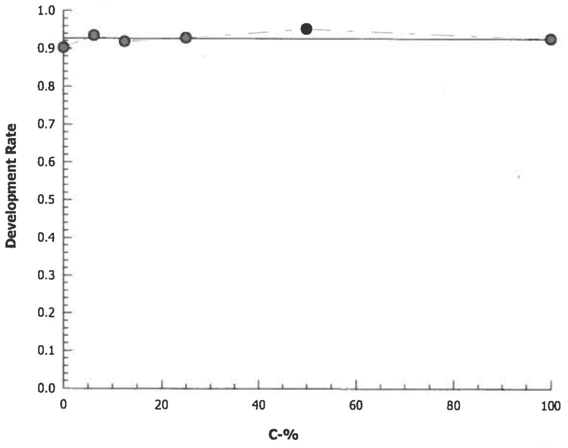
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Development Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.902	0.8779	0.9593	0.01476	0.03301	3.66%	0.0%	758	840
6.25		5	0.9346	0.9193	0.948	0.005651	0.01263	1.35%	-3.61%	789	844
12.5		5	0.919	0.9048	0.9326	0.005651	0.01264	1.38%	-1.88%	783	852
25		5	0.9293	0.9026	0.9524	0.009192	0.02055	2.21%	-3.02%	732	788
50		5	0.9528	0.9408	0.9732	0.006138	0.01373	1.44%	-5.63%	741	778
100		5	0.9287	0.8707	0.9661	0.01599	0.03575	3.85%	-2.95%	675	728

Graphics



Analyst:

QA: AC 9/12/18

Embryo Larval Bioassay **48-hour Development**

Client: AMEC/POSD
Test Species: *M. galloprovincialis*
Sample ID: SIYB-4
Start Date/Time: 8/14/2018 1600
Test ID: 1808-S117
End Date/Time: 8/16/2018 1530

Random #	Number Normal	Number Abnormal		Total Number Counted	Intials/Date
		Number Curved Shell	All other abnormal		
141	164	0	13	177	LTP 08/29/18
142	169	0	12	181	
143	114	2	2	118	
144	149	0	12	161	
145	169	0	22	191	
146	145	1	20	166	
147	151	1	10	162	
148	126	0	11	137	
149	166	0	12	178	
150	145	0	14	159	
151	140	0	7	147	
152	159	0	9	168	
153	169	1	15	185	
154	147	5	7	159	
155	Ⓐ ~~163~~ 165	Ⓐ ~~2~~0	7	172	
156	145	0	19	164	
157	183	1	14	198	
158	139	0	16	154	
159	160	2	8	170	
160	143	1	5	149	
161	164	0	9	173	
162	153	0	17	170	
163	145	0	4	149	
164	144	0	18	162	
165	148	0	13	161	
166	138	1	7	146	
167	Ⓐ ~~150~~ 151	Ⓐ ~~1~~0	21	172	
168	148	2	8	158	
169	151	0	20	171	
170	152	0	16	168	
171	144	0	8	152	↓
172	129	1	9	139	LTP 08/30/18
173	128	8	11	147	
174	143	0	9	152	
175	150	0	8	158	↓

Comments: Ⓐ & QI8 9/3/18

QC Check: AC 8/31/18
Final Review: 9/3/18

CETIS Test Data Worksheet

Report Date: 09 Aug-18 12:19 (p 1 of 1)
Test Code: 17-1636-7858/1808-S117

Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Start Date: 14 Aug-18
End Date: 16 Aug-18
Sample Date: 13 Aug-18
Species: Mytilus galloprovincialis
Protocol: EPA/600/R-95/136 (1995)
Material: Ambient Water
Sample Code: 18-0861
Sample Source: Shelter Island Yacht Basin
Sample Station: SIYB-4

C-%	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	LC	1	155					
0	LC	2	164					
0	LC	3	167			161	142	RT 8/17/18
0	LC	4	162					
0	LC	5	156					
6.25		1	161					
6.25		2	165					
6.25		3	152					
6.25		4	142			161	156	RT 8/17/18
6.25		5	144					
12.5		1	153					
12.5		2	147					
12.5		3	170					
12.5		4	149			170	163	RT
12.5		5	150					
25		1	157					
25		2	158					
25		3	171					
25		4	148			132	121	RT
25		5	151					
50		1	174					
50		2	160					
50		3	159					
50		4	163			139	135	RT
50		5	175					
100		1	173					
100		2	143					
100		3	166					
100		4	168			155	144	RT
100		5	154					
~~101~~ Q18		1	146					
100% filt. ~~101~~ AC 8/10		2	172					
~~101~~		3	169					
~~101~~		4	145			184	167	RT
~~101~~		5	141					

QC 8/16

000-089-187-4

CETIS™ v1.8.7.20

Analyst: AC

QA: 9/3/18

Marine Chronic Bioassay **Water Quality Measurements**

Client: AMEC/POSD
Sample ID: SIYB-4
Sample Log No.: 18-0861
Test No.: 1808-S 117

Test Species: *M. galloprovincialis*
Start Date/Time: 8/14/2018 1600
End Date/Time: 8/16/2018 1530

Concentration (%)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	34.3	34.3	34.3	14.4	14.6	14.4	8.8	8.3	8.0	8.13	8.11	8.02
6.25	34.3	34.4	34.6	14.2	14.4	14.3	8.9	8.4	8.1	8.12	8.08	8.01
12.5	34.4	34.5	34.6	14.2	14.3	14.3	8.8	8.3	8.1	8.11	8.08	8.00
25	34.4	34.6	34.7	14.3	14.5	14.3	8.8	8.3	8.1	8.11	8.08	7.97
50	34.5	34.5	34.6	14.2	14.5	14.3	8.8	8.3	8.1	8.11	8.07	7.99
100	34.5	34.7	34.7	14.2	14.3	14.2	8.9	8.3	8.2	8.11	8.07	7.99
100 filtered	34.4	34.4	34.5	14.2	14.3	14.2	8.0	8.3	8.1	8.06	8.07	8.00

Technician Initials:

	0	24	48
WQ Readings:	EG	RT	EG
Dilutions made by:	EG		

Comments:
0 hrs:
24 hrs:
48 hrs:

QC Check: AC 8/31/18

Final Review: 4S 9/3/18

Marine Chronic Bioassay **Larval Development Worksheet**

Client: AMEC/POSD S148-4
Test No.: 1808-S117
Test Species: M. galloprovincialis
Animal Source: M. Bay
Date Received: 6/29/18
Test Chambers: 30 mL glass shell vials
Sample Volume: 10 mL

Start Date/Time: 8/14/18 1600
End Date/Time: 8/16/18 1530
Technician Initials: [illegible]/AC/EG

Spawn Information

First Gamete Release Time: 1130

Sex	Number Spawning
Male	3
Female	2

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2	Light spawning, Fair motility
Female 1	1	Uniform size, shape, color, low density, no fert
Female 2	2	Uniform size, shape, color, fair density, no fert
Female 3		

Egg Fertilization Time: 1245

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	98
Female 2	100
Female 3	

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 6 embryos

Number Counted:

7	3
7	8
5	5
3	8
4	7

Mean: 5.7

Mean 5.7 X 50 = 285 embryos/ml

Initial Density: 285 = 0.95 (dilution factor)
Desired Final Density: 300
(to inoculate with 0.5 ml)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No.	No. Dividing	Total	% Dividing	Mean % Dividing
TQ1	161	161	100	99.7
TQ2	162	162	100	
TQ3	150	150	100	
TQ4	140	141	99.3	
TQ5	154	155	99.4	

Q18 AC 8/16
48-h QC: ~~146~~ 143/156 = 91.7%

Comments: $\bar{X}$ = 153.4

QC Check: AC 8/31/18

Final Review: [illegible] 9/3/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

CETIS Summary Report

Report Date: 03 Sep-18 12:56 (p 1 of 4)
Test Code: 1808-S118 | 02-5718-8441

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Batch ID:	07-0980-2792	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Sample ID:	15-0529-6909	**Code:**	18-0862	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 10:30	**Material:**	Ambient Water	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	29h (7 °C)	**Station:**	SIYB-5		

Batch Note: 101= 100 percent sample filtered to 0.45um

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
17-7253-1323	Combined Development Ra	100	>100	NA	8.93%	1	Steel Many-One Rank Sum Test
13-6488-4689	Development Rate	100	>100	NA	4.32%	1	Dunnett Multiple Comparison Test
09-3743-5838	Survival Rate	100	>100	NA	6.16%	1	Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
05-8281-7745	Combined Development Ra	EC25	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	
19-4943-6449	Development Rate	EC25	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
13-6488-4689	Development Rate	Control Resp	0.9072	0.9 - NL	Yes	Passes Acceptability Criteria
19-4943-6449	Development Rate	Control Resp	0.9072	0.9 - NL	Yes	Passes Acceptability Criteria
09-3743-5838	Survival Rate	Control Resp	0.9791	0.5 - NL	Yes	Passes Acceptability Criteria
17-7253-1323	Combined Development Ra	PMSD	0.08927	NL - 0.25	No	Passes Acceptability Criteria

Analyst:________ QA: AC 9/12/18

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9102	0.8516	0.9689	0.8301	0.9468	0.02112	0.04723	5.19%	0.0%
0	Lab Control	5	0.8892	0.8069	0.9714	0.7712	0.9281	0.02963	0.06626	7.45%	2.31%
6.25		5	0.8935	0.8556	0.9314	0.8562	0.9375	0.01365	0.03052	3.42%	1.84%
12.5		5	0.9199	0.8918	0.9481	0.8924	0.9375	0.01014	0.02266	2.46%	-1.07%
25		5	0.9037	0.8853	0.922	0.8889	0.9236	0.006598	0.01475	1.63%	0.72%
50		5	0.8725	0.7655	0.9795	0.732	0.962	0.03853	0.08616	9.87%	4.14%
100		5	0.8633	0.7753	0.9512	0.7386	0.9085	0.03169	0.07085	8.21%	5.16%
101		5	0.9063	0.8298	0.9828	0.8039	0.9557	0.02756	0.06163	6.8%	0.43%

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9182	0.8799	0.9565	0.8699	0.9468	0.0138	0.03086	3.36%	0.0%
0	Lab Control	5	0.9072	0.8743	0.9401	0.8613	0.9281	0.01186	0.02651	2.92%	1.2%
6.25		5	0.9253	0.9027	0.948	0.9026	0.9493	0.008152	0.01823	1.97%	-0.78%
12.5		5	0.9212	0.8916	0.9507	0.8924	0.9408	0.01064	0.0238	2.58%	-0.33%
25		5	0.9133	0.8944	0.9322	0.8956	0.932	0.006816	0.01524	1.67%	0.53%
50		5	0.9145	0.8737	0.9553	0.875	0.962	0.01469	0.03285	3.59%	0.4%
100		5	0.9165	0.8908	0.9422	0.8902	0.9437	0.009251	0.02069	2.26%	0.18%
101		5	0.9315	0.9025	0.9605	0.8994	0.9557	0.01045	0.02336	2.51%	-1.46%

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9908	0.9654	1	0.9542	1	0.00915	0.02046	2.07%	0.0%
0	Lab Control	5	0.9791	0.921	1	0.8954	1	0.02092	0.04677	4.78%	1.19%
6.25		5	0.966	0.9155	1	0.902	1	0.01818	0.04066	4.21%	2.51%
12.5		5	0.9987	0.9951	1	0.9935	1	0.001307	0.002923	0.29%	-0.79%
25		5	0.9895	0.9684	1	0.9608	1	0.007622	0.01704	1.72%	0.13%
50		5	0.9529	0.8634	1	0.8366	1	0.03225	0.0721	7.57%	3.83%
100		5	0.9425	0.8396	1	0.8039	1	0.03705	0.08285	8.79%	4.88%
101		5	0.9725	0.905	1	0.8758	1	0.02432	0.05437	5.59%	1.85%

Analyst:______ QA: AC 9/12/18

CETIS Summary Report

Report Date: 03 Sep-18 12:56 (p 3 of 4)
Test Code: 1808-S118 | 02-5718-8441

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9191	0.9468	0.8301	0.943	0.9121
0	Lab Control	0.9193	0.9281	0.9181	0.9091	0.7712
6.25		0.9375	0.9026	0.8758	0.8562	0.8954
12.5		0.9346	0.8981	0.9375	0.8924	0.9371
25		0.9236	0.8954	0.8956	0.8889	0.9148
50		0.732	0.8627	0.9022	0.9036	0.962
100		0.8758	0.9085	0.8902	0.7386	0.9032
101		0.8039	0.8994	0.9557	0.9509	0.9216

Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9191	0.9468	0.8699	0.943	0.9121
0	Lab Control	0.9193	0.9281	0.9181	0.9091	0.8613
6.25		0.9375	0.9026	0.9178	0.9493	0.9195
12.5		0.9408	0.8981	0.9375	0.8924	0.9371
25		0.9236	0.932	0.8956	0.9007	0.9148
50		0.875	0.9296	0.9022	0.9036	0.962
100		0.9437	0.9267	0.8902	0.9187	0.9032
101		0.9179	0.8994	0.9557	0.9509	0.9338

Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	1	1	0.9542	1	1
0	Lab Control	1	1	1	1	0.8954
6.25		1	1	0.9542	0.902	0.9739
12.5		0.9935	1	1	1	1
25		1	0.9608	1	0.9869	1
50		0.8366	0.9281	1	1	1
100		0.9281	0.9804	1	0.8039	1
101		0.8758	1	1	1	0.9869

Analyst: QA: AC 9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	159/173	178/188	127/153	149/158	166/182
0	Lab Control	148/161	142/153	157/171	150/165	118/153
6.25		165/176	139/154	134/153	131/153	137/153
12.5		143/153	141/157	150/160	141/158	149/159
25		145/157	137/153	163/182	136/153	161/176
50		112/153	132/153	166/184	150/166	152/158
100		134/153	139/153	146/164	113/153	140/155
101		123/153	152/169	151/158	155/163	141/153

Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	159/173	178/188	127/146	149/158	166/182
0	Lab Control	148/161	142/153	157/171	150/165	118/137
6.25		165/176	139/154	134/146	131/138	137/149
12.5		143/152	141/157	150/160	141/158	149/159
25		145/157	137/147	163/182	136/151	161/176
50		112/128	132/142	166/184	150/166	152/158
100		134/142	139/150	146/164	113/123	140/155
101		123/134	152/169	151/158	155/163	141/151

Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	153/153	153/153	146/153	153/153	153/153
0	Lab Control	153/153	153/153	153/153	153/153	137/153
6.25		153/153	153/153	146/153	138/153	149/153
12.5		152/153	153/153	153/153	153/153	153/153
25		153/153	147/153	153/153	151/153	153/153
50		128/153	142/153	153/153	153/153	153/153
100		142/153	150/153	153/153	123/153	153/153
101		134/153	153/153	153/153	153/153	151/153

CETIS Analytical Report

Report Date: 03 Sep-18 12:56 (p 1 of 10)
Test Code: 1808-S118 | 02-5718-8441

Bivalve Larval Survival and Development Test	**Nautilus Environmental (CA)**

Analysis ID:	17-7253-1323	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:55	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	07-0980-2792	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	8.93%	100	>100	NA	1

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	24	16	0	8	0.5394	Asymp	Non-Significant Effect
		12.5	32	16	0	8	0.9821	Asymp	Non-Significant Effect
		25	24	16	0	8	0.5394	Asymp	Non-Significant Effect
		50	23	16	0	8	0.4416	Asymp	Non-Significant Effect
		100	19	16	0	8	0.1314	Asymp	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0221809	0.00443618	5	0.6834	0.6405	Non-Significant Effect
Error	0.1557945	0.006491436	24			
Total	0.1779754		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	10.97	15.09	0.0520	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8772	0.9031	0.0024	Non-normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.8892	0.8069	0.9714	0.9181	0.7712	0.9281	0.02963	7.45%	0.0%
6.25		5	0.8935	0.8556	0.9314	0.8954	0.8562	0.9375	0.01365	3.42%	-0.49%
12.5		5	0.9199	0.8918	0.9481	0.9346	0.8924	0.9375	0.01014	2.46%	-3.46%
25		5	0.9037	0.8853	0.922	0.8956	0.8889	0.9236	0.006598	1.63%	-1.63%
50		5	0.8725	0.7655	0.9795	0.9022	0.732	0.962	0.03853	9.87%	1.87%
100		5	0.8633	0.7753	0.9512	0.8902	0.7386	0.9085	0.03169	8.21%	2.91%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.24	1.122	1.357	1.281	1.072	1.299	0.0423	7.63%	0.0%
6.25		5	1.241	1.177	1.305	1.241	1.182	1.318	0.02293	4.13%	-0.1%
12.5		5	1.286	1.235	1.337	1.312	1.237	1.318	0.01837	3.2%	-3.73%
25		5	1.256	1.224	1.287	1.242	1.231	1.291	0.01137	2.03%	-1.29%
50		5	1.22	1.063	1.378	1.253	1.027	1.375	0.05675	10.4%	1.59%
100		5	1.199	1.082	1.317	1.233	1.034	1.263	0.04227	7.88%	3.28%

AC 9/12/18

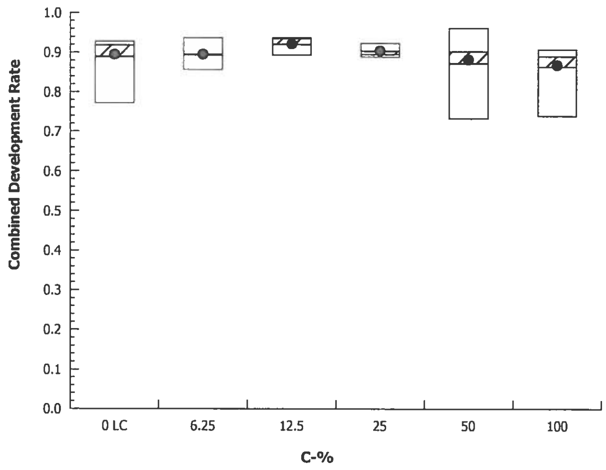
CETIS Analytical Report

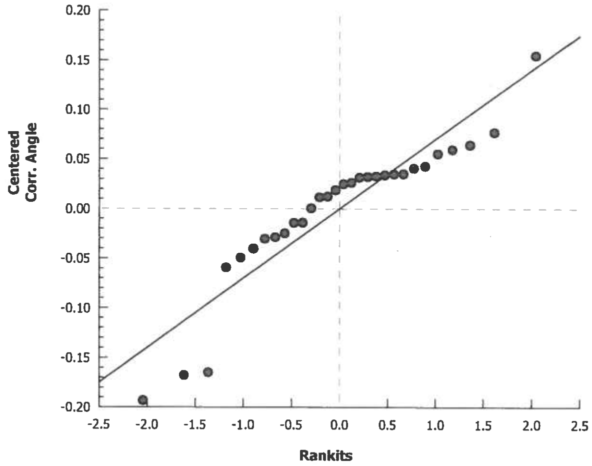
Report Date: 03 Sep-18 12:56 (p 2 of 10)
Test Code: 1808-S118 | 02-5718-8441

Bivalve Larval Survival and Development Test
Nautilus Environmental (CA)

Analysis ID: 17-7253-1323
Analyzed: 03 Sep-18 12:55
Endpoint: Combined Development Rate
Analysis: Nonparametric-Control vs Treatments
CETIS Version: CETISv1.8.7
Official Results: Yes

Graphics





Analyst:________ QA: AC 9/18/18

CETIS Analytical Report

TST

Report Date: 03 Sep-18 12:56 (p 3 of 10)
Test Code: 1808-S118 | 02-5718-8441

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	08-3854-6140	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:56	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	07-0980-2792	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	7.17%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	7.951	1.895	0.074	7	<0.0001	CDF	Non-Significant Effect
		12.5*	9.714	1.943	0.071	6	<0.0001	CDF	Non-Significant Effect
		25*	9.674	2.015	0.068	5	0.0001	CDF	Non-Significant Effect
		50*	4.463	1.943	0.126	6	0.0021	CDF	Non-Significant Effect
		100*	5.095	1.895	0.100	7	0.0007	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0221809	0.00443618	5	0.6834	0.6405	Non-Significant Effect
Error	0.1557945	0.006491436	24			
Total	0.1779754		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	10.97	15.09	0.0520	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8772	0.9031	0.0024	Non-normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.8892	0.8069	0.9714	0.9181	0.7712	0.9281	0.02963	7.45%	0.0%
6.25		5	0.8935	0.8556	0.9314	0.8954	0.8562	0.9375	0.01365	3.42%	-0.49%
12.5		5	0.9199	0.8918	0.9481	0.9346	0.8924	0.9375	0.01014	2.46%	-3.46%
25		5	0.9037	0.8853	0.922	0.8956	0.8889	0.9236	0.006598	1.63%	-1.63%
50		5	0.8725	0.7655	0.9795	0.9022	0.732	0.962	0.03853	9.87%	1.87%
100		5	0.8633	0.7753	0.9512	0.8902	0.7386	0.9085	0.03169	8.21%	2.91%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.24	1.122	1.357	1.281	1.072	1.299	0.0423	7.63%	0.0%
6.25		5	1.241	1.177	1.305	1.241	1.182	1.318	0.02293	4.13%	-0.1%
12.5		5	1.286	1.235	1.337	1.312	1.237	1.318	0.01837	3.2%	-3.73%
25		5	1.256	1.224	1.287	1.242	1.231	1.291	0.01137	2.03%	-1.29%
50		5	1.22	1.063	1.378	1.253	1.027	1.375	0.05675	10.4%	1.59%
100		5	1.199	1.082	1.317	1.233	1.034	1.263	0.04227	7.88%	3.28%

Analyst: QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:57 (p 5 of 10)
Test Code: 1808-S118 | 02-5718-8441

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	13-6488-4689	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:55	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	07-0980-2792	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	4.32%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	-1.189	2.362	0.064	8	0.9903	CDF	Non-Significant Effect
		12.5	-0.9293	2.362	0.064	8	0.9797	CDF	Non-Significant Effect
		25	-0.3507	2.362	0.064	8	0.9164	CDF	Non-Significant Effect
		50	-0.5711	2.362	0.064	8	0.9493	CDF	Non-Significant Effect
		100	-0.592	2.362	0.064	8	0.9518	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.003256286	0.0006512573	5	0.3512	0.8764	Non-Significant Effect
Error	0.04450887	0.001854536	24			
Total	0.04776515		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	2.88	15.09	0.7185	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9748	0.9031	0.6777	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9072	0.8743	0.9401	0.9181	0.8613	0.9281	0.01186	2.92%	0.0%
6.25		5	0.9253	0.9027	0.948	0.9195	0.9026	0.9493	0.008152	1.97%	-2.0%
12.5		5	0.9212	0.8916	0.9507	0.9371	0.8924	0.9408	0.01064	2.58%	-1.54%
25		5	0.9133	0.8944	0.9322	0.9148	0.8956	0.932	0.006816	1.67%	-0.68%
50		5	0.9145	0.8737	0.9553	0.9036	0.875	0.962	0.01469	3.59%	-0.8%
100		5	0.9165	0.8908	0.9422	0.9187	0.8902	0.9437	0.009251	2.26%	-1.03%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.263	1.21	1.317	1.281	1.189	1.299	0.01932	3.42%	0.0%
6.25		5	1.296	1.252	1.34	1.283	1.253	1.344	0.0158	2.73%	-2.56%
12.5		5	1.289	1.235	1.343	1.317	1.237	1.325	0.01943	3.37%	-2.0%
25		5	1.273	1.239	1.307	1.275	1.242	1.307	0.01217	2.14%	-0.76%
50		5	1.279	1.201	1.357	1.255	1.209	1.375	0.0281	4.91%	-1.23%
100		5	1.279	1.232	1.326	1.282	1.233	1.331	0.01694	2.96%	-1.28%

Analyst:______ QA: AC 9/12/18

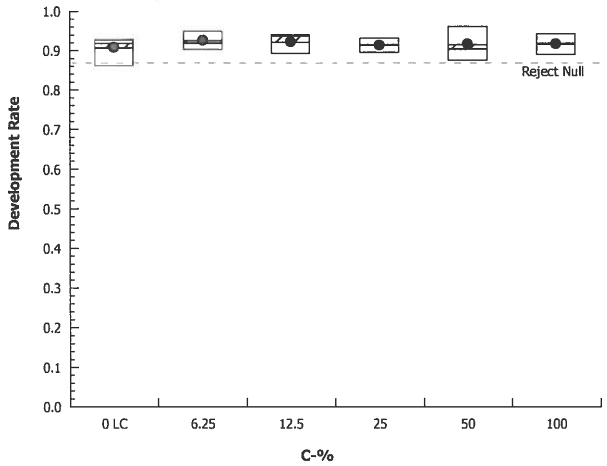
CETIS Analytical Report

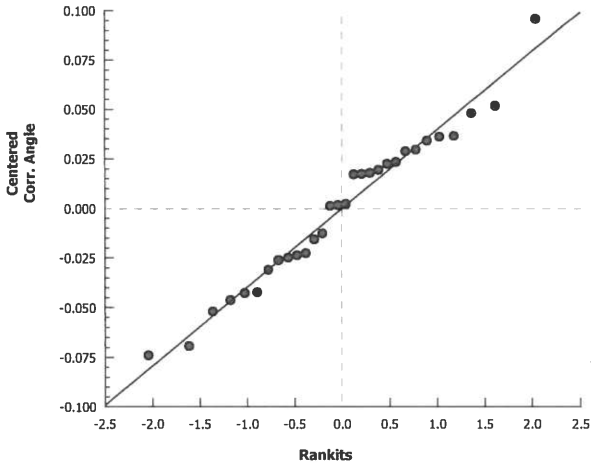
Report Date:	03 Sep-18 12:57 (p 6 of 10)
Test Code:	1808-S118 | 02-5718-8441

Bivalve Larval Survival and Development Test	**Nautilus Environmental (CA)**

Analysis ID:	13-6488-4689	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:55	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst: S QA: AC 9/12/18

CETIS Analytical Report

TST

Report Date: 03 Sep-18 12:57 (p 7 of 10)
Test Code: 1808-S118 | 02-5718-8441

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	00-2228-5347	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:56	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	07-0980-2792	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	2.71%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	16.24	1.895	0.041	7	<0.0001	CDF	Non-Significant Effect
		12.5*	14.07	1.895	0.046	7	<0.0001	CDF	Non-Significant Effect
		25*	17.19	1.895	0.036	7	<0.0001	CDF	Non-Significant Effect
		50*	10.48	2.015	0.064	5	<0.0001	CDF	Non-Significant Effect
		100*	14.89	1.895	0.042	7	<0.0001	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.003256286	0.0006512573	5	0.3512	0.8764	Non-Significant Effect
Error	0.04450887	0.001854536	24			
Total	0.04776515		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	2.88	15.09	0.7185	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9748	0.9031	0.6777	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9072	0.8743	0.9401	0.9181	0.8613	0.9281	0.01186	2.92%	0.0%
6.25		5	0.9253	0.9027	0.948	0.9195	0.9026	0.9493	0.008152	1.97%	-2.0%
12.5		5	0.9212	0.8916	0.9507	0.9371	0.8924	0.9408	0.01064	2.58%	-1.54%
25		5	0.9133	0.8944	0.9322	0.9148	0.8956	0.932	0.006816	1.67%	-0.68%
50		5	0.9145	0.8737	0.9553	0.9036	0.875	0.962	0.01469	3.59%	-0.8%
100		5	0.9165	0.8908	0.9422	0.9187	0.8902	0.9437	0.009251	2.26%	-1.03%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.263	1.21	1.317	1.281	1.189	1.299	0.01932	3.42%	0.0%
6.25		5	1.296	1.252	1.34	1.283	1.253	1.344	0.0158	2.73%	-2.56%
12.5		5	1.289	1.235	1.343	1.317	1.237	1.325	0.01943	3.37%	-2.0%
25		5	1.273	1.239	1.307	1.275	1.242	1.307	0.01217	2.14%	-0.76%
50		5	1.279	1.201	1.357	1.255	1.209	1.375	0.0281	4.91%	-1.23%
100		5	1.279	1.232	1.326	1.282	1.233	1.331	0.01694	2.96%	-1.28%

Analyst:

QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:57 (p 9 of 10)
Test Code: 1808-S118 | 02-5718-8441

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	09-3743-5838	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:55	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	07-0980-2792	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	6.16%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	0.7087	2.362	0.191	8	0.5530	CDF	Non-Significant Effect
		12.5	-0.6149	2.362	0.191	8	0.9544	CDF	Non-Significant Effect
		25	-0.1382	2.362	0.191	8	0.8709	CDF	Non-Significant Effect
		50	0.7869	2.362	0.191	8	0.5170	CDF	Non-Significant Effect
		100	1.14	2.362	0.191	8	0.3592	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.07269236	0.01453847	5	0.891	0.5026	Non-Significant Effect
Error	0.3915884	0.01631618	24			
Total	0.4642808		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	14.36	15.09	0.0135	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9052	0.9031	0.0113	Normal Distribution

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9791	0.921	1	1	0.8954	1	0.02092	4.78%	0.0%
6.25		5	0.966	0.9155	1	0.9739	0.902	1	0.01818	4.21%	1.34%
12.5		5	0.9987	0.9951	1	1	0.9935	1	0.001308	0.29%	-2.0%
25		5	0.9895	0.9684	1	1	0.9608	1	0.007622	1.72%	-1.07%
50		5	0.9529	0.8634	1	1	0.8366	1	0.03225	7.57%	2.67%
100		5	0.9425	0.8396	1	0.9804	0.8039	1	0.03705	8.79%	3.74%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.473	1.312	1.633	1.53	1.241	1.53	0.05777	8.77%	0.0%
6.25		5	1.415	1.268	1.563	1.408	1.252	1.53	0.05324	8.41%	3.89%
12.5		5	1.522	1.5	1.545	1.53	1.49	1.53	0.0081	1.19%	-3.37%
25		5	1.484	1.396	1.571	1.53	1.371	1.53	0.03153	4.75%	-0.76%
50		5	1.409	1.193	1.625	1.53	1.155	1.53	0.07775	12.34%	4.32%
100		5	1.38	1.16	1.601	1.43	1.112	1.53	0.07939	12.86%	6.25%

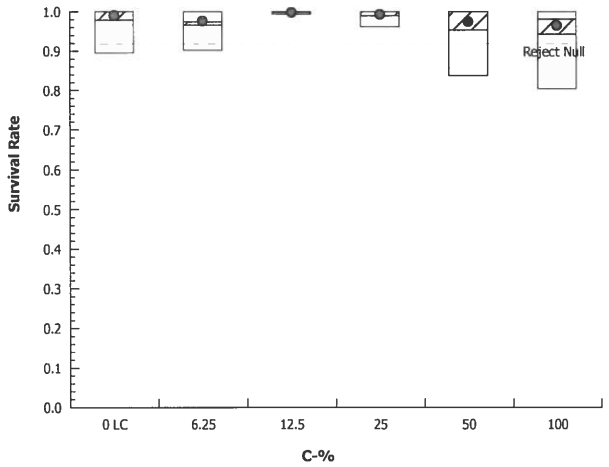
Analyst: G QA: AC 9/12/18

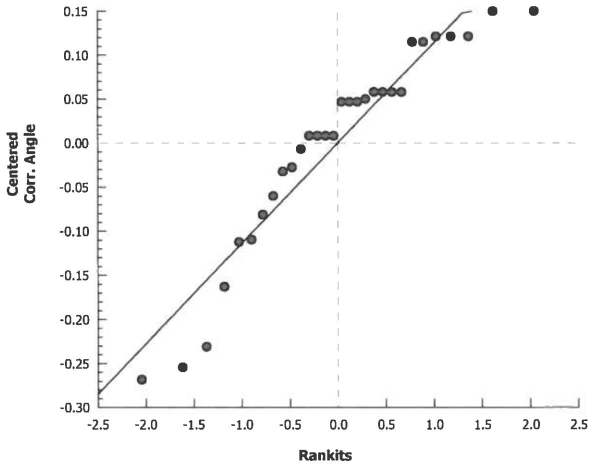
CETIS Analytical Report

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID: 09-3743-5838
Analyzed: 03 Sep-18 12:55
Endpoint: Survival Rate
Analysis: Parametric-Control vs Treatments
CETIS Version: CETISv1.8.7
Official Results: Yes

Graphics





Analyst: 8 QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 14:48 (p 1 of 1)
Test Code: 1808-S118 | 02-5718-8441

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID: 21-4315-7429 **Endpoint:** Combined Development Rate **CETIS Version:** CETISv1.8.7
Analyzed: 03 Sep-18 14:48 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	8.38%	Passes combined development rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		101	-0.5017	1.86	0.114	8	0.6853	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.002370693	0.002370693	1	0.2517	0.6294	Non-Significant Effect
Error	0.07535691	0.009419614	8			
Total	0.0777276		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.106	23.15	0.9247	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.801	0.7411	0.0149	Normal Distribution

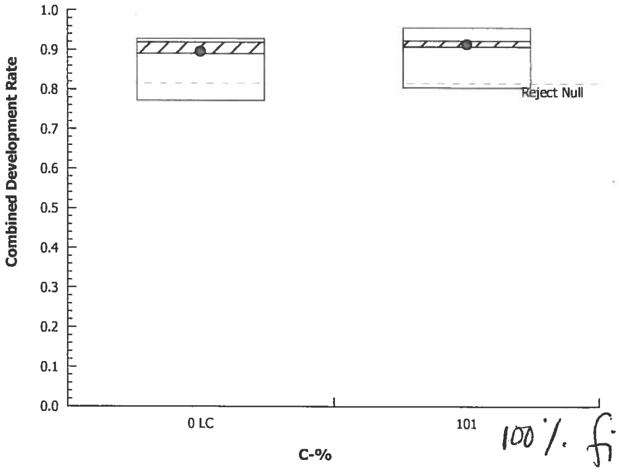
Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.8892	0.8069	0.9714	0.9181	0.7712	0.9281	0.02963	7.45%	0.0%
101		5	0.9063	0.8298	0.9828	0.9216	0.8039	0.9557	0.02756	6.8%	-1.93%

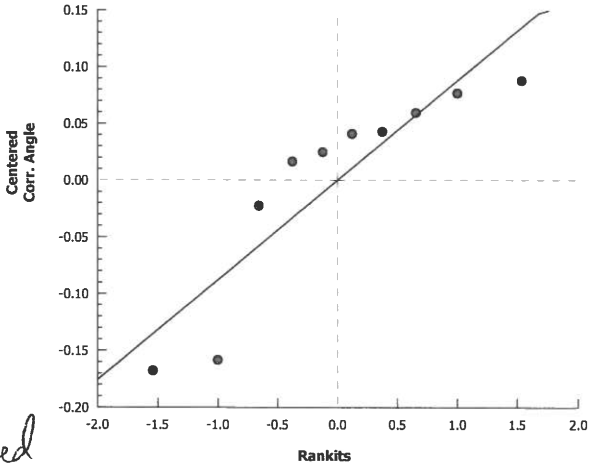
Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.24	1.122	1.357	1.281	1.072	1.299	0.0423	7.63%	0.0%
101		5	1.271	1.147	1.394	1.287	1.112	1.359	0.04448	7.83%	-2.48%

Graphics



100% filtered



Analyst:____ QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:57 (p 1 of 2)
Test Code: 1808-S118 | 02-5718-8441

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	05-8281-7745	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:55	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	07-0980-2792	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1096202	1000	Yes	Two-Point Interpolation

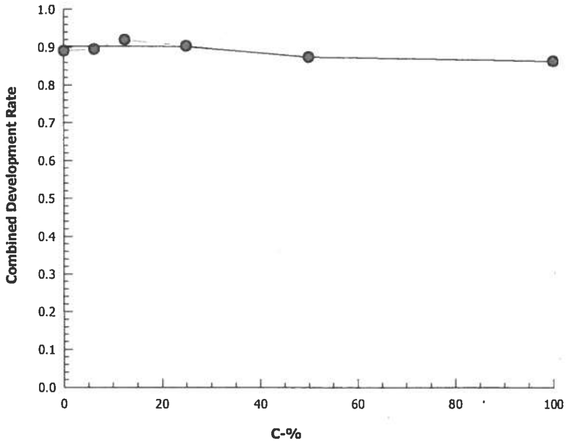
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Combined Development Rate Summary — **Calculated Variate(A/B)**

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.8892	0.7712	0.9281	0.02963	0.06626	7.45%	0.0%	715	803
6.25		5	0.8935	0.8562	0.9375	0.01365	0.03052	3.42%	-0.49%	706	789
12.5		5	0.9199	0.8924	0.9375	0.01014	0.02266	2.46%	-3.46%	724	787
25		5	0.9037	0.8889	0.9236	0.006598	0.01475	1.63%	-1.63%	742	821
50		5	0.8725	0.732	0.962	0.03853	0.08616	9.87%	1.87%	712	814
100		5	0.8633	0.7386	0.9085	0.03169	0.07085	8.21%	2.91%	672	778

Graphics



Analyst:______ QA: AC 9/10/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:57 (p 2 of 2)
Test Code: 1808-S118 | 02-5718-8441

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	19-4943-6449	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:55	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	07-0980-2792	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1700490	1000	Yes	Two-Point Interpolation

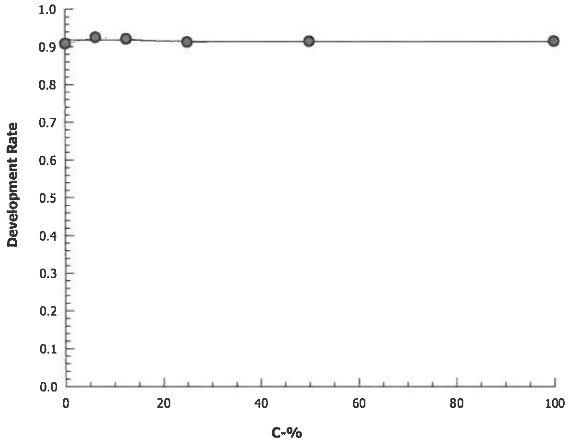
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Development Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.9072	0.8613	0.9281	0.01186	0.02651	2.92%	0.0%	715	787
6.25		5	0.9253	0.9026	0.9493	0.008152	0.01823	1.97%	-2.0%	706	763
12.5		5	0.9212	0.8924	0.9408	0.01064	0.0238	2.58%	-1.54%	724	786
25		5	0.9133	0.8956	0.932	0.006816	0.01524	1.67%	-0.68%	742	813
50		5	0.9145	0.875	0.962	0.01469	0.03285	3.59%	-0.8%	712	778
100		5	0.9165	0.8902	0.9437	0.009251	0.02069	2.26%	-1.03%	672	734

Graphics



Analyst:________ QA: AC 9/12/18

Embryo Larval Bioassay **48-hour Development**

Client: AMEC/POSD

Sample ID: SIYB-5

Test ID: 1808-S118

Test Species: *M. galloprovincialis*

Start Date/Time: 8/14/2018 1600

End Date/Time: 8/16/2018 1530

Random #	Number Normal	Number Abnormal		Total Number Counted	Intials/Date
		Number Curved Shell	All other abnormal		
176	137	0	10	147	JCL 8/23/18
177	112	0	16	128	
178	Ⓒ ~~138~~ 139	Ⓒ ~~1~~ 0	11	150	
179	165	0	11	176	
180	146	Ⓐ ~~18~~ 0	18	164	
181	141	0	17	158	
182	139	0	15	154	
183	134	0	8	142	
184	145	0	12	157	
185	113	0	10	123	
186	151	0	7	158	
187	143	0	Ⓐ ~~152~~ 9	152	
188	140	0	15	Ⓐ ~~16~~ 155	
189	155	0	8	163	
190	152	0	6	158	
191	150	0	10	160	
192	Ⓒ ~~140~~ 142	Ⓒ ~~2~~ 0	11	153	
193	137	0	12	149	
194	141	0	10	151	
195	149	0	10	159	
196	136	0	15	151	
197	Ⓒ ~~132~~ 134	Ⓒ ~~2~~ 0	12	Ⓑ ~~13~~ 146	JCL 8/29/18
198	Ⓒ ~~149~~ 150	Ⓒ ~~1~~ 0	16	166	
199	118	0	19	137	
200	123	0	11	134	
201	132	0	Ⓑ ~~14~~ 10	142	
202	152	0	17	169	
203	131	0	7	138	
204	163	0	19	182	
205	161	0	15	176	
206	148	0	13	161	
207	Ⓒ ~~149~~ 150	Ⓒ ~~1~~ 0	15	165	
208	157	0	14	171	
209	166	0	18	184	
210	141	0	16	157	

Comments: Ⓐ Q18 JCL 8/23/18 Ⓑ Q18 JCL 8/29/18 Ⓒ Q18 9/3/18

QC Check: AC 8/31/18

Final Review: 9/3/18

CETIS Test Data Worksheet

Report Date: 10 Aug-18 10:33 (p 1 of 1)
Test Code: 02-5718-8441/1808-S118

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Start Date: 14 Aug-18
End Date: 16 Aug-18
Sample Date: 13 Aug-18
Species: Mytilus galloprovincialis
Protocol: EPA/600/R-95/136 (1995)
Material: Ambient Water
Sample Code: 18- 0862
Sample Source: Shelter Island Yacht Basin
Sample Station: SIYB-5

C-%	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	LC	1	206			166	152	UTP 08/17/18 ↓
0	LC	2	192					
0	LC	3	208					
0	LC	4	207					
0	LC	5	199					
6.25		1	179			178	169	1 curved
6.25		2	182					
6.25		3	197					
6.25		4	203					
6.25		5	193					
12.5		1	187			164	154	
12.5		2	210					
12.5		3	191					
12.5		4	181					
12.5		5	195					
25		1	184			161	150	
25		2	176					
25		3	204					
25		4	196					
25		5	205					
50		1	177			133	115	
50		2	201					
50		3	209					
50		4	198					
50		5	190					
100		1	183			148	137	
100		2	178					
100		3	180					
100		4	185					
100		5	188					
101	Q18	1	200			143	129	
101	AC 8/10	2	202					
101		3	186					
101		4	189					
101		5	194					

100% filt.

QC'd KEh

Analyst: AC

QA: [illegible] 9/3/18

Marine Chronic Bioassay **Water Quality Measurements**

Client: AMEC/POSD
Sample ID: SIYB-5
Sample Log No.: 18-0862
Test No.: 1808-S 118

Test Species: *M. galloprovincialis*
Start Date/Time: 8/14/2018 1600
End Date/Time: 8/16/2018 1530

Concentration (%)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	34.2	34.2	34.3	14.6	14.5	14.5	8.6	8.3	8.1	8.07	8.08	8.01
6.25	34.4	34.6	34.7	14.3	14.3	14.4	8.8	8.4	8.2	8.06	8.08	8.00
12.5	34.6	34.5	34.7	14.3	14.2	14.3	8.7	8.4	8.2	8.06	8.06	7.99
25	34.5	34.5	34.6	14.5	14.3	14.2	8.7	8.3	8.2	8.06	8.05	7.98
50	34.7	34.5	34.6	14.2	14.2	14.2	8.8	8.3	8.2	8.05	8.05	7.98
100	34.6	34.7	34.6	14.2	14.2	14.2	89	8.3	8.2	8.03	8.04	7.98
100 filtered	34.4	34.6	34.6	14.2	14.1	14.2	8.0	8.3	8.1	8.02	8.02	7.97

Technician Initials:

	0	24	48
WQ Readings:	EG	RT	EG
Dilutions made by:	EG		

Comments:
0 hrs:
24 hrs:
48 hrs:

QC Check: AC 8/31/18

Final Review: RS 9/3/18

Marine Chronic Bioassay **Larval Development Worksheet**

Client: ANECIPOSD S14B-5
Test No.: 1808-S118
Test Species: M. galloprovincialis
Animal Source: M. Bay
Date Received: 6/29/18
Test Chambers: 30mL glass shell vials
Sample Volume: 10 mL

Start Date/Time: 8/14/18 1600
End Date/Time: 8/16/18 1530
Technician Initials: /AC/EG

Spawn Information

First Gamete Release Time: 1130

Sex	Number Spawning
Male	3
Female	2

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2	Light spawning, fair motility
Female 1	1	Uniform size, shape, color, low density, no fans
Female 2	2	Uniform size, shape, color, fair density, no fat
Female 3		

Egg Fertilization Time: 1245

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	98
Female 2	100
Female 3	

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 6 embryos

Number Counted:
7
7
5
3
4

3
8
5
8
7

Mean: 5.7

Mean 5.7 X 50 = 285 embryos/ml

Initial Density: 285
Desired Final Density: 300 = 0.95 (dilution factor)
(to inoculate with 0.5 ml)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No	No. Dividing	Total	% Dividing	Mean % Dividing
TQ1	161	161	100	99.7
TQ2	162	162	100	
TQ3	150	150	100	
TQ4	140	141	99.3	
TQ5	154	155	99.4	

Q18 AC 8/16/18
48-h QC: ~~T46~~ 143/156 = 91.7%

Comments: $\bar{X}$ = 153.4

QC Check: 9/3/18

Final Review: KC 9/12/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

CETIS Summary Report

Report Date: 03 Sep-18 12:52 (p 1 of 4)
Test Code: 1808-S119 | 19-1342-8274

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Batch ID:	20-9101-3249	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Sample ID:	15-5736-6128	**Code:**	18-0863	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 09:30	**Material:**	Ambient Water	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	30h (5 °C)	**Station:**	SIYB-6		

Batch Note: 101= 100 percent sample filtered to 0.45um

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
14-1973-2753	Combined Development Ra	100	>100	NA	8.38%	1	Dunnett Multiple Comparison Test
05-7605-6259	Development Rate	100	>100	NA	4.85%	1	Dunnett Multiple Comparison Test
10-1071-4311	Survival Rate	100	>100	NA	7.49%	1	Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
11-7881-6950	Combined Development Ra	EC25	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	
14-1254-5902	Development Rate	EC25	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
05-7605-6259	Development Rate	Control Resp	0.9202	0.9 - NL	Yes	Passes Acceptability Criteria
14-1254-5902	Development Rate	Control Resp	0.9202	0.9 - NL	Yes	Passes Acceptability Criteria
10-1071-4311	Survival Rate	Control Resp	0.9438	0.5 - NL	Yes	Passes Acceptability Criteria
14-1973-2753	Combined Development Ra	PMSD	0.08377	NL - 0.25	No	Passes Acceptability Criteria

Analyst: 6 QA: AC 9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9102	0.8516	0.9689	0.8301	0.9468	0.02112	0.04723	5.19%	0.0%
0	Lab Control	5	0.8689	0.7831	0.9548	0.7908	0.9542	0.03091	0.06912	7.95%	4.54%
6.25		5	0.8508	0.7638	0.9378	0.7582	0.9193	0.03133	0.07007	8.24%	6.53%
12.5		5	0.9067	0.8741	0.9393	0.8693	0.9419	0.01173	0.02622	2.89%	0.39%
25		5	0.905	0.8791	0.9309	0.8693	0.9226	0.009333	0.02087	2.31%	0.57%
50		5	0.903	0.8658	0.9402	0.875	0.95	0.0134	0.02997	3.32%	0.8%
100		5	0.8818	0.833	0.9306	0.8431	0.9333	0.01758	0.0393	4.46%	3.12%
101		5	0.8816	0.8364	0.9268	0.8431	0.9375	0.01628	0.03641	4.13%	3.14%

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9182	0.8799	0.9565	0.8699	0.9468	0.0138	0.03086	3.36%	0.0%
0	Lab Control	5	0.9202	0.8912	0.9491	0.8966	0.9542	0.01043	0.02333	2.54%	-0.22%
6.25		5	0.8845	0.8218	0.9473	0.7989	0.9193	0.02261	0.05055	5.72%	3.66%
12.5		5	0.9163	0.8966	0.9359	0.8988	0.9419	0.007078	0.01583	1.73%	0.21%
25		5	0.916	0.8859	0.946	0.8867	0.9524	0.01083	0.02422	2.64%	0.24%
50		5	0.9065	0.8718	0.9411	0.875	0.95	0.01248	0.02791	3.08%	1.27%
100		5	0.9032	0.8631	0.9432	0.8487	0.9333	0.01441	0.03223	3.57%	1.64%
101		5	0.9178	0.8891	0.9464	0.8889	0.9441	0.01031	0.02306	2.51%	0.05%

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9908	0.9654	1	0.9542	1	0.00915	0.02046	2.07%	0.0%
0	Lab Control	5	0.9438	0.8682	1	0.8562	1	0.02723	0.06089	6.45%	4.75%
6.25		5	0.9621	0.8876	1	0.8627	1	0.02682	0.05997	6.23%	2.9%
12.5		5	0.9895	0.9605	1	0.9477	1	0.01046	0.02338	2.36%	0.13%
25		5	0.9882	0.9665	1	0.9608	1	0.007843	0.01754	1.78%	0.26%
50		5	0.9961	0.9852	1	0.9804	1	0.003922	0.008769	0.88%	-0.53%
100		5	0.9765	0.939	1	0.9346	1	0.01349	0.03016	3.09%	1.45%
101		5	0.9608	0.9149	1	0.9216	1	0.01653	0.03697	3.85%	3.03%

Analyst:______ QA: AC 9/12/18

Combined Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9191	0.9468	0.8301	0.943	0.9121
0	Lab Control	0.7908	0.8235	0.9542	0.8497	0.9264
6.25		0.9085	0.7989	0.9193	0.8693	0.7582
12.5		0.8693	0.9123	0.9419	0.9112	0.8988
25		0.9057	0.8693	0.9226	0.915	0.9125
50		0.8944	0.95	0.913	0.8824	0.875
100		0.9333	0.9136	0.8562	0.8627	0.8431
101		0.8889	0.8562	0.9375	0.8824	0.8431

Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9191	0.9468	0.8699	0.943	0.9121
0	Lab Control	0.9237	0.9	0.9542	0.8966	0.9264
6.25		0.9085	0.7989	0.9193	0.9172	0.8788
12.5		0.9172	0.9123	0.9419	0.9112	0.8988
25		0.9057	0.8867	0.9226	0.9524	0.9125
50		0.8944	0.95	0.913	0.9	0.875
100		0.9333	0.9136	0.9161	0.9041	0.8487
101		0.8889	0.9034	0.9375	0.9441	0.9149

Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	1	1	0.9542	1	1
0	Lab Control	0.8562	0.915	1	0.9477	1
6.25		1	1	1	0.9477	0.8627
12.5		0.9477	1	1	1	1
25		1	0.9804	1	0.9608	1
50		1	1	1	0.9804	1
100		1	1	0.9346	0.9542	0.9935
101		1	0.9477	1	0.9346	0.9216

Analyst: G QA: AC 9/12/18

CETIS Summary Report

Report Date: 03 Sep-18 12:52 (p 4 of 4)
Test Code: 1808-S119 | 19-1342-8274

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Combined Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	159/173	178/188	127/153	149/158	166/182
0	Lab Control	121/153	126/153	146/153	130/153	151/163
6.25		149/164	143/179	148/161	133/153	116/153
12.5		133/153	156/171	162/172	154/169	151/168
25		144/159	133/153	143/155	140/153	146/160
50		161/180	152/160	147/161	135/153	147/168
100		154/165	148/162	131/153	132/153	129/153
101		136/153	131/153	150/160	135/153	129/153

Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	159/173	178/188	127/146	149/158	166/182
0	Lab Control	121/131	126/140	146/153	130/145	151/163
6.25		149/164	143/179	148/161	133/145	116/132
12.5		133/145	156/171	162/172	154/169	151/168
25		144/159	133/150	143/155	140/147	146/160
50		161/180	152/160	147/161	135/150	147/168
100		154/165	148/162	131/143	132/146	129/152
101		136/153	131/145	150/160	135/143	129/141

Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	153/153	153/153	146/153	153/153	153/153
0	Lab Control	131/153	140/153	153/153	145/153	153/153
6.25		153/153	153/153	153/153	145/153	132/153
12.5		145/153	153/153	153/153	153/153	153/153
25		153/153	150/153	153/153	147/153	153/153
50		153/153	153/153	153/153	150/153	153/153
100		153/153	153/153	143/153	146/153	152/153
101		153/153	145/153	153/153	143/153	141/153

Analyst:______ QA: AC9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:51 (p 1 of 10)
Test Code: 1808-S119 | 19-1342-8274

Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Analysis ID:	14-1973-2753	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:50	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	20-9101-3249	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	8.38%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	0.6386	2.362	0.109	8	0.5850	CDF	Non-Significant Effect
		12.5	-1.112	2.362	0.109	8	0.9878	CDF	Non-Significant Effect
		25	-1.026	2.362	0.109	8	0.9845	CDF	Non-Significant Effect
		50	-0.9954	2.362	0.109	8	0.9831	CDF	Non-Significant Effect
		100	-0.2677	2.362	0.109	8	0.9003	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02651139	0.005302278	5	0.9949	0.4417	Non-Significant Effect
Error	0.1279032	0.005329298	24			
Total	0.1544145		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	6.967	15.09	0.2231	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9777	0.9031	0.7619	Normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.8689	0.7831	0.9548	0.8497	0.7908	0.9542	0.03091	7.95%	0.0%
6.25		5	0.8508	0.7638	0.9378	0.8693	0.7582	0.9193	0.03133	8.24%	2.08%
12.5		5	0.9067	0.8741	0.9393	0.9112	0.8693	0.9419	0.01173	2.89%	-4.35%
25		5	0.905	0.8791	0.9309	0.9125	0.8693	0.9226	0.009334	2.31%	-4.15%
50		5	0.903	0.8658	0.9402	0.8944	0.875	0.95	0.0134	3.32%	-3.92%
100		5	0.8818	0.833	0.9306	0.8627	0.8431	0.9333	0.01758	4.46%	-1.48%

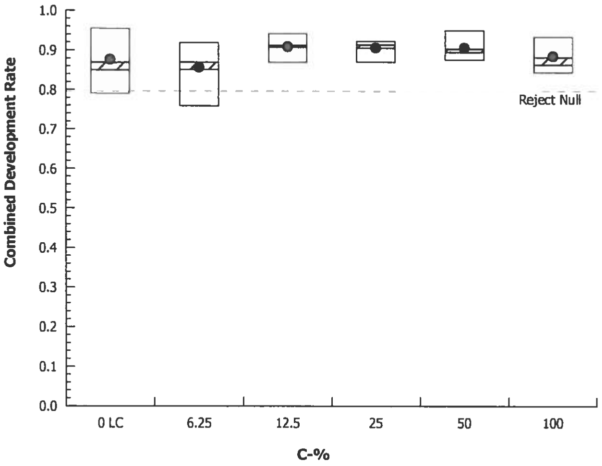
Angular (Corrected) Transformed Summary

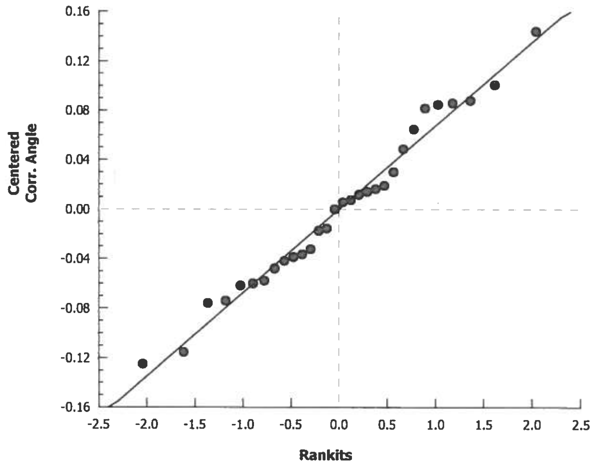
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.211	1.075	1.348	1.173	1.096	1.355	0.0491	9.06%	0.0%
6.25		5	1.182	1.06	1.304	1.201	1.057	1.283	0.04397	8.32%	2.43%
12.5		5	1.263	1.206	1.319	1.268	1.201	1.327	0.0204	3.61%	-4.24%
25		5	1.259	1.216	1.301	1.27	1.201	1.289	0.01526	2.71%	-3.91%
50		5	1.257	1.19	1.325	1.24	1.209	1.345	0.02437	4.33%	-3.79%
100		5	1.224	1.145	1.303	1.191	1.164	1.31	0.02844	5.2%	-1.02%

Analyst:________ QA: AC 9/12/18

Bivalve Larval Survival and Development Test					**Nautilus Environmental (CA)**
Analysis ID:	14-1973-2753	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:50	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst:

QA: AC 9/12/18

CETIS Analytical Report

TST

Report Date: 03 Sep-18 12:51 (p 3 of 10)
Test Code: 1808-S119 | 19-1342-8274

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	17-3308-0726	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:51	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	20-9101-3249	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	6.47%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	4.767	1.895	0.109	7	0.0010	CDF	Non-Significant Effect
		12.5*	8.413	1.943	0.082	6	<0.0001	CDF	Non-Significant Effect
		25*	8.786	2.015	0.080	5	0.0002	CDF	Non-Significant Effect
		50*	7.899	1.943	0.086	6	0.0001	CDF	Non-Significant Effect
		100*	6.775	1.895	0.088	7	0.0001	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02651139	0.005302278	5	0.9949	0.4417	Non-Significant Effect
Error	0.1279032	0.005329298	24			
Total	0.1544145		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	6.967	15.09	0.2231	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9777	0.9031	0.7619	Normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.8689	0.7831	0.9548	0.8497	0.7908	0.9542	0.03091	7.95%	0.0%
6.25		5	0.8508	0.7638	0.9378	0.8693	0.7582	0.9193	0.03133	8.24%	2.08%
12.5		5	0.9067	0.8741	0.9393	0.9112	0.8693	0.9419	0.01173	2.89%	-4.35%
25		5	0.905	0.8791	0.9309	0.9125	0.8693	0.9226	0.009334	2.31%	-4.15%
50		5	0.903	0.8658	0.9402	0.8944	0.875	0.95	0.0134	3.32%	-3.92%
100		5	0.8818	0.833	0.9306	0.8627	0.8431	0.9333	0.01758	4.46%	-1.48%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.211	1.075	1.348	1.173	1.096	1.355	0.0491	9.06%	0.0%
6.25		5	1.182	1.06	1.304	1.201	1.057	1.283	0.04397	8.32%	2.43%
12.5		5	1.263	1.206	1.319	1.268	1.201	1.327	0.0204	3.61%	-4.24%
25		5	1.259	1.216	1.301	1.27	1.201	1.289	0.01526	2.71%	-3.91%
50		5	1.257	1.19	1.325	1.24	1.209	1.345	0.02437	4.33%	-3.79%
100		5	1.224	1.145	1.303	1.191	1.164	1.31	0.02844	5.2%	-1.02%

Analyst: QA: AC9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:51 (p 5 of 10)
Test Code: 1808-S119 | 19-1342-8274

Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Analysis ID:	05-7605-6259	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:50	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	20-9101-3249	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	4.85%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	1.777	2.362	0.077	8	0.1458	CDF	Non-Significant Effect
		12.5	0.2636	2.362	0.077	8	0.7439	CDF	Non-Significant Effect
		25	0.2362	2.362	0.077	8	0.7543	CDF	Non-Significant Effect
		50	0.7358	2.362	0.077	8	0.5405	CDF	Non-Significant Effect
		100	0.9142	2.362	0.077	8	0.4586	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.01100648	0.002201295	5	0.836	0.5371	Non-Significant Effect
Error	0.06319191	0.002632996	24			
Total	0.07419839		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.032	15.09	0.6950	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9717	0.9031	0.5869	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9202	0.8912	0.9491	0.9237	0.8966	0.9542	0.01043	2.54%	0.0%
6.25		5	0.8845	0.8218	0.9473	0.9085	0.7989	0.9193	0.02261	5.72%	3.87%
12.5		5	0.9163	0.8966	0.9359	0.9123	0.8988	0.9419	0.007077	1.73%	0.42%
25		5	0.916	0.8859	0.946	0.9125	0.8867	0.9524	0.01083	2.64%	0.46%
50		5	0.9065	0.8718	0.9411	0.9	0.875	0.95	0.01248	3.08%	1.49%
100		5	0.9032	0.8631	0.9432	0.9136	0.8487	0.9333	0.01441	3.57%	1.85%

Angular (Corrected) Transformed Summary

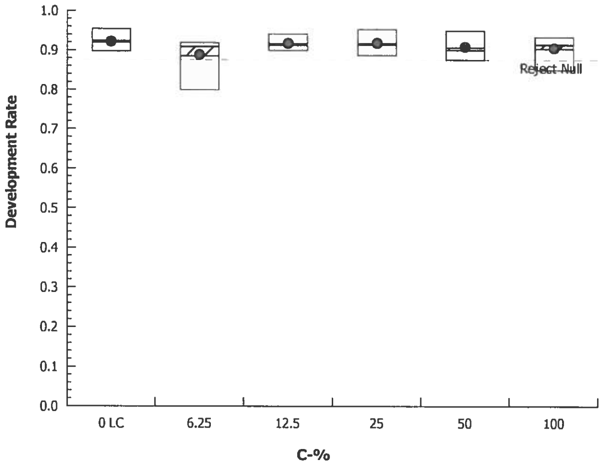
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.287	1.231	1.343	1.291	1.243	1.355	0.02012	3.5%	0.0%
6.25		5	1.229	1.137	1.321	1.264	1.106	1.283	0.03313	6.03%	4.48%
12.5		5	1.278	1.241	1.315	1.27	1.247	1.327	0.01331	2.33%	0.66%
25		5	1.279	1.222	1.336	1.27	1.227	1.351	0.02049	3.58%	0.6%
50		5	1.263	1.2	1.326	1.249	1.209	1.345	0.02285	4.05%	1.86%
100		5	1.257	1.193	1.322	1.272	1.171	1.31	0.02319	4.13%	2.31%

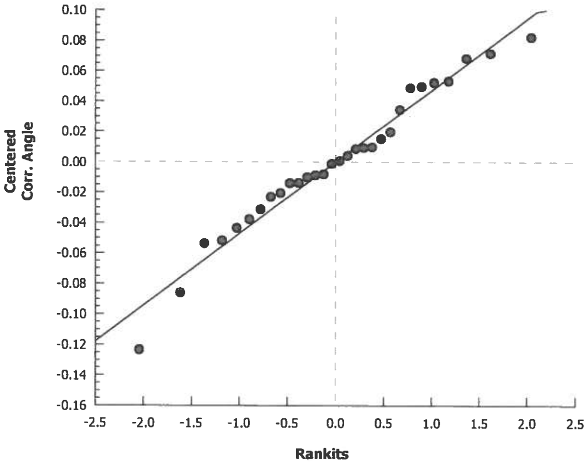
Analyst:______ QA: AC 9/12/18

Bivalve Larval Survival and Development Test | **Nautilus Environmental (CA)**

Analysis ID: 05-7605-6259 **Endpoint:** Development Rate **CETIS Version:** CETISv1.8.7
Analyzed: 03 Sep-18 12:50 **Analysis:** Parametric-Control vs Treatments **Official Results:** Yes

Graphics





Analyst: QA: AC 9/12/18

CETIS Analytical Report

TST

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	10-3332-8618	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:51	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	20-9101-3249	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	3.25%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	7.253	2.015	0.073	5	0.0004	CDF	Non-Significant Effect
		12.5*	15.56	1.895	0.038	7	<0.0001	CDF	Non-Significant Effect
		25*	12.34	1.895	0.048	7	<0.0001	CDF	Non-Significant Effect
		50*	10.88	1.943	0.053	6	<0.0001	CDF	Non-Significant Effect
		100*	10.56	1.943	0.054	6	<0.0001	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.01100648	0.002201295	5	0.836	0.5371	Non-Significant Effect
Error	0.06319191	0.002632996	24			
Total	0.07419839		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.032	15.09	0.6950	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9717	0.9031	0.5869	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9202	0.8912	0.9491	0.9237	0.8966	0.9542	0.01043	2.54%	0.0%
6.25		5	0.8845	0.8218	0.9473	0.9085	0.7989	0.9193	0.02261	5.72%	3.87%
12.5		5	0.9163	0.8966	0.9359	0.9123	0.8988	0.9419	0.007077	1.73%	0.42%
25		5	0.916	0.8859	0.946	0.9125	0.8867	0.9524	0.01083	2.64%	0.46%
50		5	0.9065	0.8718	0.9411	0.9	0.875	0.95	0.01248	3.08%	1.49%
100		5	0.9032	0.8631	0.9432	0.9136	0.8487	0.9333	0.01441	3.57%	1.85%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.287	1.231	1.343	1.291	1.243	1.355	0.02012	3.5%	0.0%
6.25		5	1.229	1.137	1.321	1.264	1.106	1.283	0.03313	6.03%	4.48%
12.5		5	1.278	1.241	1.315	1.27	1.247	1.327	0.01331	2.33%	0.66%
25		5	1.279	1.222	1.336	1.27	1.227	1.351	0.02049	3.58%	0.6%
50		5	1.263	1.2	1.326	1.249	1.209	1.345	0.02285	4.05%	1.86%
100		5	1.257	1.193	1.322	1.272	1.171	1.31	0.02319	4.13%	2.31%

Analyst:______ QA: AC 9/12/18

Bivalve Larval Survival and Development Test					**Nautilus Environmental (CA)**
Analysis ID:	10-1071-4311	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:50	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	20-9101-3249	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	7.49%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	-0.7578	2.362	0.165	8	0.9681	CDF	Non-Significant Effect
		12.5	-1.728	2.362	0.165	8	0.9982	CDF	Non-Significant Effect
		25	-1.532	2.362	0.165	8	0.9966	CDF	Non-Significant Effect
		50	-1.987	2.362	0.165	8	0.9992	CDF	Non-Significant Effect
		100	-1.032	2.362	0.165	8	0.9847	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0651174	0.01302348	5	1.067	0.4030	Non-Significant Effect
Error	0.2929484	0.01220618	24			
Total	0.3580658		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	7.027	15.09	0.2186	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9454	0.9031	0.1271	Normal Distribution

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9438	0.8682	1	0.9477	0.8562	1	0.02723	6.45%	0.0%
6.25		5	0.9621	0.8876	1	1	0.8627	1	0.02682	6.23%	-1.94%
12.5		5	0.9895	0.9605	1	1	0.9477	1	0.01046	2.36%	-4.85%
25		5	0.9882	0.9665	1	1	0.9608	1	0.007843	1.78%	-4.71%
50		5	0.9961	0.9852	1	1	0.9804	1	0.003921	0.88%	-5.54%
100		5	0.9765	0.939	1	0.9935	0.9346	1	0.01349	3.09%	-3.46%

Angular (Corrected) Transformed Summary

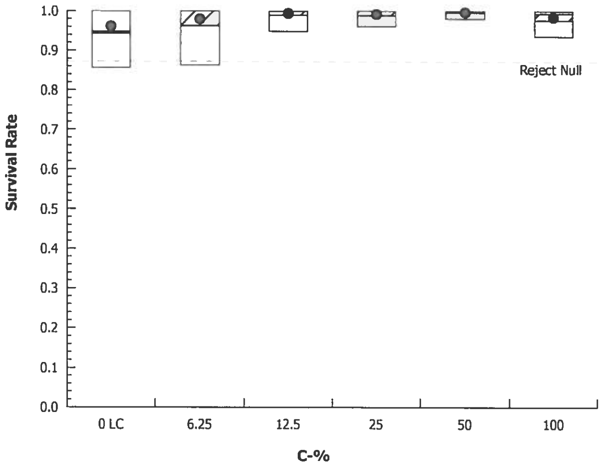
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.372	1.178	1.565	1.34	1.182	1.53	0.06955	11.34%	0.0%
6.25		5	1.424	1.233	1.616	1.53	1.191	1.53	0.06897	10.83%	-3.86%
12.5		5	1.492	1.387	1.598	1.53	1.34	1.53	0.03805	5.7%	-8.81%
25		5	1.479	1.387	1.57	1.53	1.371	1.53	0.03305	5.0%	-7.8%
50		5	1.51	1.455	1.566	1.53	1.43	1.53	0.02001	2.96%	-10.12%
100		5	1.444	1.316	1.571	1.49	1.312	1.53	0.04596	7.12%	-5.26%

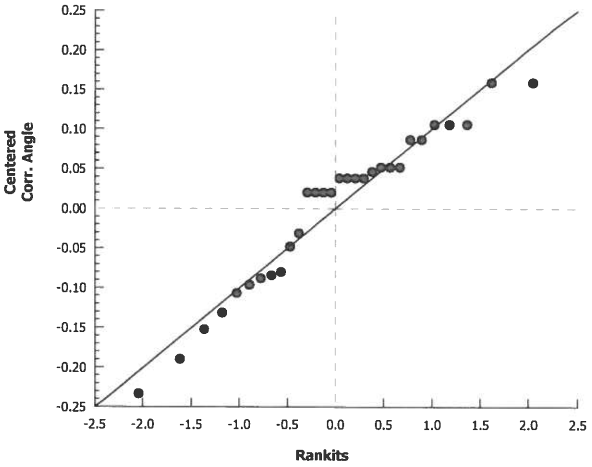
Analyst:________ QA: AC 9/17/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID: 10-1071-4311 **Endpoint:** Survival Rate **CETIS Version:** CETISv1.8.7
Analyzed: 03 Sep-18 12:50 **Analysis:** Parametric-Control vs Treatments **Official Results:** Yes

Graphics





CETIS Analytical Report

Report Date: 03 Sep-18 14:49 (p 1 of 1)
Test Code: 1808-S119 | 19-1342-8274

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	05-4000-2039	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 14:49	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	7.91%	Passes combined development rate

Equal Variance t Two-Sample Test

Control vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control	101	-0.2083	1.86	0.104	8	0.5799	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0003392793	0.0003392793	1	0.04339	0.8402	Non-Significant Effect
Error	0.06254947	0.007818684	8			
Total	0.06288875		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	3.362	23.15	0.2671	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9431	0.7411	0.5877	Normal Distribution

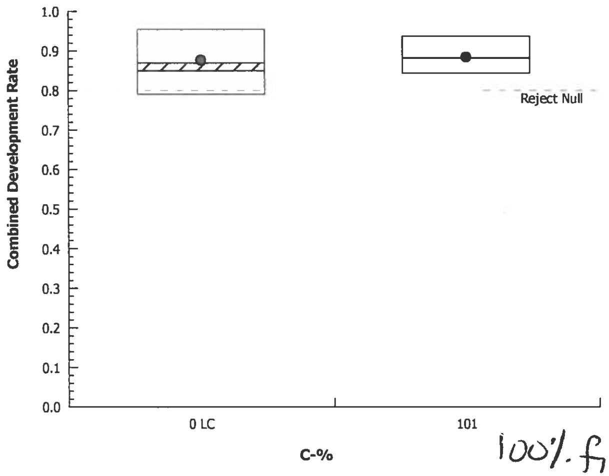
Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.8689	0.7831	0.9548	0.8497	0.7908	0.9542	0.03091	7.95%	0.0%
101		5	0.8816	0.8364	0.9268	0.8824	0.8431	0.9375	0.01628	4.13%	-1.46%

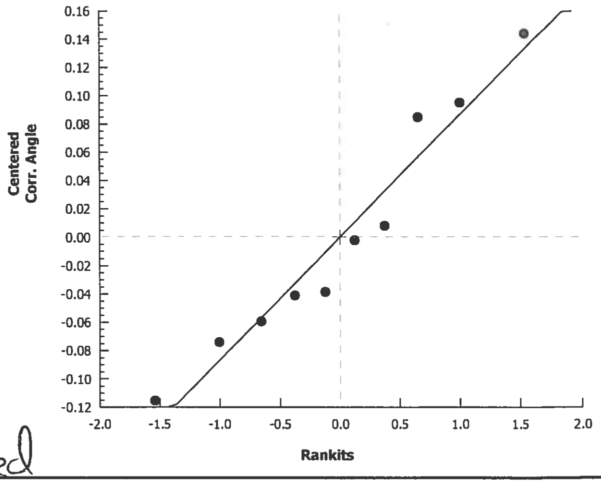
Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.211	1.075	1.348	1.173	1.096	1.355	0.0491	9.06%	0.0%
101		5	1.223	1.149	1.297	1.221	1.164	1.318	0.02678	4.9%	-0.96%

Graphics



100% filtered



Analyst: QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:52 (p 1 of 2)
Test Code: 1808-S119 | 19-1342-8274

Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Analysis ID:	11-7881-6950	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:51	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	20-9101-3249	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Batch Note: 101= 100 percent sample filtered to 0.45um

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	408951	1000	Yes	Two-Point Interpolation

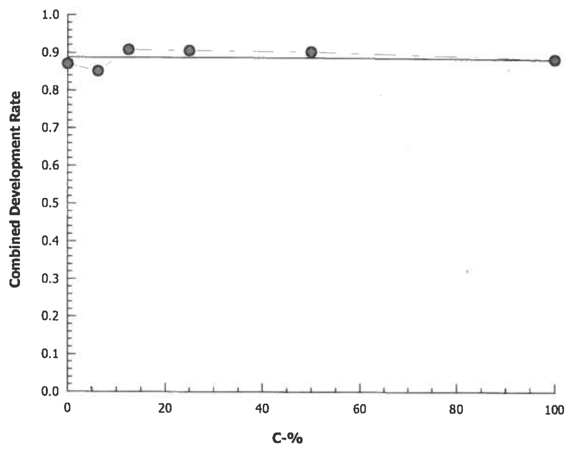
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Combined Development Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.8689	0.7908	0.9542	0.03091	0.06912	7.95%	0.0%	674	775
6.25		5	0.8508	0.7582	0.9193	0.03133	0.07007	8.24%	2.08%	689	810
12.5		5	0.9067	0.8693	0.9419	0.01173	0.02622	2.89%	-4.35%	756	833
25		5	0.905	0.8693	0.9226	0.009334	0.02087	2.31%	-4.15%	706	780
50		5	0.903	0.875	0.95	0.0134	0.02997	3.32%	-3.92%	742	822
100		5	0.8818	0.8431	0.9333	0.01758	0.0393	4.46%	-1.48%	694	786

Graphics



Analyst: ______ QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:52 (p 2 of 2)
Test Code: 1808-S119 | 19-1342-8274

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID: 14-1254-5902
Analyzed: 03 Sep-18 12:51
Endpoint: Development Rate
Analysis: Linear Interpolation (ICPIN)
CETIS Version: CETISv1.8.7
Official Results: Yes

Batch ID: 20-9101-3249
Start Date: 14 Aug-18 16:00
Ending Date: 16 Aug-18 15:30
Duration: 48h
Test Type: Development-Survival
Protocol: EPA/600/R-95/136 (1995)
Species: Mytilus galloprovincialis
Source: Mission Bay
Analyst:
Diluent: Laboratory Seawater
Brine: Not Applicable
Age:

Batch Note: 101= 100 percent sample filtered to 0.45um

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	97040	1000	Yes	Two-Point Interpolation

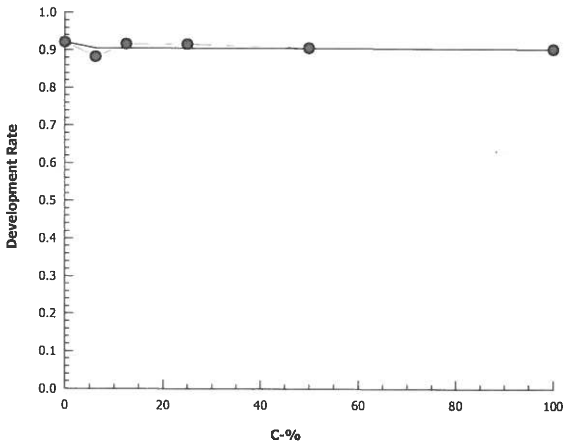
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Development Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.9202	0.8966	0.9542	0.01043	0.02333	2.54%	0.0%	674	732
6.25		5	0.8845	0.7989	0.9193	0.02261	0.05055	5.72%	3.87%	689	781
12.5		5	0.9163	0.8988	0.9419	0.007077	0.01583	1.73%	0.42%	756	825
25		5	0.916	0.8867	0.9524	0.01083	0.02422	2.64%	0.46%	706	771
50		5	0.9065	0.875	0.95	0.01248	0.02791	3.08%	1.49%	742	819
100		5	0.9032	0.8487	0.9333	0.01441	0.03223	3.57%	1.85%	694	768

Graphics



Analyst:______ QA: AC 9/12/18

Embryo Larval Bioassay

48-hour Development

Client: AMEC/POSD

Sample ID: SIYB-6

Test ID: 1808-S119

Test Species: *M. galloprovincialis*

Start Date/Time: 8/14/2018 1600

End Date/Time: 8/16/2018 1530

Random #	Number Normal	Number Abnormal		Total Number Counted	Intials/Date
		Number Curved Shell	All other abnormal		
211	121	0	10	131	g OBO JCL 8/23/18
212	135	0	15	150	
213	148	0	14	162	
214	136	0	17	153	
215	147	0	21	168	
216	149	0	15	164	
217	154	0	15	169	
218	161	0	19	180	
219	143	0	12	155	
220	150	0	10	160	
221	133	0	12	145	
222	126	0	14	140	
223	148	0	13	161	
224	131	0	14	145	
225	133	0	12	145	
226	152	0	8	160	
227	144	0	15	159	
228	129	0	12	141	
229	140	0	7	147	
230	116	0	16	132	
231	143	0	36	179	
232	129	0	13	152	
233	146	0	7	153	
234	146	0	14	160	
235	132	0	14	146	
236	156	0	15	171	
237	162	0	10	172	
238	130	0	15	145	
239	147	0	14	161	
240	151	0	17	168	
241	135	0	8	143	
242	133	0	17	150	
243	154	0	11	165	
244	131	0	12	143	
245	151	0	12	163	
		Ⓐ ~~0~~			
		Ⓐ ~~0~~			
		Ⓐ ~~0~~			
		Ⓐ ~~0~~			
		Ⓐ ~~0~~			

Comments: Ⓐ Q g g 9/3/18

QC Check: g 9/3/18

Final Review: AC 4/12/18

CETIS Test Data Worksheet

Report Date: 10 Aug-18 10:34 (p 1 of 1)
Test Code: 19-1342-8274/1808-S119

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Start Date: 14 Aug-18
End Date: 16 Aug-18
Sample Date: 13 Aug-18

Species: Mytilus galloprovincialis
Protocol: EPA/600/R-95/136 (1995)
Material: Ambient Water

Sample Code: 18- 0863
Sample Source: Shelter Island Yacht Basin
Sample Station: SIYB-6

C-%	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	LC	1	211			130	118	RT 8/17/18
0	LC	2	222					
0	LC	3	233					
0	LC	4	238					
0	LC	5	245					
6.25		1	216					
6.25		2	231			173	159	RT 8/17/18
6.25		3	223					
6.25		4	221					
6.25		5	230					
12.5		1	225			155	143	BO 8/17/18
12.5		2	236					
12.5		3	237					
12.5		4	217					
12.5		5	240					
25		1	227			162	149	BO 8/17/18
25		2	242					
25		3	219					
25		4	229					
25		5	234					
50		1	218			Ⓐ 171 ~~161~~	157	BO 8/17/18
50		2	226					
50		3	239					
50		4	212					
50		5	215			166	154	BO 8/17/18
100		1	243					
100		2	213					
100		3	244					
100		4	235					
100		5	232			152	139	Bo 8/17/18
~~101~~		1	214			157	137	BO 8/17/18
~~101~~		2	224					
~~101~~		3	220					
~~101~~		4	241					
~~101~~		5	228					

100% filt. 014 AC 8/10

GC w/ IEL

Ⓐ Q18 BO 8/17/18

CETIS™ v1.8.7.20 Analyst: AC QA: 9/3/18

Marine Chronic Bioassay **Water Quality Measurements**

Client: AMEC/POSD
Sample ID: SIYB-6
Sample Log No.: 18- 0863
Test No.: 1808-S119

Test Species: *M. galloprovincialis*
Start Date/Time: 8/14/2018 1600
End Date/Time: 8/16/2018 1530

Concentration (%)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	34.4	34.2	34.3	14.2	14.4	14.4	8.6	8.3	8.1	8.12	8.03	7.98
6.25	34.6	34.6	34.7	14.0	14.1	14.2	8.8	8.4	8.2	8.12	8.05	7.98
12.5	34.6	34.7	34.6	14.1	14.0	14.0	8.8	8.4	8.2	8.08	8.01	7.98
25	34.7	34.7	34.6	14.1	14.0	14.0	8.8	8.3	8.0	8.09	7.99	7.97
50	34.7	34.6	34.7	14.1	14.1	14.1	8.8	8.3	8.1	8.09	8.00	7.97
100	34.8	34.7	34.7	14.2	14.0	14.1	8.8	8.4	8.1	8.07	7.98	7.96
100 filtered	34.5	34.6	34.7	14.2	14.0	14.0	Ⓐ ~~8.8~~ 8.0	8.4	8.2	8.06	8.01	7.96

Technician Initials:

	0	24	48
WQ Readings:	EG	RT	EG
Dilutions made by:	EG		

Comments:
0 hrs: Ⓐ EG Q18 8/14/18
24 hrs:
48 hrs:

QC Check: AC 8/31/18

Final Review: 9/3/18

Marine Chronic Bioassay **Larval Development Worksheet**

Client: AMEC/POSD - SI4B-6
Test No.: 1808-S119
Test Species: M. galloprovincialis
Animal Source: M. Bay
Date Received: 6/29/18
Test Chambers: 30mL glass shell vials
Sample Volume: 10 mL

Start Date/Time: 8/14/18 1600
End Date/Time: 8/16/18 1530
Technician Initials: [illegible]/AC/EG

Spawn Information

First Gamete Release Time: 1130

Sex	Number Spawning
Male	3
Female	2

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2	Light spawning, fair motility
Female 1	1	Uniform size, shape, color, low density, no fert
Female 2	2	Uniform size, shape, color, fair density, no fert
Female 3		

Egg Fertilization Time: 1245

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	98
Female 2	100
Female 3	

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 6 embryos

Number Counted:

7	3
7	8
5	5
3	8
4	7

Mean: 5.7

Mean 5.7 X 50 = 285 embryos/ml

Initial Density: 285 / Desired Final Density: 300 (to inoculate with 0.5 ml) = 0.95 (dilution factor)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No.	No. Dividing	Total	% Dividing	Mean % Dividing
TQ1	161	161	100	99.7
TQ2	162	162	100	
TQ3	150	150	100	
TQ4	140	141	99.3	
TQ5	154	155	99.4	

Q18 AC 8/31/18
48-h QC: ~~146~~ 143/156 = 91.7%

Comments: $\bar{X}$ = 153.4

QC Check: [illegible] 9/3/18

Final Review: AC 9/12/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

CETIS Summary Report

Report Date: 03 Sep-18 12:41 (p 1 of 4)
Test Code: 1808-S120 | 13-3948-1036

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Batch ID:	19-3345-7717	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Sample ID:	13-9332-7597	**Code:**	18-0864	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 08:30	**Material:**	Ambient Water	**Project:**	
Receive Date:	03 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	32h (2 °C)	**Station:**	SIYB-REF		

Batch Note: 101= 100 percent sample filtered to 0.45um

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
04-5905-0253	Combined Development Ra	100	>100	NA	4.7%	1	Dunnett Multiple Comparison Test
17-1752-6934	Development Rate	100	>100	NA	3.88%	1	Dunnett Multiple Comparison Test
18-8098-6183	Survival Rate	100	>100	NA	2.43%	1	Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
05-2204-8668	Combined Development Ra	EC25	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	
00-6254-9766	Development Rate	EC25	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
00-6254-9766	Development Rate	Control Resp	0.9236	0.9 - NL	Yes	Passes Acceptability Criteria
17-1752-6934	Development Rate	Control Resp	0.9236	0.9 - NL	Yes	Passes Acceptability Criteria
18-8098-6183	Survival Rate	Control Resp	0.9817	0.5 - NL	Yes	Passes Acceptability Criteria
04-5905-0253	Combined Development Ra	PMSD	0.04702	NL - 0.25	No	Passes Acceptability Criteria

Analyst:______ QA: AC 9/12/18

CETIS Summary Report

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9102	0.8516	0.9689	0.8301	0.9468	0.02112	0.04723	5.19%	0.0%
0	Lab Control	5	0.9067	0.8735	0.9399	0.8627	0.9278	0.01196	0.02673	2.95%	0.39%
6.25		5	0.9133	0.8691	0.9576	0.8645	0.9521	0.01594	0.03564	3.9%	-0.34%
12.5		5	0.9077	0.8765	0.9389	0.878	0.9295	0.01124	0.02513	2.77%	0.28%
25		5	0.9168	0.8871	0.9465	0.8824	0.9477	0.01069	0.0239	2.61%	-0.72%
50		5	0.9207	0.9024	0.9391	0.902	0.9398	0.006604	0.01477	1.6%	-1.16%
100		5	0.9043	0.8684	0.9402	0.871	0.9425	0.01294	0.02893	3.2%	0.65%
101		5	0.8834	0.7965	0.9704	0.7908	0.9524	0.03131	0.07	7.92%	2.94%

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9182	0.8799	0.9565	0.8699	0.9468	0.0138	0.03086	3.36%	0.0%
0	Lab Control	5	0.9236	0.9167	0.9305	0.9141	0.9278	0.002498	0.005586	0.6%	-0.59%
6.25		5	0.9157	0.8735	0.9579	0.8645	0.9521	0.01519	0.03397	3.71%	0.27%
12.5		5	0.9114	0.8756	0.9471	0.878	0.94	0.01286	0.02877	3.16%	0.74%
25		5	0.9317	0.9113	0.9521	0.9145	0.9507	0.007347	0.01643	1.76%	-1.47%
50		5	0.9256	0.9127	0.9385	0.9108	0.9398	0.004646	0.01039	1.12%	-0.81%
100		5	0.9043	0.8684	0.9402	0.871	0.9425	0.01294	0.02893	3.2%	1.51%
101		5	0.92	0.8906	0.9493	0.8963	0.9524	0.01059	0.02367	2.57%	-0.19%

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Filter Control	5	0.9908	0.9654	1	0.9542	1	0.00915	0.02046	2.07%	0.0%
0	Lab Control	5	0.9817	0.9461	1	0.9346	1	0.01281	0.02864	2.92%	0.92%
6.25		5	0.9974	0.9901	1	0.9869	1	0.002614	0.005846	0.59%	-0.66%
12.5		5	0.9961	0.9852	1	0.9804	1	0.003922	0.008769	0.88%	-0.53%
25		5	0.9843	0.9451	1	0.9281	1	0.01411	0.03155	3.21%	0.66%
50		5	0.9948	0.9803	1	0.9739	1	0.005229	0.01169	1.18%	-0.4%
100		5	1	1	1	1	1	0	0	0.0%	-0.92%
101		5	0.9595	0.8891	1	0.8824	1	0.02535	0.05668	5.91%	3.17%

Analyst:

QA: AC 9/12/18

Combined Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9191	0.9468	0.8301	0.943	0.9121
0	Lab Control	0.902	0.9278	0.9268	0.9141	0.8627
6.25		0.9521	0.9313	0.9299	0.8889	0.8645
12.5		0.8827	0.9216	0.9266	0.878	0.9295
25		0.9477	0.9085	0.9211	0.8824	0.9244
50		0.902	0.9231	0.9108	0.9281	0.9398
100		0.9177	0.9097	0.8805	0.871	0.9425
101		0.9524	0.9068	0.9371	0.8301	0.7908

Development Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	0.9191	0.9468	0.8699	0.943	0.9121
0	Lab Control	0.9262	0.9278	0.9268	0.9141	0.9231
6.25		0.9521	0.9313	0.9299	0.9007	0.8645
12.5		0.8827	0.94	0.9266	0.878	0.9295
25		0.9477	0.9145	0.9211	0.9507	0.9244
50		0.9262	0.9231	0.9108	0.9281	0.9398
100		0.9177	0.9097	0.8805	0.871	0.9425
101		0.9524	0.9068	0.9371	0.9071	0.8963

Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	1	1	0.9542	1	1
0	Lab Control	0.9739	1	1	1	0.9346
6.25		1	1	1	0.9869	1
12.5		1	0.9804	1	1	1
25		1	0.9935	1	0.9281	1
50		0.9739	1	1	1	1
100		1	1	1	1	1
101		1	1	1	0.915	0.8824

Analyst: QA: AC 9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	159/173	178/188	127/153	149/158	166/182
0	Lab Control	138/153	167/180	152/164	149/163	132/153
6.25		159/167	149/160	146/157	136/153	134/155
12.5		143/162	141/153	164/177	144/164	145/156
25		163/172	139/153	175/190	135/153	159/172
50		138/153	168/182	143/157	142/153	156/166
100		145/158	141/155	140/159	135/155	164/174
101		160/168	146/161	149/159	127/153	121/153

Development Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	159/173	178/188	127/146	149/158	166/182
0	Lab Control	138/149	167/180	152/164	149/163	132/143
6.25		159/167	149/160	146/157	136/151	134/155
12.5		143/162	141/150	164/177	144/164	145/156
25		163/172	139/152	175/190	135/142	159/172
50		138/149	168/182	143/157	142/153	156/166
100		145/158	141/155	140/159	135/155	164/174
101		160/168	146/161	149/159	127/140	121/135

Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Filter Control	153/153	153/153	146/153	153/153	153/153
0	Lab Control	149/153	153/153	153/153	153/153	143/153
6.25		153/153	153/153	153/153	151/153	153/153
12.5		153/153	150/153	153/153	153/153	153/153
25		153/153	152/153	153/153	142/153	153/153
50		149/153	153/153	153/153	153/153	153/153
100		153/153	153/153	153/153	153/153	153/153
101		153/153	153/153	153/153	140/153	135/153

Analyst: S QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:28 (p 1 of 10)
Test Code: 1808-S120 | 13-3948-1036

Bivalve Larval Survival and Development Test	**Nautilus Environmental (CA)**

Analysis ID:	04-5905-0253	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:26	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	19-3345-7717	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	4.7%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	-0.4823	2.362	0.069	8	0.9376	CDF	Non-Significant Effect
		12.5	-0.05513	2.362	0.069	8	0.8491	CDF	Non-Significant Effect
		25	-0.6124	2.362	0.069	8	0.9541	CDF	Non-Significant Effect
		50	-0.8124	2.362	0.069	8	0.9723	CDF	Non-Significant Effect
		100	0.1174	2.362	0.069	8	0.7963	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.003091157	0.0006182314	5	0.2869	0.9156	Non-Significant Effect
Error	0.05171838	0.002154932	24			
Total	0.05480954		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	2.436	15.09	0.7861	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9611	0.9031	0.3305	Normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9067	0.8735	0.9399	0.9141	0.8627	0.9278	0.01196	2.95%	0.0%
6.25		5	0.9133	0.8691	0.9576	0.9299	0.8645	0.9521	0.01594	3.9%	-0.73%
12.5		5	0.9077	0.8765	0.9389	0.9216	0.878	0.9295	0.01124	2.77%	-0.11%
25		5	0.9168	0.8871	0.9465	0.9211	0.8824	0.9477	0.01069	2.61%	-1.12%
50		5	0.9207	0.9024	0.9391	0.9231	0.902	0.9398	0.006604	1.6%	-1.55%
100		5	0.9043	0.8684	0.9402	0.9097	0.871	0.9425	0.01294	3.2%	0.27%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.263	1.208	1.317	1.273	1.191	1.299	0.01973	3.5%	0.0%
6.25		5	1.277	1.198	1.355	1.303	1.194	1.35	0.02816	4.93%	-1.12%
12.5		5	1.264	1.211	1.317	1.287	1.214	1.302	0.01916	3.39%	-0.13%
25		5	1.28	1.226	1.335	1.286	1.221	1.34	0.01946	3.4%	-1.42%
50		5	1.286	1.252	1.32	1.29	1.252	1.323	0.01229	2.14%	-1.89%
100		5	1.259	1.197	1.322	1.266	1.203	1.329	0.0225	4.0%	0.27%

Analyst:______ QA: AC 9/12/18

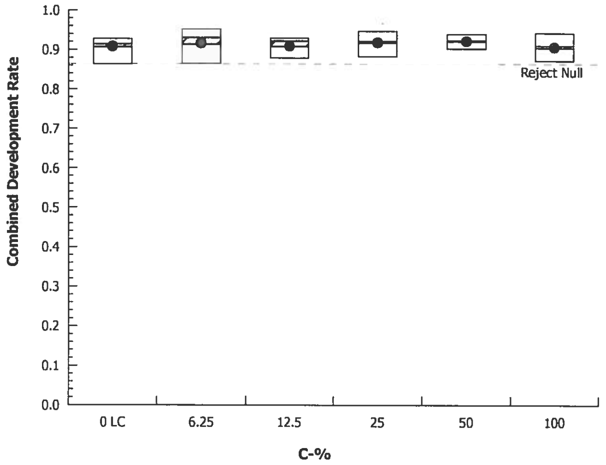
CETIS Analytical Report

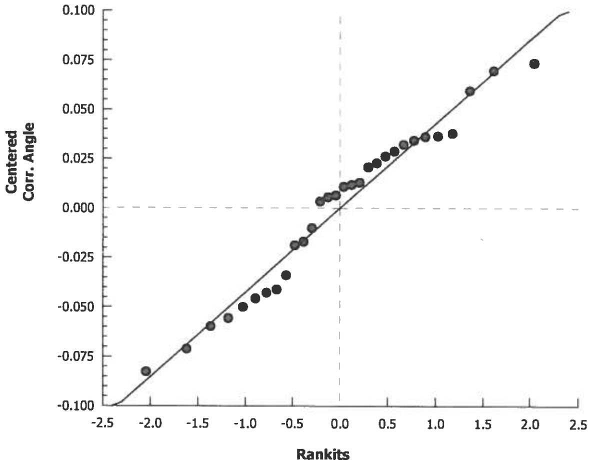
Report Date: 03 Sep-18 12:28 (p 2 of 10)
Test Code: 1808-S120 | 13-3948-1036

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	04-5905-0253	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:26	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst: QA: AC 9/12/18

TST

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	02-7392-2715	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:27	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	19-3345-7717	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	3.44%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	10.37	1.943	0.062	6	<0.0001	CDF	Non-Significant Effect
		12.5*	13.1	1.895	0.046	7	<0.0001	CDF	Non-Significant Effect
		25*	13.64	1.895	0.046	7	<0.0001	CDF	Non-Significant Effect
		50*	17.65	1.895	0.036	7	<0.0001	CDF	Non-Significant Effect
		100*	11.59	1.943	0.052	6	<0.0001	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.003091157	0.0006182314	5	0.2869	0.9156	Non-Significant Effect
Error	0.05171838	0.002154932	24			
Total	0.05480954		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	2.436	15.09	0.7861	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9611	0.9031	0.3305	Normal Distribution

Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9067	0.8735	0.9399	0.9141	0.8627	0.9278	0.01196	2.95%	0.0%
6.25		5	0.9133	0.8691	0.9576	0.9299	0.8645	0.9521	0.01594	3.9%	-0.73%
12.5		5	0.9077	0.8765	0.9389	0.9216	0.878	0.9295	0.01124	2.77%	-0.11%
25		5	0.9168	0.8871	0.9465	0.9211	0.8824	0.9477	0.01069	2.61%	-1.12%
50		5	0.9207	0.9024	0.9391	0.9231	0.902	0.9398	0.006604	1.6%	-1.55%
100		5	0.9043	0.8684	0.9402	0.9097	0.871	0.9425	0.01294	3.2%	0.27%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.263	1.208	1.317	1.273	1.191	1.299	0.01973	3.5%	0.0%
6.25		5	1.277	1.198	1.355	1.303	1.194	1.35	0.02816	4.93%	-1.12%
12.5		5	1.264	1.211	1.317	1.287	1.214	1.302	0.01916	3.39%	-0.13%
25		5	1.28	1.226	1.335	1.286	1.221	1.34	0.01946	3.4%	-1.42%
50		5	1.286	1.252	1.32	1.29	1.252	1.323	0.01229	2.14%	-1.89%
100		5	1.259	1.197	1.322	1.266	1.203	1.329	0.0225	4.0%	0.27%

Analyst:______ QA: AC 4/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:28 (p 5 of 10)
Test Code: 1808-S120 | 13-3948-1036

Bivalve Larval Survival and Development Test					**Nautilus Environmental (CA)**
Analysis ID:	17-1752-6934	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:26	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	19-3345-7717	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	3.88%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	0.3962	2.362	0.062	8	0.6911	CDF	Non-Significant Effect
		12.5	0.7444	2.362	0.062	8	0.5366	CDF	Non-Significant Effect
		25	-0.649	2.362	0.062	8	0.9580	CDF	Non-Significant Effect
		50	-0.1588	2.362	0.062	8	0.8760	CDF	Non-Significant Effect
		100	1.216	2.362	0.062	8	0.3277	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.007647308	0.001529462	5	0.8949	0.5002	Non-Significant Effect
Error	0.04101825	0.001709094	24			
Total	0.04866555		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	11.48	15.09	0.0426	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9828	0.9031	0.8940	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9236	0.9167	0.9305	0.9262	0.9141	0.9278	0.002498	0.6%	0.0%
6.25		5	0.9157	0.8735	0.9579	0.9299	0.8645	0.9521	0.01519	3.71%	0.86%
12.5		5	0.9114	0.8756	0.9471	0.9266	0.878	0.94	0.01286	3.16%	1.32%
25		5	0.9317	0.9113	0.9521	0.9244	0.9145	0.9507	0.007347	1.76%	-0.87%
50		5	0.9256	0.9127	0.9385	0.9262	0.9108	0.9398	0.004646	1.12%	-0.22%
100		5	0.9043	0.8684	0.9402	0.9097	0.871	0.9425	0.01294	3.2%	2.09%

Angular (Corrected) Transformed Summary

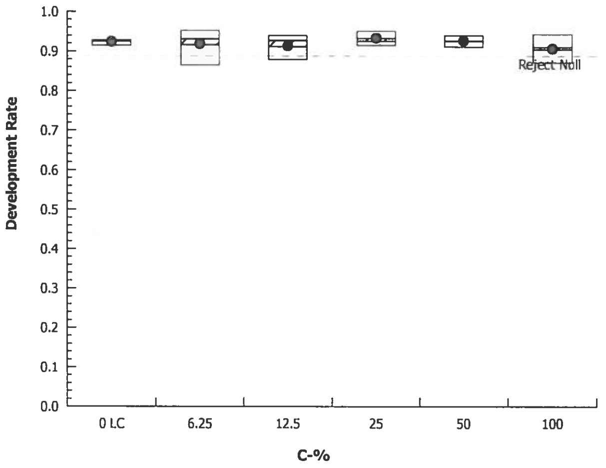
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.291	1.278	1.304	1.296	1.273	1.299	0.004626	0.8%	0.0%
6.25		5	1.281	1.206	1.355	1.303	1.194	1.35	0.02684	4.69%	0.8%
12.5		5	1.271	1.209	1.334	1.296	1.214	1.323	0.02243	3.94%	1.51%
25		5	1.308	1.267	1.349	1.292	1.274	1.347	0.01487	2.54%	-1.32%
50		5	1.295	1.27	1.32	1.296	1.268	1.323	0.008872	1.53%	-0.32%
100		5	1.259	1.197	1.322	1.266	1.203	1.329	0.0225	4.0%	2.46%

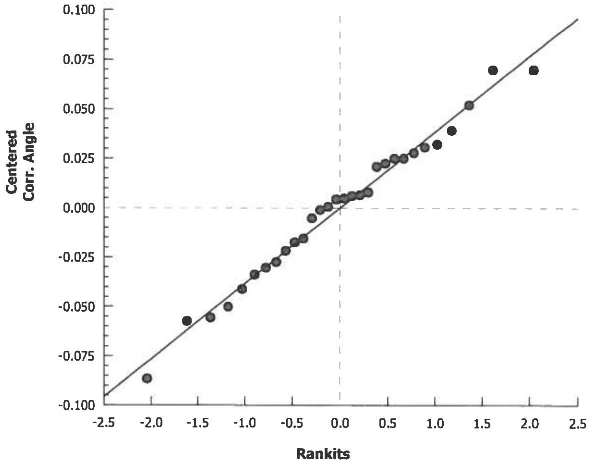
Analyst:____ QA: AC 9/12/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	17-1752-6934	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:26	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst:_____ QA: AC 9/12/18

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	12-9875-7640	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:27	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Batch ID:	19-3345-7717	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.75	2.99%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25*	11.54	2.132	0.058	4	0.0002	CDF	Non-Significant Effect
		12.5*	13.36	2.132	0.048	4	<0.0001	CDF	Non-Significant Effect
		25*	22.24	2.132	0.033	4	<0.0001	CDF	Non-Significant Effect
		50*	34.31	2.015	0.019	5	<0.0001	CDF	Non-Significant Effect
		100*	12.78	2.132	0.049	4	0.0001	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.007647308	0.001529462	5	0.8949	0.5002	Non-Significant Effect
Error	0.04101825	0.001709094	24			
Total	0.04866555		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	11.48	15.09	0.0426	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9828	0.9031	0.8940	Normal Distribution

Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9236	0.9167	0.9305	0.9262	0.9141	0.9278	0.002498	0.6%	0.0%
6.25		5	0.9157	0.8735	0.9579	0.9299	0.8645	0.9521	0.01519	3.71%	0.86%
12.5		5	0.9114	0.8756	0.9471	0.9266	0.878	0.94	0.01286	3.16%	1.32%
25		5	0.9317	0.9113	0.9521	0.9244	0.9145	0.9507	0.007347	1.76%	-0.87%
50		5	0.9256	0.9127	0.9385	0.9262	0.9108	0.9398	0.004646	1.12%	-0.22%
100		5	0.9043	0.8684	0.9402	0.9097	0.871	0.9425	0.01294	3.2%	2.09%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.291	1.278	1.304	1.296	1.273	1.299	0.004626	0.8%	0.0%
6.25		5	1.281	1.206	1.355	1.303	1.194	1.35	0.02684	4.69%	0.8%
12.5		5	1.271	1.209	1.334	1.296	1.214	1.323	0.02243	3.94%	1.51%
25		5	1.308	1.267	1.349	1.292	1.274	1.347	0.01487	2.54%	-1.32%
50		5	1.295	1.27	1.32	1.296	1.268	1.323	0.008872	1.53%	-0.32%
100		5	1.259	1.197	1.322	1.266	1.203	1.329	0.0225	4.0%	2.46%

Analyst: ____ QA: AC 9/17/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:28 (p 9 of 10)
Test Code: 1808-S120 | 13-3948-1036

Bivalve Larval Survival and Development Test				**Nautilus Environmental (CA)**	
Analysis ID:	18-8098-6183	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:26	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	19-3345-7717	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	2.43%	100	>100	NA	1

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		6.25	31	16	1	8	0.9676	Asymp	Non-Significant Effect
		12.5	31	16	1	8	0.9676	Asymp	Non-Significant Effect
		25	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect
		50	30.5	16	2	8	0.9573	Asymp	Non-Significant Effect
		100	32.5	16	1	8	0.9870	Asymp	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.01648281	0.003296562	5	0.7616	0.5863	Non-Significant Effect
Error	0.1038873	0.004328636	24			
Total	0.1203701		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	0.7984	4.248	0.5651	Equal Variances
Variances	Levene Equality of Variance	3.671	3.895	0.0131	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8122	0.9031	0.0001	Non-normal Distribution

Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9817	0.9461	1	1	0.9346	1	0.01281	2.92%	0.0%
6.25		5	0.9974	0.9901	1	1	0.9869	1	0.002614	0.59%	-1.6%
12.5		5	0.9961	0.9852	1	1	0.9804	1	0.003921	0.88%	-1.47%
25		5	0.9843	0.9451	1	1	0.9281	1	0.01411	3.21%	-0.27%
50		5	0.9948	0.9803	1	1	0.9739	1	0.005229	1.18%	-1.33%
100		5	1	1	1	1	1	1	0	0.0%	-1.86%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.462	1.339	1.585	1.53	1.312	1.53	0.04434	6.78%	0.0%
6.25		5	1.516	1.474	1.557	1.53	1.456	1.53	0.01483	2.19%	-3.64%
12.5		5	1.51	1.455	1.566	1.53	1.43	1.53	0.02001	2.96%	-3.28%
25		5	1.476	1.351	1.601	1.53	1.299	1.53	0.04487	6.8%	-0.94%
50		5	1.506	1.438	1.574	1.53	1.408	1.53	0.02439	3.62%	-2.98%
100		5	1.53	1.53	1.531	1.53	1.53	1.53	0	0.0%	-4.65%

Analyst: QA: ACG 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 14:49 (p 1 of 1)
Test Code: 1808-S120 | 13-3948-1036

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID: 20-2911-6618 **Endpoint:** Combined Development Rate **CETIS Version:** CETISv1.8.7
Analyzed: 03 Sep-18 14:49 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Batch Note: 101= 100 percent sample filtered to 0.45um

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	6.96%	Passes combined development rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		101	0.5375	1.86	0.098	8	0.3028	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.002019986	0.002019986	1	0.2889	0.6056	Non-Significant Effect
Error	0.05594049	0.006992561	8			
Total	0.05796047		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	6.183	23.15	0.1055	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9606	0.7411	0.7932	Normal Distribution

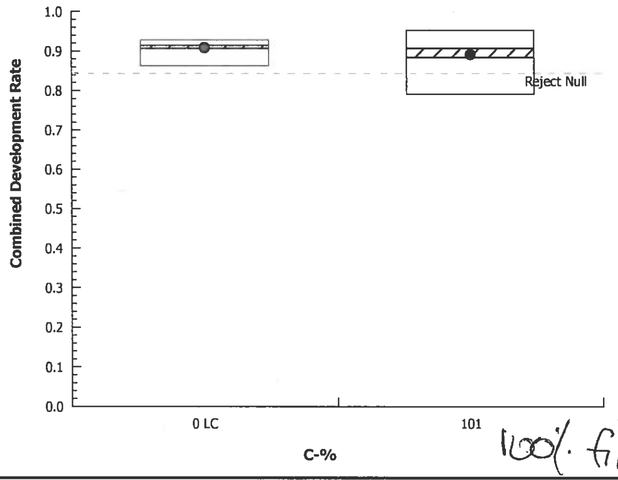
Combined Development Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9067	0.8735	0.9399	0.9141	0.8627	0.9278	0.01196	2.95%	0.0%
101		5	0.8834	0.7965	0.9704	0.9068	0.7908	0.9524	0.03131	7.92%	2.56%

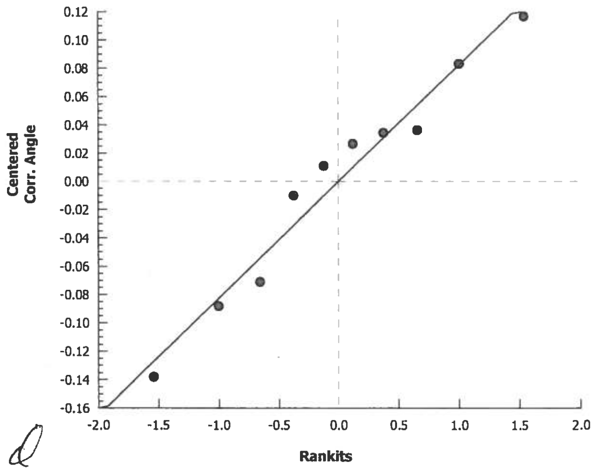
Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.263	1.208	1.317	1.273	1.191	1.299	0.01973	3.5%	0.0%
101		5	1.234	1.098	1.37	1.261	1.096	1.351	0.04907	8.89%	2.25%

Graphics



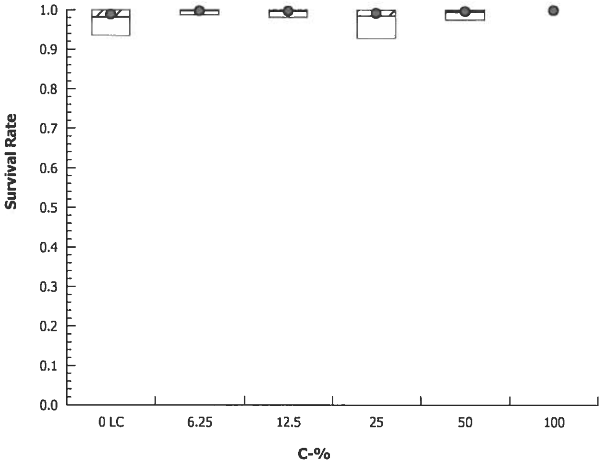
100% filtered

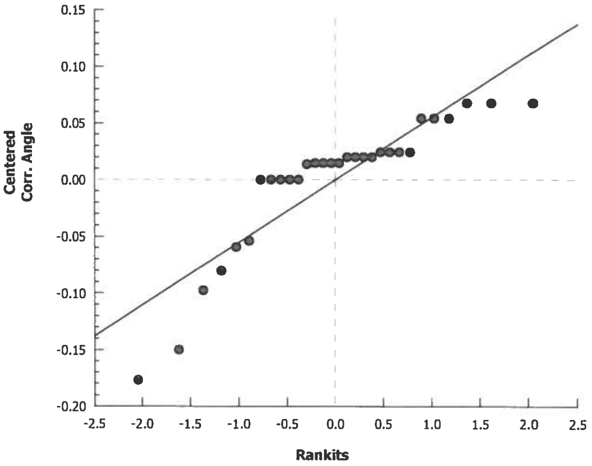


Analyst: QA: AC 9/12/18

Bivalve Larval Survival and Development Test				**Nautilus Environmental (CA)**
Analysis ID:	18-8098-6183	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:26	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Graphics





CETIS Analytical Report

Report Date: 03 Sep-18 12:28 (p 1 of 2)
Test Code: 1808-S120 | 13-3948-1036

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	05-2204-8668	**Endpoint:**	Combined Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:26	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	19-3345-7717	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	28262	1000	Yes	Two-Point Interpolation

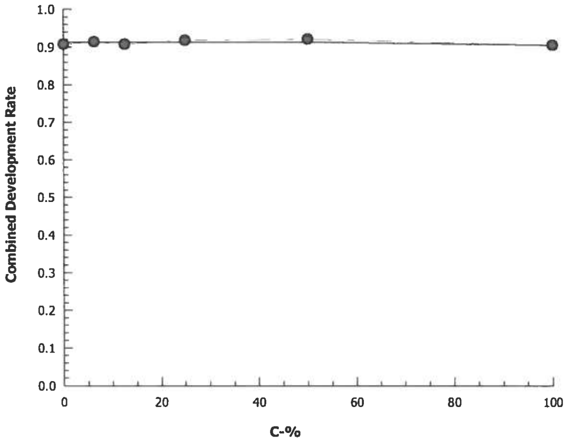
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Combined Development Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.9067	0.8627	0.9278	0.01196	0.02673	2.95%	0.0%	738	813
6.25		5	0.9133	0.8645	0.9521	0.01594	0.03564	3.9%	-0.73%	724	792
12.5		5	0.9077	0.878	0.9295	0.01124	0.02513	2.77%	-0.11%	737	812
25		5	0.9168	0.8824	0.9477	0.01069	0.0239	2.61%	-1.12%	771	840
50		5	0.9207	0.902	0.9398	0.006604	0.01477	1.6%	-1.55%	747	811
100		5	0.9043	0.871	0.9425	0.01294	0.02893	3.2%	0.27%	725	801

Graphics



Analyst: ______ QA: AC 9/12/18

CETIS Analytical Report

Report Date: 03 Sep-18 12:28 (p 2 of 2)
Test Code: 1808-S120 | 13-3948-1036

Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Analysis ID:	00-6254-9766	**Endpoint:**	Development Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Sep-18 12:26	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	19-3345-7717	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1623136	1000	Yes	Two-Point Interpolation

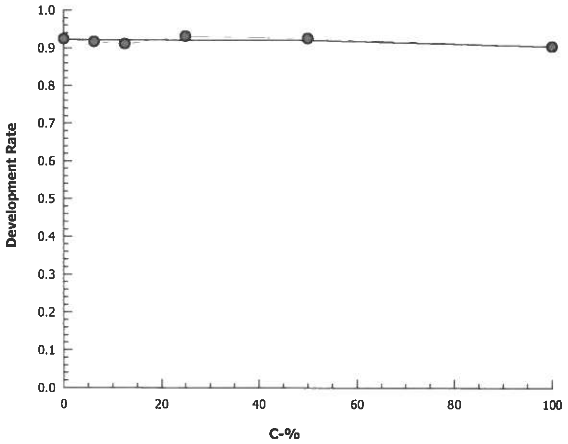
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC25	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

Development Rate Summary

			Calculated Variate(A/B)								
C-%	**Control Type**	**Count**	**Mean**	**Min**	**Max**	**Std Err**	**Std Dev**	**CV%**	**%Effect**	**A**	**B**
0	Lab Control	5	0.9236	0.9141	0.9278	0.002498	0.005585	0.6%	0.0%	738	799
6.25		5	0.9157	0.8645	0.9521	0.01519	0.03397	3.71%	0.86%	724	790
12.5		5	0.9114	0.878	0.94	0.01286	0.02877	3.16%	1.32%	737	809
25		5	0.9317	0.9145	0.9507	0.007347	0.01643	1.76%	-0.87%	771	828
50		5	0.9256	0.9108	0.9398	0.004646	0.01039	1.12%	-0.22%	747	807
100		5	0.9043	0.871	0.9425	0.01294	0.02893	3.2%	2.09%	725	801

Graphics



Analyst:

QA: AC 9/12/18

Embryo Larval Bioassay

48-hour Development

Client: AMEC/POSD

Sample ID: SIYB-REF

Test ID: 1808-S120

Test Species: *M. galloprovincialis*

Start Date/Time: 8/14/2018 1600

End Date/Time: 8/16/2018 1530

Random #	Number Normal	Number Abnormal		Total Number Counted	Intials/Date
		Number Curved Shell	All other abnormal		
246	145	0	13	158	4OBO JCL 8/22/18
247	149	0	14	163	
248	142	0	11	153	
249	164	0	13	177	
250	159	0	8	167	
251	134	0	21	155	
252	149	0	10	159	
253	138	0	11	149	
254	Ⓐ ~~145~~ 175	0	15	190	
255	136	0	15	151	
256	135	0	7	142	
257	138	0	11	149	
258	149	0	11	160	
259	140	0	19	159	
260	141	0	9	150	
261	145	0	11	156	
262	135	0	20	155	
263	143	0	19	162	
264	121	0	14	135	
265	139	0	13	152	
266	146	0	15	161	
267	156	0	10	166	
268	167	0	13	180	
269	143	0	14	157	
270	132	0	11	143	
271	159	0	13	172	
272	141	0	14	155	
273	127	0	13	140	
274	160	0	8	168	
275	163	0	9	172	
276	152	0	12	164	
277	146	0	11	157	
278	168	0	14	182	
279	144	0	20	164	
280	164	0	10	174	

Comments: Ⓐ Q188 9/3/18

QC Check: 9/3/18

Final Review: KC 9/12/18

CETIS Test Data Worksheet

Report Date: 10 Aug-18 10:35 (p 1 of 1)
Test Code: 13-3948-1036/1808-S120

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Start Date: 14 Aug-18 **Species:** Mytilus galloprovincialis **Sample Code:** 18-0864
End Date: 16 Aug-18 **Protocol:** EPA/600/R-95/136 (1995) **Sample Source:** Shelter Island Yacht Basin
Sample Date: 13 Aug-18 **Material:** Ambient Water **Sample Station:** SIYB-REF

C-%	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	LC	1	253			166	153	BO 8/17/18
0	LC	2	268					
0	LC	3	276					
0	LC	4	247					
0	LC	5	270					
6.25		1	250			177	166	BO 8/17/18
6.25		2	258					
6.25		3	277					
6.25		4	255					
6.25		5	251					
12.5		1	263					
12.5		2	260			148	136	BO 8/17/18
12.5		3	249					
12.5		4	279					
12.5		5	261					
25		1	275			178	167	BO 8/17/18
25		2	265					
25		3	254					
25		4	256					
25		5	271					
50		1	257					
50		2	278					
50		3	269			161	147	BO 8/17/18
50		4	248					
50		5	267					
100		1	246			163	153	EG 8/16/18
100		2	272					
100		3	259					
100		4	262					
100		5	280					
101	Q18	1	274			154	147	EG
100% 101	Ac 8/10	2	266					
filt. 101		3	252					
101		4	273					
101		5	264					

QC [illegible] /EL

Analyst: AC QA: 9/3/18

Marine Chronic Bioassay

Water Quality Measurements

Client: AMEC/POSD
Sample ID: SIYB-REF
Sample Log No.: 18- 0864
Test No.: 1808-S120

Test Species: *M. galloprovincialis*
Start Date/Time: 8/14/2018 1600
End Date/Time: 8/16/2018 1530

Concentration (%)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	33.8	34.2	34.3	14.5	14.3	14.5	8.8	8.3	8.1	8.08	8.02	7.98
6.25	~~33~~ Ⓐ 34.3	34.5	34.7	14.1	14.1	14.1	8.9	8.4	8.2	8.08	8.02	7.98
12.5	34.3	34.5	34.6	14.1	14.1	14.1	8.9	8.3	8.3	8.09	8.05	7.98
25	34.5	34.7	34.7	14.2	14.0	14.0	8.9	8.4	8.3	8.08	8.05	7.98
50	34.4	34.5	34.7	14.1	14.1	14.1	8.9	8.4	8.2	8.08	8.04	7.97
100	34.4	34.6	34.6	14.1	14.1	14.1	9.0	8.3	8.2	8.08	8.04	7.97
100 filtered	34.3	34.4	34.5	14.2	14.0	14.1	7.2	8.1	8.2	8.09	8.06	7.98

Technician Initials:

	0	24	48
WQ Readings:	EG	RT	EG
Dilutions made by:	EG		

Comments:
0 hrs: Ⓐ EG Q18 8/14/18
24 hrs:
48 hrs:

QC Check: AC 8/31/18

Final Review: 9/3/18

Marine Chronic Bioassay **Larval Development Worksheet**

Client: AMEC/POSD S14B-REF
Test No.: 1808-S126
Test Species: M. galloprovincialis
Animal Source: M. Bay
Date Received: 6/29/18
Test Chambers: 30mL glass shell vials
Sample Volume: 10 mL

Start Date/Time: 8/14/18 1600
End Date/Time: 8/16/18 1530
Technician Initials: w/AC/EG

Spawn Information

First Gamete Release Time: 1130

Sex	Number Spawning
Male	3
Female	2

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2	Light spawning, Fair motility
Female 1	1	Uniform size, shape, color, low density, no fast
Female 2	2	Uniform size, shape, color, fair density, no fast
Female 3		

Egg Fertilization Time: 1245

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	98
Female 2	100
Female 3	

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 6 embryos

Number Counted:
7
7
5
3
4

3
8
5
8
7

Mean: 5.7

Mean 5.7 X 50 = 285 embryos/ml

Initial Density: 285 = 0.95 (dilution factor)
Desired Final Density: 300
(to inoculate with 0.5 ml)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No.	No. Dividing	Total	% Dividing	Mean % Dividing
TQ1	1161	161	100	99.7
TQ2	162	162	100	
TQ3	150	150	100	
TQ4	140	141	99.3	
TQ5	154	155	99.4	

Q18 AC 8/16/18
48-h QC: ~~146~~ 143/156 = 91.7%

Comments: $\bar{x}$ = 153.4

QC Check: w 9/3/18

Final Review: AC 9/12/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

Pacific Topsmelt 96-hr Survival

CETIS Summary Report

Report Date: 20 Aug-18 09:08 (p 1 of 1)
Test Code: 1808-S107 | 15-7184-8039

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	18-3114-1243	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	14 Aug-18 15:10	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Natural Seawater
Ending Date:	18 Aug-18 13:15	**Species:**	Atherinops affinis	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	15d

Sample ID:	16-9784-7086	**Code:**	18-0858	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 14:30	**Material:**	Ambient Sample	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	25h (9.5 °C)	**Station:**	SIYB-1		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU a	Method
03-4231-0610	96h Survival Rate	100	>100	NA	19.9% 018	~~1~~ 0.59	Steel Many-One Rank Sum Test
06-8815-0537	96h Survival Rate	100	>100	NA	8.89% AC 8/20	1	TST-Welch's t Test

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	0.8	1	0.04216	0.1033	11.07%	0.0%
25		6	0.9	0.785	1	0.8	1	0.04472	0.1095	12.17%	3.57%
50		6	0.9	0.6429	1	0.4	1	0.1	0.2449	27.22%	3.57%
100		6	0.9	0.785	1	0.8	1	0.04472	0.1095	12.17%	3.57%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6
0	Lab Control	1	1	1	0.8	0.8	1
25		0.8	0.8	0.8	1	1	1
50		1	1	1	1	0.4	1
100		0.8	0.8	1	1	0.8	1

Analyst:________ QA: ws 8/20/18

CETIS Analytical Report

Report Date: 20 Aug-18 09:08 (p 1 of 2)
Test Code: 1808-S107 | 15-7184-8039

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	03-4231-0610	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 9:07	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	19.9%	100	>100	NA	1

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		25	36	26	2	10	0.5503	Asymp	Non-Significant Effect
		50	41	26	1	10	0.8513	Asymp	Non-Significant Effect
		100	36	26	2	10	0.5503	Asymp	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.006382409	0.00212747	3	0.06983	0.9754	Non-Significant Effect
Error	0.6093546	0.03046773	20			
Total	0.615737		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.597	11.34	0.2038	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7127	0.884	<0.0001	Non-normal Distribution

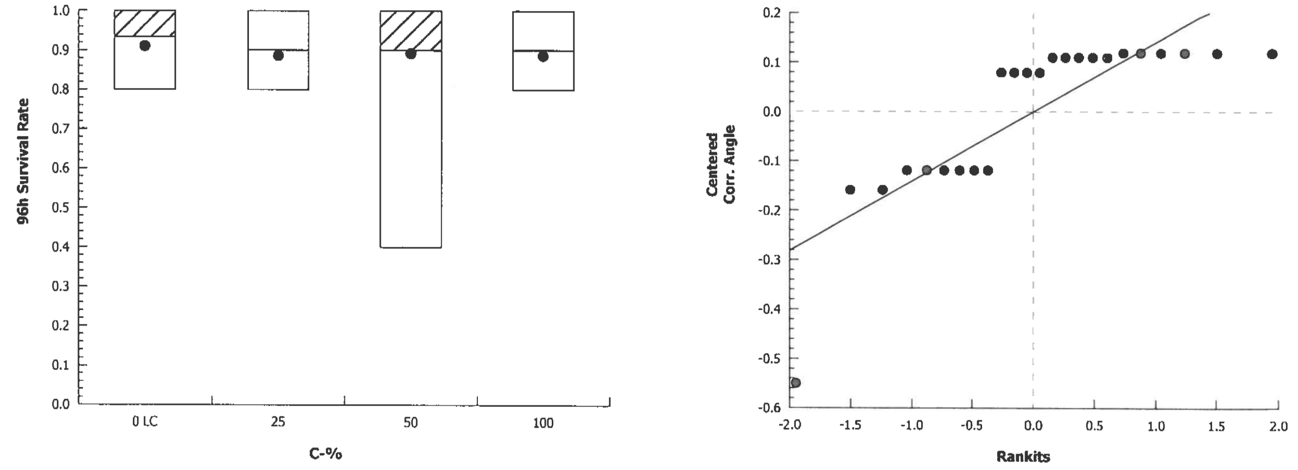
96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	0.0%
25		6	0.9	0.785	1	0.9	0.8	1	0.04472	12.17%	3.57%
50		6	0.9	0.6429	1	1	0.4	1	0.1	27.22%	3.57%
100		6	0.9	0.785	1	0.9	0.8	1	0.04472	12.17%	3.57%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	0.0%
25		6	1.226	1.089	1.363	1.226	1.107	1.345	0.05325	10.64%	3.14%
50		6	1.235	0.9522	1.518	1.345	0.6847	1.345	0.1101	21.83%	2.43%
100		6	1.226	1.089	1.363	1.226	1.107	1.345	0.05325	10.64%	3.14%

Graphics



Analyst: ____

QA: 8/20/18

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	06-8815-0537	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 9:08	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.8	8.89%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:10%)
Lab Control		25*	3.201	1.383	0.092	9	0.0054	CDF	Non-Significant Effect
		50*	1.898	1.44	0.169	6	0.0532	CDF	Non-Significant Effect
		100*	3.201	1.383	0.092	9	0.0054	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.006382409	0.00212747	3	0.06983	0.9754	Non-Significant Effect
Error	0.6093546	0.03046773	20			
Total	0.615737		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.597	11.34	0.2038	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7127	0.884	<0.0001	Non-normal Distribution

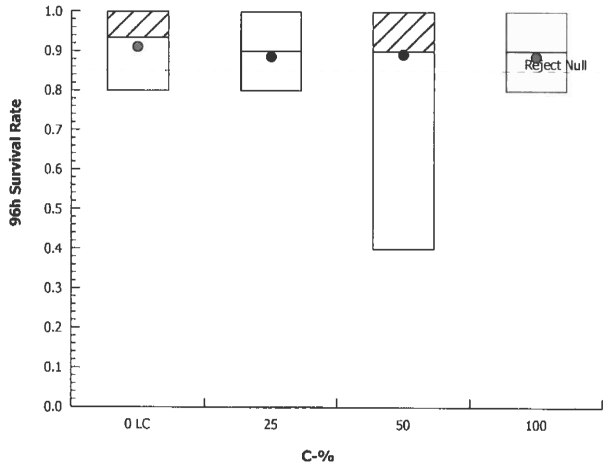
96h Survival Rate Summary

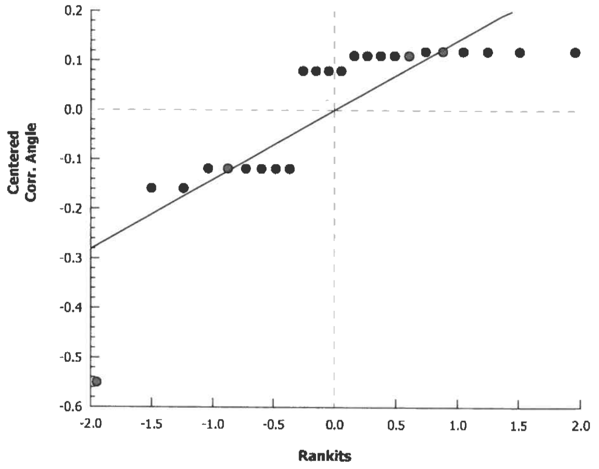
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	0.0%
25		6	0.9	0.785	1	0.9	0.8	1	0.04472	12.17%	3.57%
50		6	0.9	0.6429	1	1	0.4	1	0.1	27.22%	3.57%
100		6	0.9	0.785	1	0.9	0.8	1	0.04472	12.17%	3.57%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	0.0%
25		6	1.226	1.089	1.363	1.226	1.107	1.345	0.05325	10.64%	3.14%
50		6	1.235	0.9522	1.518	1.345	0.6847	1.345	0.1101	21.83%	2.43%
100		6	1.226	1.089	1.363	1.226	1.107	1.345	0.05325	10.64%	3.14%

Graphics





Analyst: ______ QA: y 8/20/18

Marine Acute Bioassay
Static-Renewal Conditions

Water Quality Measurements
& Test Organism Survival

Client: AMEC/POSD
Sample ID: SIYB-1
Sample Log-in No.: 18-0858
Test No.: 1808-S107

Test Species: *A. affinis*
Start Date/Time: 8/14/2018 1510
End Date/Time: 8/18/2018 ~~15~~ 1315
Q18 RT 8/18/18

Tech Initials	0	24	48	72	96
Counts:	HVN	TN	TN	TN	RT
Readings:	KFP	TN	TN	TN	BO
Dilutions made by:	RH		RH		

Q1

Concentration %	Rep	Number of Live Organisms					Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	5	5	5	4	4	34.4	34.6	i 34.4	35.0	35.0	20.3	19.8	i 20.8	20.6	20.5	8.4	6.9	i 7.3	6.3	6.5	8.13	7.84	i 8.03	7.70	7.91
#1 @	B	5	5	5	4	3			f 34.8					f 20.2					f 6.3					f 7.81		
	C	5	5	4	4	4																				
	D	5	5	5	5	5																				
	E	5	5	5	4	4																				
	F	5	5	5	4	4																				
25	A	5	5	5	4	4	34.4	34.4	i 34.4	34.9	34.9	20.0	19.8	i 20.8	20.4	20.5	8.5	6.6	i 7.5	6.2	6.3	8.15	7.82	i 8.06	7.72	7.90
	B	5	5	5	5	4			f 34.8					f 20.0					f 6.3					f 7.80		
	C	5	5	5	4	4																				
	D	5	5	5	5	5																				
	E	5	5	5	5	5																				
	F	5	5	5	5	5																				
50	A	5	5	5	5	5	34.5	34.6	i 34.7	34.8	34.8	20.4	19.8	i 20.8	20.5	20.5	8.2	6.4	i 7.7	6.2	6.3	8.13	7.81	i 8.07	7.77	7.94
	B	5	5	5	5	5			f 34.8					f 20.1					f 5.9					f 7.78		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	4	2																				
	F	5	5	5	5	5																				
100	A	5	5	5	5	4	34.6	34.8	i 34.6	35.0	34.9	21.1	19.8	i 21.1	20.5	20.5	8.1	6.6	i 8.3	6.2	6.3	8.12	7.85	i 8.08	7.81	7.95
	B	5	5	5	5	4			f 34.8					f 20.0					f 6.1					f 7.82		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	5	4																				
	F	5	5	5	5	5																				

Initial Counts QC'd by: KFP
Initiated by: KFP

Animal Source/Date Received: ABS 8/10/18
Age at Initiation: 15 days

Animal Acclimation Qualifiers (circle all that apply): [✓ Q22] / Q23 / Q24 / none

@ LC did not meet 90% TAC, LC# substituted for analysis (Q15).

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal

Organisms fed prior to initiation, circle one ([✓ y] / n)

Feeding Times	0	24	48	72	96
AM:		0940	0100	0845	0900
PM:	1645				

QC Check: WS 8/20/18

Final Review: AC 8/20/18

CETIS Summary Report

Report Date: 20 Aug-18 09:18 (p 1 of 1)
Test Code: 1808-S108 | 02-4128-9650

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	10-9675-5523	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	14 Aug-18 15:10	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Natural Seawater
Ending Date:	18 Aug-18 13:15	**Species:**	Atherinops affinis	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	15d

Sample ID:	13-3349-5573	**Code:**	18-0859	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 13:30	**Material:**	Ambient Sample	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	26h (7.2 °C)	**Station:**	SIYB-2		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TUa	Method
09-7316-0887	96h Survival Rate	100	>100	NA	8.89%	< 0.59	TST-Welch's t Test
10-4873-5949	96h Survival Rate	100	>100	NA	11.8%	< 0.18 AC 8/20	Dunnett Multiple Comparison Test

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	0.8	1	0.04216	0.1033	11.07%	0.0%
25		6	0.9667	0.881	1	0.8	1	0.03333	0.08165	8.45%	-3.57%
50		6	1	1	1	1	1	0	0	0.0%	-7.14%
100		6	0.9	0.785	1	0.8	1	0.04472	0.1095	12.17%	3.57%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6
0	Lab Control	1	1	1	0.8	0.8	1
25		0.8	1	1	1	1	1
50		1	1	1	1	1	1
100		0.8	1	0.8	0.8	1	1

Analyst:_______ QA: 8/20/18

CETIS Analytical Report

Report Date: 20 Aug-18 09:17 (p 1 of 2)
Test Code: 1808-S108 | 02-4128-9650

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	10-4873-5949	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 9:10	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	11.8%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		25	-0.6742	2.192	0.129	10	0.9237	CDF	Non-Significant Effect
		50	-1.348	2.192	0.129	10	0.9842	CDF	Non-Significant Effect
		100	0.6742	2.192	0.129	10	0.4668	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.04725658	0.01575219	3	1.515	0.2412	Non-Significant Effect
Error	0.207929	0.01039645	20			
Total	0.2551855		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	2.564	4.938	0.0834	Equal Variances
Variances	Levene Equality of Variance	11.67	4.938	0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.885	0.884	0.0105	Normal Distribution

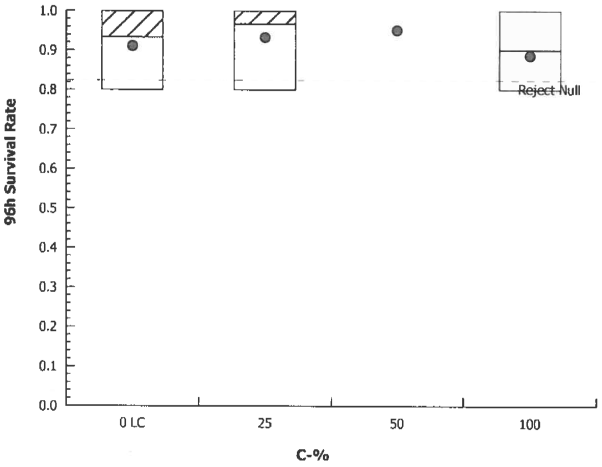
96h Survival Rate Summary

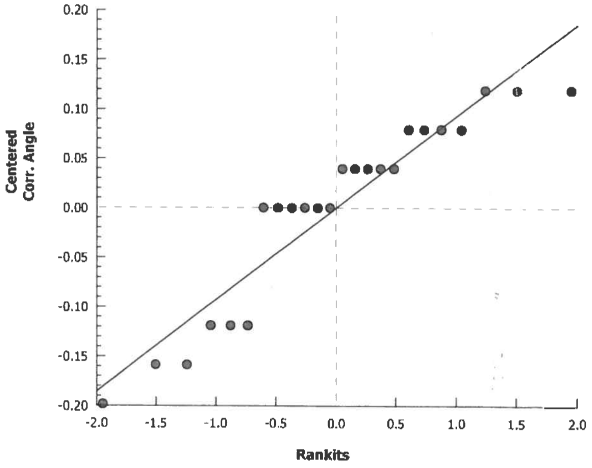
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	0.0%
25		6	0.9667	0.881	1	1	0.8	1	0.03333	8.45%	-3.57%
50		6	1	1	1	1	1	1	0	0.0%	-7.14%
100		6	0.9	0.785	1	0.9	0.8	1	0.04472	12.17%	3.57%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	0.0%
25		6	1.306	1.204	1.408	1.345	1.107	1.345	0.03969	7.45%	-3.14%
50		6	1.345	1.345	1.345	1.345	1.345	1.345	0	0.0%	-6.27%
100		6	1.226	1.089	1.363	1.226	1.107	1.345	0.05325	10.64%	3.14%

Graphics





Analyst: ______ QA: 8/20/18

Pacific Topsmelt 96-h Acute Survival Test	**Nautilus Environmental (CA)**

Analysis ID:	09-7316-0887	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 9:17	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.8	8.89%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:10%)
Lab Control		25*	5.187	1.383	0.078	9	0.0003	CDF	Non-Significant Effect
		50*	8.28	1.476	0.059	5	0.0002	CDF	Non-Significant Effect
		100*	3.201	1.383	0.092	9	0.0054	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.04725658	0.01575219	3	1.515	0.2412	Non-Significant Effect
Error	0.207929	0.01039645	20			
Total	0.2551855		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	2.564	4.938	0.0834	Equal Variances
Variances	Levene Equality of Variance	11.67	4.938	0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.885	0.884	0.0105	Normal Distribution

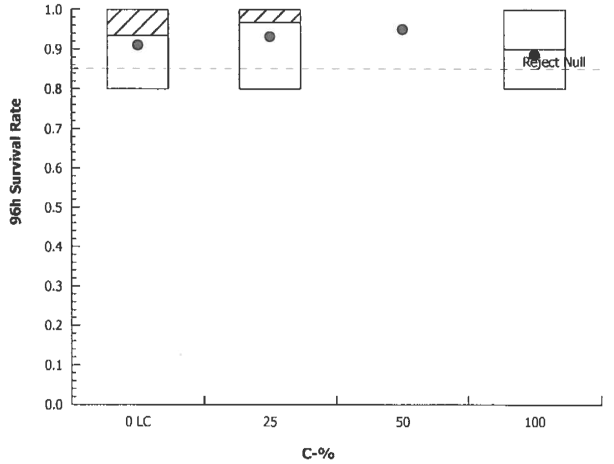
96h Survival Rate Summary

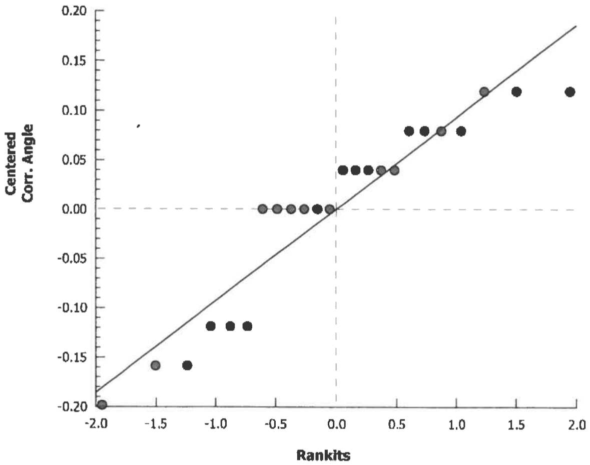
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	0.0%
25		6	0.9667	0.881	1	1	0.8	1	0.03333	8.45%	-3.57%
50		6	1	1	1	1	1	1	0	0.0%	-7.14%
100		6	0.9	0.785	1	0.9	0.8	1	0.04472	12.17%	3.57%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	0.0%
25		6	1.306	1.204	1.408	1.345	1.107	1.345	0.03969	7.45%	-3.14%
50		6	1.345	1.345	1.345	1.345	1.345	1.345	0	0.0%	-6.27%
100		6	1.226	1.089	1.363	1.226	1.107	1.345	0.05325	10.64%	3.14%

Graphics





Analyst: QA: 8/20/18

Marine Acute Bioassay
Static-Renewal Conditions

Water Quality Measurements
& Test Organism Survival

Client: AMEC/POSD
Sample ID: SIYB-2
Sample Log-in No.: 18-0859
Test No.: 1808-S108

Test Species: *A. affinis*
Start Date/Time: 8/14/2018 1510
End Date/Time: 8/18/2018 1315

Tech Initials	0	24	48	72	96
Counts:	[illegible]	TN	TN	TN	RT
Readings:	UTP	TN	TN	TN	BO
Dilutions made by:	KH		KH		

Concentration %	Rep	Number of Live Organisms					Salinity (ppt)					Temperature (°C) Q1					Dissolved Oxygen (mg/L)					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	5	5	5	4	4	34.4	34.6	i 34.4	35.0	35.0	20.3	19.8	i 20.8	20.6	20.5	8.4	6.9	i 7.3	6.3	6.5	8.13	7.84	i 8.03	7.70	7.91
#1 ©	B	5	5	5	4	3			f 34.8					f ~~20.1~~ ③ 20.2					f 6.3					f 7.81		
	C	5	5	4	4	4																				
	D	5	5	5	5	5																				
	E	5	5	5	4	4																				
	F	5	5	5	4	4																				
25	A	5	5	5	5	4	34.3	34.2	i 34.5	34.6	34.4	20.3	19.8	i 20.7	20.6	20.8	8.2	6.6	i 7.5	6.2	6.7	8.11	7.81	i 8.07	7.82	7.89
	B	5	5	5	5	5			f 34.2					f 20.1					f 6.0					f 7.76		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	5	5																				
	F	5	5	5	5	5																				
50	A	5	5	5	5	5	34.4	34.3	i 34.4	34.7	34.8	20.4	19.7	i 20.5	20.5	20.6	8.2	6.6	i 7.9	6.2	6.3	8.11	7.81	i 8.09	7.87	7.91
	B	5	5	5	5	5			f 34.4					f 20.0					f 6.0					f 7.78		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	5	5																				
	F	5	5	5	5	5																8.11				
100	A	5	5	5	5	4	34.5	34.6	i 34.5	34.9	34.9	20.7	19.7	i 20.5	20.5	20.5	8.0	6.5	i 8.5	6.3	6.2	~~8.10~~	7.81	i 8.10	7.87	7.93
	B	5	5	5	5	5			f 34.9					f 20.0					f 6.0			④		f 7.78		
	C	5	5	5	5	4																				
	D	5	5	5	4	4																				
	E	5	5	5	5	5																				
	F	5	5	5	5	5																				

Initial Counts QC'd by: KTP
Initiated by: KTP

Animal Source/Date Received: ABS 8/10/18
Age at Initiation: 15 days

Animal Acclimation Qualifiers (circle all that apply): [✓ Q22] / Q23 / Q24 / none

© LC did not meet 90% TAC, LC#2 substituted for analysis (Q15).

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal

Organisms fed prior to initiation, circle one ([✓ y] / n) ④ [illegible] ③ TN 8/16/18

Feeding Times	0	24	48	72	96
AM:		0940	0900	0845	0900
PM:	1645				

QC Check: 9/20/18

Final Review: AC 8/20/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

CETIS Summary Report

Report Date: 20 Aug-18 09:26 (p 1 of 1)
Test Code: 1808-S109 | 19-5534-2846

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	08-3602-6885	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	14 Aug-18 15:10	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Natural Seawater
Ending Date:	18 Aug-18 13:15	**Species:**	Atherinops affinis	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	15d

Sample ID:	10-0159-2832	**Code:**	18-0860	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 12:30	**Material:**	Ambient Sample	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	27h (11.5 °C)	**Station:**	SIYB-3		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU a	Method
07-3405-9926	96h Survival Rate	100	>100	NA	11.5%	0.59	TST-Welch's t Test
17-2517-9497	96h Survival Rate	100	>100	NA	15.4%		Dunnett Multiple Comparison Test

8/20

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	0.8	1	0.04216	0.1033	11.07%	0.0%
25		6	1	1	1	1	1	0	0	0.0%	-7.14%
50		6	0.8	0.6673	0.9327	0.6	1	0.05164	0.1265	15.81%	14.29%
100		6	0.9	0.7244	1	0.6	1	0.06831	0.1673	18.59%	3.57%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6
0	Lab Control	1	1	1	0.8	0.8	1
25		1	1	1	1	1	1
50		1	0.6	0.8	0.8	0.8	0.8
100		0.6	0.8	1	1	1	1

Analyst: ______ QA: 8/20/18

CETIS Analytical Report

Report Date: 20 Aug-18 09:26 (p 1 of 2)
Test Code: 1808-S109 | 19-5534-2846

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	17-2517-9497	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 9:26	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	15.4%	100	>100	NA	1

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		25	-1.014	2.192	0.172	10	0.9640	CDF	Non-Significant Effect
		50	1.992	2.192	0.172	10	0.0728	CDF	Non-Significant Effect
		100	0.4707	2.192	0.172	10	0.5571	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1725203	0.05750677	3	3.128	0.0486	Significant Effect
Error	0.3676732	0.01838366	20			
Total	0.5401936		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	0.8602	4.938	0.4778	Equal Variances
Variances	Levene Equality of Variance	4.218	4.938	0.0183	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8976	0.884	0.0191	Normal Distribution

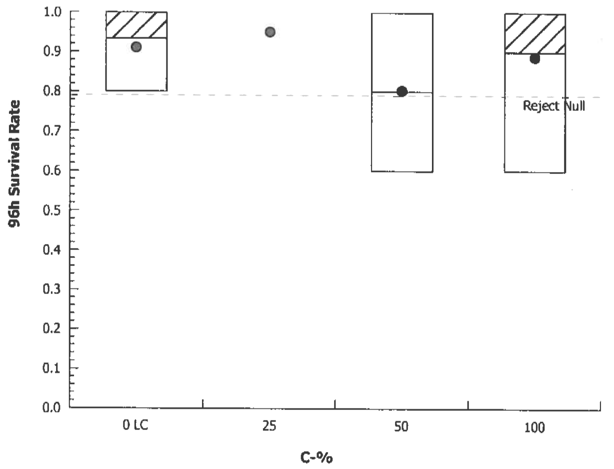
96h Survival Rate Summary

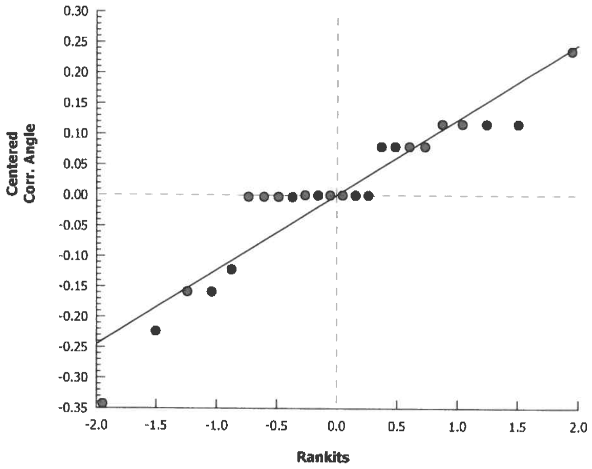
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	0.0%
25		6	1	1	1	1	1	1	0	0.0%	-7.14%
50		6	0.8	0.6673	0.9327	0.8	0.6	1	0.05164	15.81%	14.29%
100		6	0.9	0.7244	1	1	0.6	1	0.06831	18.59%	3.57%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	0.0%
25		6	1.345	1.345	1.345	1.345	1.345	1.345	0	0.0%	-6.27%
50		6	1.11	0.9575	1.262	1.107	0.8861	1.345	0.05931	13.09%	12.32%
100		6	1.229	1.026	1.432	1.345	0.8861	1.345	0.07885	15.72%	2.91%

Graphics





Analyst: ______ QA: 08/20/18

CETIS Analytical Report

Report Date: 20 Aug-18 09:26 (p 2 of 2)
Test Code: 1808-S109 | 19-5534-2846

Pacific Topsmelt 96-h Acute Survival Test **Nautilus Environmental (CA)**

Analysis ID: 07-3405-9926 **Endpoint:** 96h Survival Rate **CETIS Version:** CETISv1.8.7
Analyzed: 20 Aug-18 9:26 **Analysis:** Parametric Bioequivalence-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.8	11.5%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:10%)
Lab Control		25*	8.28	1.476	0.059	5	0.0002	CDF	Non-Significant Effect
		50	1.358	1.397	0.100	8	0.1058	CDF	Significant Effect
		100*	2.445	1.415	0.125	7	0.0222	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1725203	0.05750677	3	3.128	0.0486	Significant Effect
Error	0.3676732	0.01838366	20			
Total	0.5401936		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	0.8602	4.938	0.4778	Equal Variances
Variances	Levene Equality of Variance	4.218	4.938	0.0183	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8976	0.884	0.0191	Normal Distribution

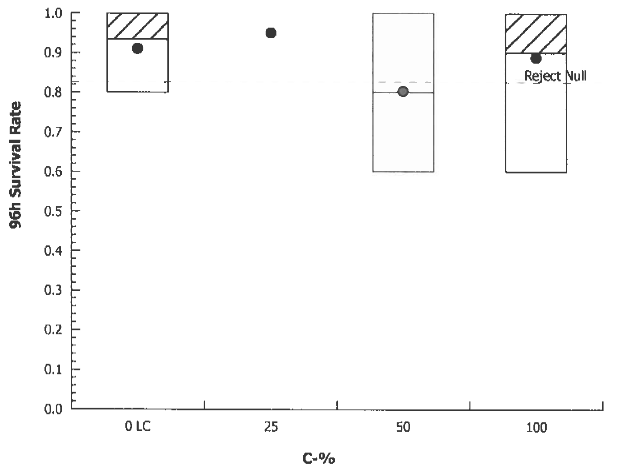
96h Survival Rate Summary

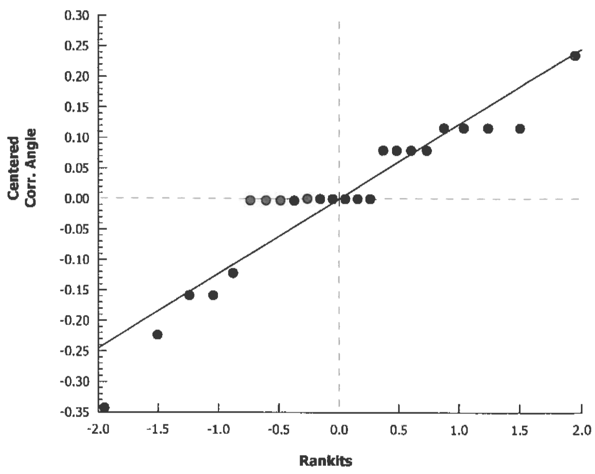
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	0.0%
25		6	1	1	1	1	1	1	0	0.0%	-7.14%
50		6	0.8	0.6673	0.9327	0.8	0.6	1	0.05164	15.81%	14.29%
100		6	0.9	0.7244	1	1	0.6	1	0.06831	18.59%	3.57%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	0.0%
25		6	1.345	1.345	1.345	1.345	1.345	1.345	0	0.0%	-6.27%
50		6	1.11	0.9575	1.262	1.107	0.8861	1.345	0.05931	13.09%	12.32%
100		6	1.229	1.026	1.432	1.345	0.8861	1.345	0.07885	15.72%	2.91%

Graphics





Analyst:

QA: co 8/2018

Marine Acute Bioassay
Static-Renewal Conditions

Water Quality Measurements
& Test Organism Survival

Client: AMEC/POSD
Sample ID: SIYB-3
Sample Log-in No.: 18- 0860
Test No.: 1808-S109

Test Species: *A. affinis*
Start Date/Time: 8/14/2018 1510
End Date/Time: 8/18/2018 1315

Tech Initials	0	24	48	72	96
Counts:	RH TN	TN	TN	TN	RF
Readings:	UP	TN	TN	TN	BO
Dilutions made by:	RH		RH		

Concentration %	Rep	Number of Live Organisms					Salinity (ppt)					Temperature Q1 (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	5	5	5	4	4	34.4	34.6	i 34.4	36.0	35.0	20.3	19.8	i 20.8	20.6	20.5	8.4	6.9	i 7.3	6.3	6.5	8.13	7.84	i 8.03	7.70	7.91
#1 Ⓑ	B	5	5	5	4	3			f 34.8					f 20.2					f 6.3					f 7.81		
	C	5	5	4	4	4																				
	D	5	5	5	5	5																				
	E	5	5	5	4	4																				
	F	5	5	5	4	4																				
25	A	5	5	5	5	5	34.4	34.5	i 34.4	34.5	34.5	20.2	19.8	i 20.8	20.8	21.2	8.2	6.6	i 7.5	6.0	6.2	8.12	7.81	i 8.08	7.84	7.85
	B	5	5	5	5	5			f 34.5					f 20.1					f 6.1					f 7.79		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	5	5																				
	F	5	5	5	5	5																				
50	A	5	5	5	5	5	34.5	34.5	i 34.5	34.7	34.9	20.8	19.7	i 20.9	20.7	20.8	8.1	6.5	i 7.8	~~20.~~	6.3	8.12	7.81	i 8.09	7.86	7.88
	B	5	5	4	4	3			f 34.7					f 20.0					f 5.9	6.1 Ⓐ				f 7.77		
	C	5	5	4	4	4																				
	D	5	5	5	5	4																				
	E	5	5	5	5	4																				
	F	5	5	5	4	4																				
100	A	5	5	5	5	3	34.6	34.5	i 34.6	34.8	34.9	21.6	19.9	i 21.2	20.8	20.8	7.9	6.5	i 8.4	6.2	6.2	8.11	7.83	i 8.10	7.90	7.94
	B	5	5	5	5	4			f 34.6					f 20.1					f 6.0					f 7.78		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	5	5																				
	F	5	5	5	5	5																				

Initial Counts QC'd by: KFP
Initiated by: KFP

Animal Source/Date Received: ABS 8/10/18
Age at Initiation: 15 days
Animal Acclimation Qualifiers (circle all that apply): [✓ Q22] / Q23 / Q24 / none

Feeding Times	0	24	48	72	96
AM:		0940	0900	0845	0900
PM:	1645				

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal

Organisms fed prior to initiation, circle one ([✓ y] / n) Ⓐ TN Q88 17/18

Ⓑ LC did not meet 90% TAC, LC #2 substituted for analysis. (Q15)

QC Check: 8/20/18

Final Review: AC 8/20/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

CETIS Summary Report

Report Date: 20 Aug-18 09:29 (p 1 of 1)
Test Code: 1808-S110 | 18-8706-7315

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	07-8641-3546	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	14 Aug-18 15:25	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Natural Seawater
Ending Date:	18 Aug-18 13:25	**Species:**	Atherinops affinis	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	15d

Sample ID:	03-9515-1132	**Code:**	18-0861	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 11:30	**Material:**	Ambient Sample	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	28h (11 °C)	**Station:**	SIYB-4		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU a	Method
05-4718-5240	96h Survival Rate	50	100	70.71	23.9% 9/18	~~2~~ 0.98	Steel Many-One Rank Sum Test
20-3623-1699	96h Survival Rate	50	100	70.71	18.6% Ak 8/20	~~2~~	TST-Welch's t Test

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	0.8	1	0.04216	0.1033	11.07%	0.0%
25		6	0.9333	0.762	1	0.6	1	0.06667	0.1633	17.5%	0.0%
50		6	0.9333	0.8249	1	0.8	1	0.04216	0.1033	11.07%	0.0%
100		6	0.5333	0.2173	0.8493	0.2	1	0.1229	0.3011	56.46%	42.86%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6
0	Lab Control	1	1	1	0.8	0.8	1
25		1	1	1	1	0.6	1
50		0.8	1	1	1	1	0.8
100		0.6	1	0.2	0.2	0.6	0.6

Analyst:______ QA: 8/20/18

CETIS Analytical Report

Report Date: 20 Aug-18 09:28 (p 1 of 2)
Test Code: 1808-S110 | 18-8706-7315

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	05-4718-5240	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 9:28	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	23.9%	50	100	70.71	2

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		25	41	26	1	10	0.8513	Asymp	Non-Significant Effect
		50	39	26	2	10	0.7500	Asymp	Non-Significant Effect
		100*	25	26	1	10	0.0327	Asymp	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.8913499	0.2971166	3	6.831	0.0024	Significant Effect
Error	0.8699213	0.04349606	20			
Total	1.761271		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	6.514	11.34	0.0891	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7674	0.884	<0.0001	Non-normal Distribution

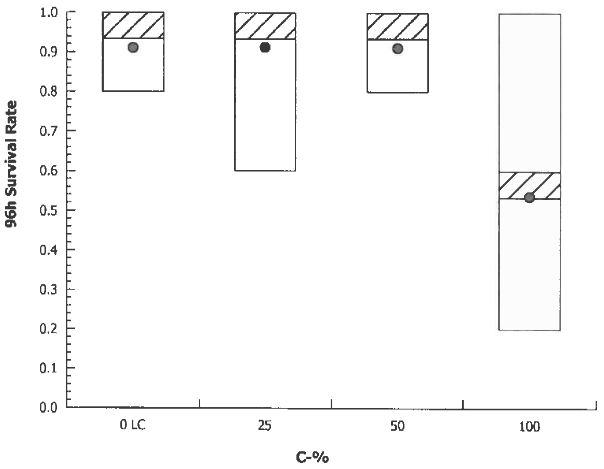
96h Survival Rate Summary

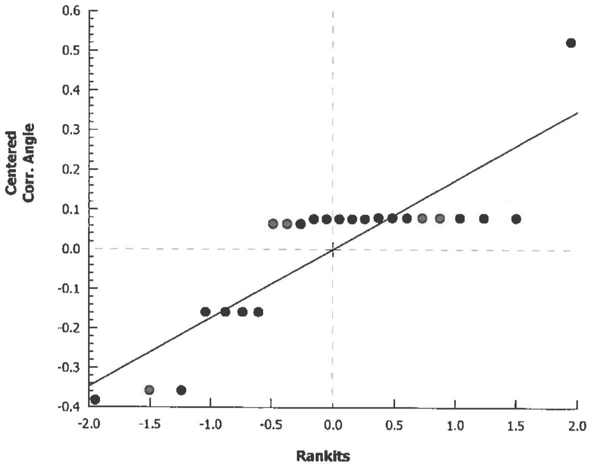
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	0.0%
25		6	0.9333	0.762	1	1	0.6	1	0.06667	17.5%	0.0%
50		6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	0.0%
100		6	0.5333	0.2173	0.8493	0.6	0.2	1	0.1229	56.46%	42.86%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	0.0%
25		6	1.269	1.072	1.465	1.345	0.8861	1.345	0.07653	14.78%	-0.22%
50		6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	0.0%
100		6	0.8218	0.476	1.168	0.8861	0.4636	1.345	0.1345	40.1%	35.08%

Graphics





Analyst:

QA: 8/20/18

CETIS Analytical Report

Report Date:	20 Aug-18 09:29 (p 2 of 2)
Test Code:	1808-S110 | 18-8706-7315

Pacific Topsmelt 96-h Acute Survival Test **Nautilus Environmental (CA)**

Analysis ID:	20-3623-1699	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 9:28	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.8	18.6%	50	100	70.71	2

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:10%)
Lab Control		25*	2.962	1.415	0.122	7	0.0105	CDF	Non-Significant Effect
		50*	3.938	1.383	0.089	9	0.0017	CDF	Non-Significant Effect
		100	-1.36	1.476	0.207	5	0.8840	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.8913499	0.2971166	3	6.831	0.0024	Significant Effect
Error	0.8699213	0.04349606	20			
Total	1.761271		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	6.514	11.34	0.0891	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7674	0.884	<0.0001	Non-normal Distribution

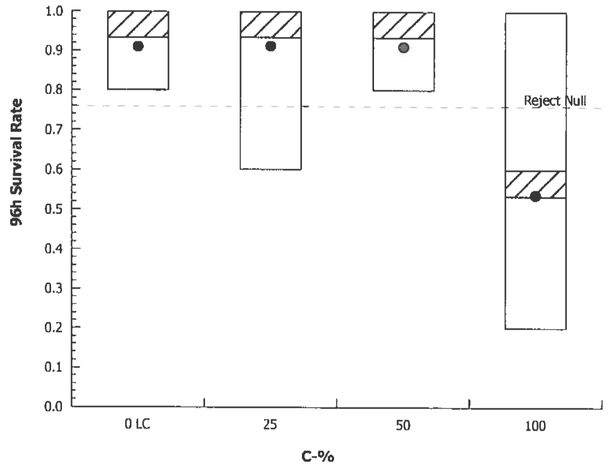
96h Survival Rate Summary

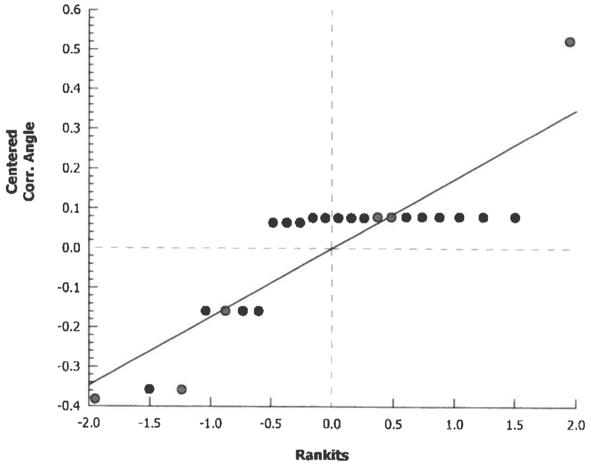
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	0.0%
25		6	0.9333	0.762	1	1	0.6	1	0.06667	17.5%	0.0%
50		6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	0.0%
100		6	0.5333	0.2173	0.8493	0.6	0.2	1	0.1229	56.46%	42.86%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	0.0%
25		6	1.269	1.072	1.465	1.345	0.8861	1.345	0.07653	14.78%	-0.22%
50		6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	0.0%
100		6	0.8218	0.476	1.168	0.8861	0.4636	1.345	0.1345	40.1%	35.08%

Graphics





Analyst: QA: y 8/20/18

Marine Acute Bioassay
Static-Renewal Conditions

Water Quality Measurements
& Test Organism Survival

Client: AMEC/POSD
Sample ID: SIYB-4
Sample Log-in No.: 18- 0861
Test No.: 1808-S110

Test Species: *A. affinis*
Start Date/Time: 8/14/2018 1525
End Date/Time: 8/18/2018 1325

	Tech Initials				
	0	24	48	72	96
Counts:	RH/TN	TN	RH	TN	RT
Readings:	LFP	TN	TN	TN	BO
Dilutions made by:	RH		RH		

Concentration %	Rep	Number of Live Organisms					Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	5	5	5	5	5	34.3	34.1	i 34.6	34.5	34.7	20.5	20.0	i 20.7	20.6	20.9	7.7	6.6	i 7.4	6.3	6.3	8.11	7.81	i 8.07	7.85	7.84
#2	B	5	5	5	5	5			f 34.3					f 20.2					f 5.9					f 7.78		
	C	5	5	5	5	5																				
	D	5	5	5	5	4																				
	E	5	5	5	4	4																				
	F	5	5	5	5	5																				
25	A	5	5	5	5	5	34.4	34.3	i 34.4	34.6	34.9	20.4	20.0	i 20.6	20.5	20.6	7.9	6.5	i 7.5	6.2	6.3	8.11	7.84	i 8.08	7.85	7.88
	B	5	5	5	5	5			f 34.4					f 20.1					f 6.0					f 7.81		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	4	3																				
	F	5	5	5	5	5																				
50	A	5	5	5	5	4	34.4	34.4	i 34.5	34.6	34.9	20.3	20.0	i 20.7	20.6	20.5	8.1	6.5	i 7.8	6.2	6.4	8.12	7.84	i 8.09	7.88	7.94
	B	5	5	5	5	5			f 34.5					f 20.2					f 6.0					f 7.70		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	5	5																				
	F	5	5	5	4	4																				
100	A	5	4	4	3	3	34.5	34.3	i 34.5	34.6	34.8	20.4	20.0	i 21.0	20.8	20.6	8.4	6.4	i 8.4	6.1	6.3	8.11	7.83	i 8.10	7.86	7.97
	B	5	5	5	5	5			f 34.4					f 20.2					f 5.9					f 7.80		
	C	5	5	5	4	1																				
	D	5	5	2	2	1																				
	E	5	5	3	3	3																				
	F	5	5	5	4	3																				

Initial Counts QC'd by: LFP
Initiated by: LFP

Animal Source/Date Received: ABS 8/10/18

Age at Initiation: 15 days

Animal Acclimation Qualifiers (circle all that apply): [✓ Q22] / Q23 / Q24 / none

	Feeding Times				
	0	24	48	72	96
AM:		0940	0900	0845	0900
PM:	1645				

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal
Organisms fed prior to initiation, circle one ([✓ y] / n)

QC Check: 8/20/18

Final Review: AC 8/20/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

CETIS Summary Report

Report Date: 20 Aug-18 09:30 (p 1 of 1)
Test Code: 1808-S111 | 09-3271-4829

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	20-7144-7716	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	14 Aug-18 15:25	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Natural Seawater
Ending Date:	18 Aug-18 13:25	**Species:**	Atherinops affinis	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	15d

Sample ID:	17-1749-9886	**Code:**	18-0862	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 10:30	**Material:**	Ambient Sample	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	29h (7 °C)	**Station:**	SIYB-5		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU a	Method
09-7591-0758	96h Survival Rate	100	>100	NA	13.4%	~~1~~ 0.31	Steel Many-One Rank Sum Test
18-5987-2113	96h Survival Rate	100	>100	NA	7.82%	~~1~~	TST-Welch's t Test

AC 8/18 8/20

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	0.8	1	0.04216	0.1033	11.07%	0.0%
25		6	0.8	0.6673	0.9327	0.6	1	0.05164	0.1265	15.81%	14.29%
50		6	0.9667	0.881	1	0.8	1	0.03333	0.08165	8.45%	-3.57%
100		6	0.9667	0.881	1	0.8	1	0.03333	0.08165	8.45%	-3.57%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6
0	Lab Control	1	1	1	0.8	0.8	1
25		0.8	0.8	1	0.6	0.8	0.8
50		1	1	0.8	1	1	1
100		0.8	1	1	1	1	1

Analyst:____ QA: y 8/20/18

CETIS Analytical Report

Report Date: 20 Aug-18 09:30 (p 1 of 2)
Test Code: 1808-S111 | 09-3271-4829

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	09-7591-0758	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 9:30	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	13.4%	100	>100	NA	1

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		25	29	26	2	10	0.1283	Asymp	Non-Significant Effect
		50	42	26	2	10	0.8900	Asymp	Non-Significant Effect
		100	42	26	2	10	0.8900	Asymp	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1559684	0.05198946	3	3.772	0.0270	Significant Effect
Error	0.2756557	0.01378279	20			
Total	0.4316241		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	1.088	11.34	0.7801	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8239	0.884	0.0007	Non-normal Distribution

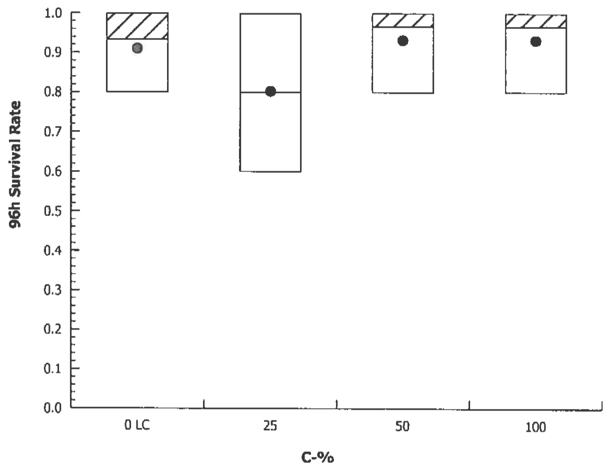
96h Survival Rate Summary

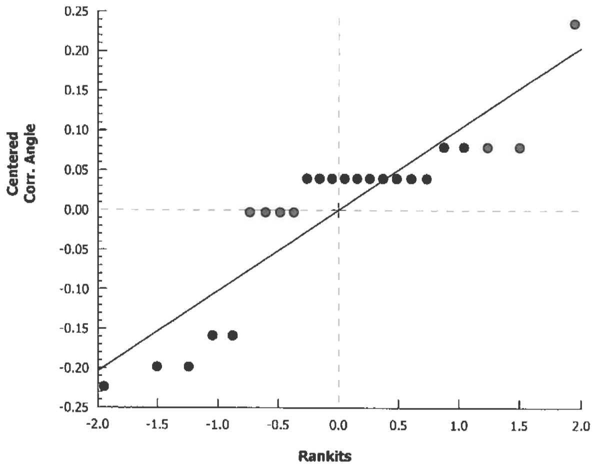
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	0.0%
25		6	0.8	0.6673	0.9327	0.8	0.6	1	0.05164	15.81%	14.29%
50		6	0.9667	0.881	1	1	0.8	1	0.03333	8.45%	-3.57%
100		6	0.9667	0.881	1	1	0.8	1	0.03333	8.45%	-3.57%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	0.0%
25		6	1.11	0.9575	1.262	1.107	0.8861	1.345	0.05931	13.09%	12.32%
50		6	1.306	1.204	1.408	1.345	1.107	1.345	0.03969	7.45%	-3.14%
100		6	1.306	1.204	1.408	1.345	1.107	1.345	0.03969	7.45%	-3.14%

Graphics





Analyst:______ QA: y 8/20/18

CETIS Analytical Report

Report Date: 20 Aug-18 09:30 (p 2 of 2)
Test Code: 1808-S111 | 09-3271-4829

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	18-5987-2113	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 9:30	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.8	7.82%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:10%)
Lab Control		25	1.358	1.397	0.100	8	0.1058	CDF	Significant Effect
		50*	5.187	1.383	0.078	9	0.0003	CDF	Non-Significant Effect
		100*	5.187	1.383	0.078	9	0.0003	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1559684	0.05198946	3	3.772	0.0270	Significant Effect
Error	0.2756557	0.01378279	20			
Total	0.4316241		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	1.088	11.34	0.7801	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8239	0.884	0.0007	Non-normal Distribution

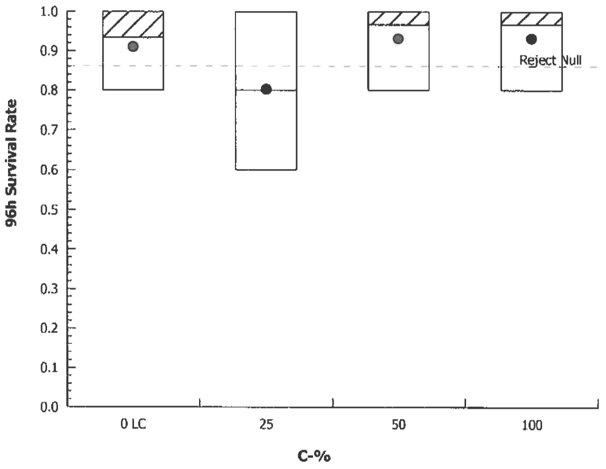
96h Survival Rate Summary

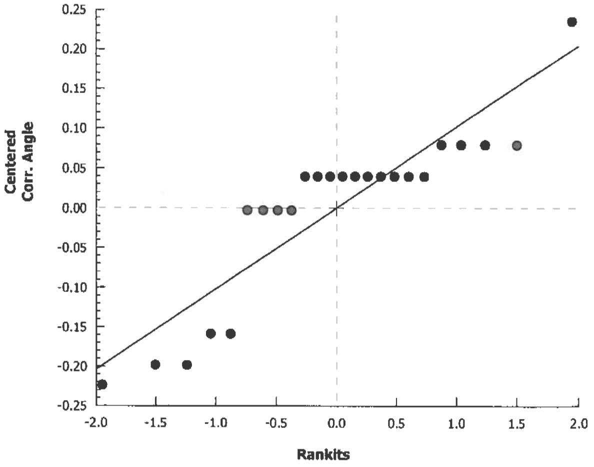
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	0.0%
25		6	0.8	0.6673	0.9327	0.8	0.6	1	0.05164	15.81%	14.29%
50		6	0.9667	0.881	1	1	0.8	1	0.03333	8.45%	-3.57%
100		6	0.9667	0.881	1	1	0.8	1	0.03333	8.45%	-3.57%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	0.0%
25		6	1.11	0.9575	1.262	1.107	0.8861	1.345	0.05931	13.09%	12.32%
50		6	1.306	1.204	1.408	1.345	1.107	1.345	0.03969	7.45%	-3.14%
100		6	1.306	1.204	1.408	1.345	1.107	1.345	0.03969	7.45%	-3.14%

Graphics





Analyst:_____ QA: 08/20/18

Marine Acute Bioassay
Static-Renewal Conditions

Water Quality Measurements
& Test Organism Survival

Client: AMEC/POSD
Sample ID: SIYB-5
Sample Log-in No.: 18-0862
Test No.: 1808-S111

Test Species: *A. affinis*
Start Date/Time: 8/14/2018 1525
End Date/Time: 8/18/2018 1325

	Tech Initials				
	0	24	48	72	96
Counts:	RH/TN	TN	RH	TN	RT
Readings:	UTP	TN	TN	TN	BO
Dilutions made by:	RH		RH		

Concentration %	Rep	Number of Live Organisms					Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	5	5	5	5	5	34.3	34.1	i 34.6	34.5	34.7	20.9	20.0	i 20.7	20.6	20.9	7.7	6.6	i 7.4	6.3	6.3	8.11	7.81	i 8.07	7.85	7.84
#2	B	5	5	5	5	5			f 34.3					f 20.2					f 5.9					f 7.78		
	C	5	5	5	5	5																				
	D	5	5	5	5	4																				
	E	5	5	5	4	4																				
	F	5	5	5	5	5																				
25	A	5	5	5	5	4	34.4	34.2	i 34.7	34.2	34.5	20.2	20.1	i 20.6	20.9	20.7	7.9	6.8	i 7.6	6.2	6.4	8.10	7.85	i 8.07	7.86	7.93
	B	5	5	5	5	4			f 34.2					f 20.4					f 5.9					f 7.79		
	C	5	5	5	5	5																				
	D	5	5	5	5	3																				
	E	5	5	5	4	4																				
	F	5	5	5	5	4																				
50	A	5	5	5	5	5	34.4	34.4	i 34.5	34.5	34.8	20.1	20.1	i 20.6	20.9	20.7	8.1	6.2	i 7.8	5.7	6.3	8.10	7.77	i 8.06	7.80	7.87
	B	5	5	5	5	5			f 34.5					f 20.4					f 5.4					f 7.71		
	C	5	5	5	5	4																				
	D	5	5	5	5	5																				
	E	5	5	5	5	5																				
	F	5	5	5	5	5																				
100	A	5	5	5	5	4	34.5	34.4	i 34.5	34.6	31.9	20.1	20.1	i 20.8	20.9	20.7	8.5	6.4	i 8.6	5.9	60	8.09	7.78	i 8.05	7.86	7.92
	B	5	5	5	5	5			f 34.4					f 20.4					f 5.7					f 7.76		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	5	5																				
	F	5	5	5	5	5																				

Initial Counts QC'd by: KFP
Initiated by: KFP

Animal Source/Date Received: ABS 8/10/18
Age at Initiation: 15 days
Animal Acclimation Qualifiers (circle all that apply): [✓ Q22] / Q23 / Q24 / none

	Feeding Times				
	0	24	48	72	96
AM:		0940	0900	0845	0900
PM:	1645				

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal
Organisms fed prior to initiation, circle one ([✓ y] / n)

QC Check: AC 8/20/18

Final Review: 8/20/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

CETIS Summary Report

Report Date: 20 Aug-18 09:33 (p 1 of 1)
Test Code: 1808-S112 | 06-0285-2343

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	18-1418-0621	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	14 Aug-18 15:50	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Natural Seawater
Ending Date:	18 Aug-18 14:05	**Species:**	Atherinops affinis	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	15d

Sample ID:	10-6737-5157	**Code:**	18-0863	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 09:30	**Material:**	Ambient Sample	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	30h (5 °C)	**Station:**	SIYB-6		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
17-6025-3823	96h Survival Rate	100	>100	NA	8.71%	P/8 1 } 0.66	TST-Welch's t Test
01-4198-2578	96h Survival Rate	25	50	35.36	13.8%	Ac 4	Dunnett Multiple Comparison Test

8/20

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	6	1	1	1	1	1	0	0	0.0%	0.0%
25		6	0.9333	0.8249	1	0.8	1	0.04216	0.1033	11.07%	6.67%
50		6	0.8333	0.6753	0.9913	0.6	1	0.06146	0.1506	18.07%	16.67%
100		6	0.8667	0.7583	0.9751	0.8	1	0.04216	0.1033	11.92%	13.33%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6
0	Lab Control	1	1	1	1	1	1
25		1	0.8	1	1	1	0.8
50		0.8	0.6	1	0.8	1	0.8
100		0.8	0.8	1	0.8	0.8	1

Analyst: ______ QA: AC 8/20/18

CETIS Analytical Report

Report Date:	20 Aug-18 09:33 (p 1 of 2)
Test Code:	1808-S112 | 06-0285-2343

Pacific Topsmelt 96-h Acute Survival Test **Nautilus Environmental (CA)**

Analysis ID:	01-4198-2578	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 9:32	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	13.8%	25	50	35.36	4

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		25	1.118	2.192	0.156	10	0.2854	CDF	Non-Significant Effect
		50*	2.754	2.192	0.156	10	0.0160	CDF	Significant Effect
		100*	2.235	2.192	0.156	10	0.0460	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1363959	0.04546531	3	3.004	0.0546	Non-Significant Effect
Error	0.3026553	0.01513276	20			
Total	0.4390512		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1.24	4.938	0.3215	Equal Variances
Variances	Levene Equality of Variance	6.134	4.938	0.0039	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.9583	0.884	0.4057	Normal Distribution

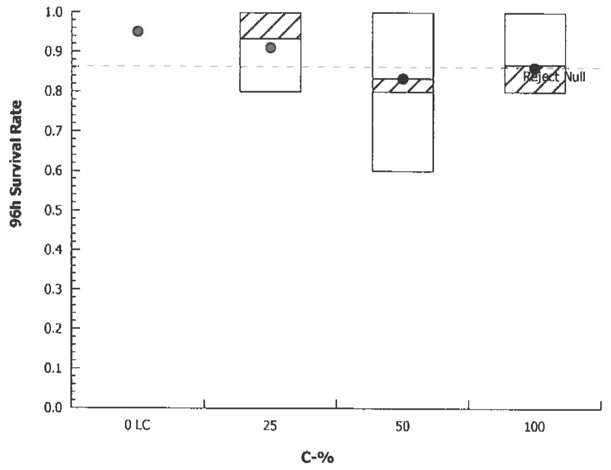
96h Survival Rate Summary

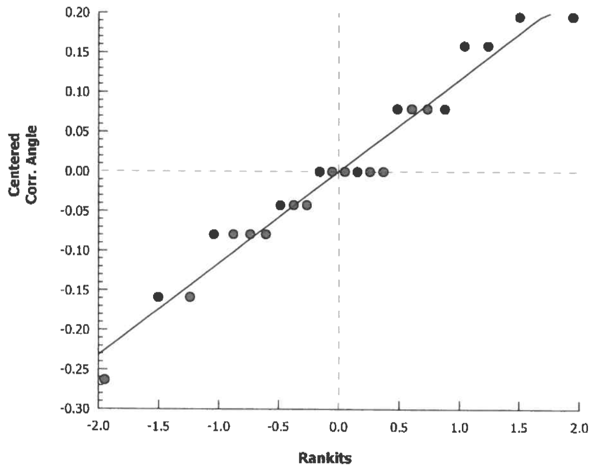
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1	1	1	1	1	1	0	0.0%	0.0%
25		6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	6.67%
50		6	0.8333	0.6753	0.9913	0.8	0.6	1	0.06146	18.07%	16.67%
100		6	0.8667	0.7583	0.9751	0.8	0.8	1	0.04216	11.92%	13.33%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.345	1.345	1.345	1.345	1.345	1.345	0	0.0%	0.0%
25		6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	5.9%
50		6	1.15	0.967	1.332	1.107	0.8861	1.345	0.07105	15.14%	14.54%
100		6	1.187	1.057	1.316	1.107	1.107	1.345	0.0502	10.36%	11.8%

Graphics





Analyst:

QA: AC 8/20/18

CETIS Analytical Report

Report Date: 20 Aug-18 09:33 (p 2 of 2)
Test Code: 1808-S112 | 06-0285-2343

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID: 17-6025-3823 **Endpoint:** 96h Survival Rate **CETIS Version:** CETISv1.8.7
Analyzed: 20 Aug-18 9:33 **Analysis:** Parametric Bioequivalence-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.8	8.71%	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:10%)
Lab Control		25*	3.778	1.476	0.074	5	0.0065	CDF	Non-Significant Effect
		50	1.034	1.476	0.105	5	0.1743	CDF	Significant Effect
		100*	2.197	1.476	0.074	5	0.0397	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1363959	0.04546531	3	3.004	0.0546	Non-Significant Effect
Error	0.3026553	0.01513276	20			
Total	0.4390512		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1.24	4.938	0.3215	Equal Variances
Variances	Levene Equality of Variance	6.134	4.938	0.0039	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.9583	0.884	0.4057	Normal Distribution

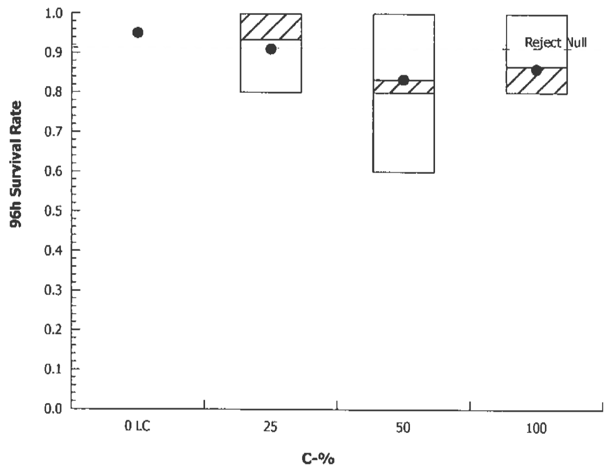
96h Survival Rate Summary

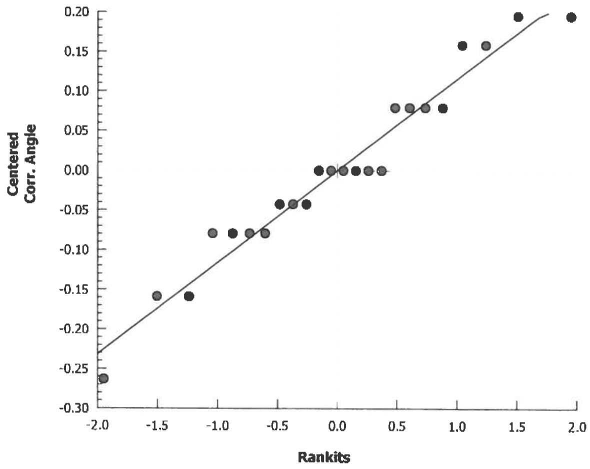
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1	1	1	1	1	1	0	0.0%	0.0%
25		6	0.9333	0.8249	1	1	0.8	1	0.04216	11.07%	6.67%
50		6	0.8333	0.6753	0.9913	0.8	0.6	1	0.06146	18.07%	16.67%
100		6	0.8667	0.7583	0.9751	0.8	0.8	1	0.04216	11.92%	13.33%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.345	1.345	1.345	1.345	1.345	1.345	0	0.0%	0.0%
25		6	1.266	1.137	1.395	1.345	1.107	1.345	0.0502	9.71%	5.9%
50		6	1.15	0.967	1.332	1.107	0.8861	1.345	0.07105	15.14%	14.54%
100		6	1.187	1.057	1.316	1.107	1.107	1.345	0.0502	10.36%	11.8%

Graphics





Analyst:_______ QA: AC 8/20/18

Marine Acute Bioassay
Static-Renewal Conditions

Water Quality Measurements
& Test Organism Survival

Client: AMEC/POSD
Sample ID: SIYB-6
Sample Log-in No.: 18- 0863
Test No.: 1808-S112

Test Species: *A. affinis*
Start Date/Time: 8/14/2018 1550
End Date/Time: 8/18/2018 1405

	Tech Initials				
	0	24	48	72	96
Counts:	RH/TN	TN	RH	TN	RT
Readings:	UP	TN	TN	TN	BO
Dilutions made by:	RH		RH		

Concentration %	Rep	Number of Live Organisms					Salinity (ppt)					Temperature (°C) Q1					Dissolved Oxygen (mg/L)					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control #3	A	5	5	5	5	5	34.3	34.1	i 34.3	34.4	34.4	20.4	19.9	i 20.7	21.0	21.2	7.8	6.2	i 7.3	6.1	6.3	8.11	7.81	i 8.03	7.83	7.85
	B	5	5	5	5	5			f 34.3					f 20.2					f 5.8					f 7.76		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	5	5																				
	F	5	5	5	5	5																				
25	A	5	5	5	5	Ⓐ ~~3~~ 5	34.4	34.4	i 34.5	34.5	34.5	20.5	19.9	i 20.5	21.0	21.1	7.8	6.8	i 7.5	5.7	6.2	8.10	7.83	i 8.06	7.85	7.85
	B	5	5	5	4	Ⓐ ~~3~~ 4			f 34.4					f 20.2					f 6.0					f 7.79		
	C	5	5	5	5	Ⓐ ~~3~~ 5																				
	D	5	5	5	5	Ⓐ ~~4~~ 5																				
	E	5	5	5	5	5																				
	F	5	5	5	5	4																				
50	A	5	5	5	5	4	34.4	34.4	i 34.4	34.6	34.9	20.5	19.9	i 20.4	21.0	20.9	8.0	6.8	i 7.8	6.2	6.3	8.09	7.82	i 8.06	7.89	7.91
	B	5	5	5	4	3			f 34.5					f 20.3					f 6.1					f 7.81		
	C	5	5	5	5	5																				
	D	5	5	5	5	4																				
	E	5	5	5	5	5																				
	F	5	5	5	4	4																				
100	A	5	5	5	4	4	34.5	34.5	i 34.5	34.8	34.9	20.4	19.8	i 20.2	21.0	20.9	8.4	6.8	i 8.3	6.2	6.4	8.07	7.82	i 8.04	7.89	7.95
	B	5	5	5	5	4			f 34.6					f 20.5					f 5.7					f 7.78		
	C	5	5	5	5	5																				
	D	5	5	5	4	4																				
	E	5	5	5	4	4																				
	F	5	5	5	5	5																				

Initial Counts QC'd by: KTY
Initiated by: KTY

Animal Source/Date Received: ABS 8/10/18
Age at Initiation: 15 days
Animal Acclimation Qualifiers (circle all that apply): [✓ Q22] / Q23 / Q24 / none

	Feeding Times				
	0	24	48	72	96
AM:		0940	0900	0845	0900
PM:	1645				

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal
Organisms fed prior to initiation, circle one ([✓ y] / n) Ⓐ Q18 RT 8/18/18

QC Check: 8/20/18

Final Review: AC 8/20/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

CETIS Summary Report

Report Date: 20 Aug-18 09:36 (p 1 of 1)
Test Code: 1808-S113 | 16-2970-1343

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	02-6536-6104	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	14 Aug-18 15:50	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Natural Seawater
Ending Date:	18 Aug-18 14:05	**Species:**	Atherinops affinis	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	15d

Sample ID:	01-3851-3997	**Code:**	18-0864	**Client:**	Amec Foster Wheeler
Sample Date:	13 Aug-18 08:30	**Material:**	Ambient Sample	**Project:**	
Receive Date:	13 Aug-18 17:00	**Source:**	Shelter Island Yacht Basin		
Sample Age:	31h (2 °C)	**Station:**	SIYB-REF		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TUa	Method
12-1008-1640	96h Survival Rate	100	>100	NA	13.2%	~~1~~ 0.0	Steel Many-One Rank Sum Test
17-1757-6437	96h Survival Rate	100	>100	NA	NA	~~1~~	TST-Welch's t Test

ϕ18 AC 8/20

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	6	1	1	1	1	1	0	0	0.0%	0.0%
25		6	0.7	0.4799	0.9201	0.4	1	0.08563	0.2098	29.97%	30.0%
50		6	1	1	1	1	1	0	0	0.0%	0.0%
100		6	1	1	1	1	1	0	0	0.0%	0.0%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6
0	Lab Control	1	1	1	1	1	1
25		0.6	0.8	0.6	0.8	0.4	1
50		1	1	1	1	1	1
100		1	1	1	1	1	1

Analyst: QA: 08/20/18

CETIS Analytical Report

Report Date: 20 Aug-18 09:36 (p 1 of 2)
Test Code: 1808-S113 | 16-2970-1343

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	12-1008-1640	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 9:35	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	13.2%	100	>100	NA	1

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		25*	24	26	1	10	0.0218	Asymp	Significant Effect
		50	39	26	1	10	0.7500	Asymp	Non-Significant Effect
		100	39	26	1	10	0.7500	Asymp	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.5280033	0.1760011	3	13.16	<0.0001	Significant Effect
Error	0.2674957	0.01337478	20			
Total	0.795499		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	15.57	4.938	<0.0001	Unequal Variances
Variances	Levene Equality of Variance	15.63	4.938	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.6632	0.884	<0.0001	Non-normal Distribution

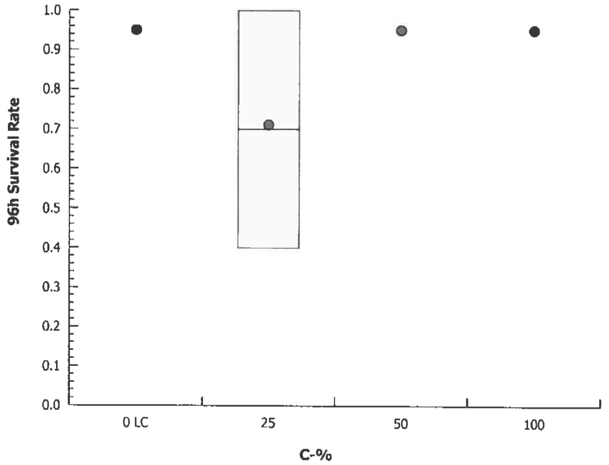
96h Survival Rate Summary

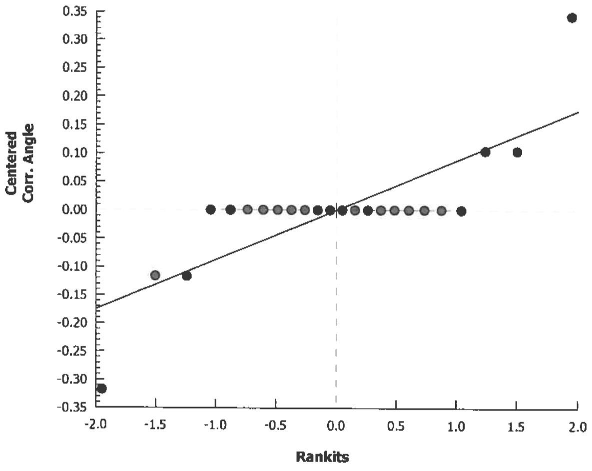
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1	1	1	1	1	1	0	0.0%	0.0%
25		6	0.7	0.4799	0.9201	0.7	0.4	1	0.08563	29.97%	30.0%
50		6	1	1	1	1	1	1	0	0.0%	0.0%
100		6	1	1	1	1	1	1	0	0.0%	0.0%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.345	1.345	1.345	1.345	1.345	1.345	0	0.0%	0.0%
25		6	1.003	0.76	1.245	0.9966	0.6847	1.345	0.09443	23.07%	25.46%
50		6	1.345	1.345	1.345	1.345	1.345	1.345	0	0.0%	0.0%
100		6	1.345	1.345	1.345	1.345	1.345	1.345	0	0.0%	0.0%

Graphics





Analyst:______ QA: 4 8/20/18

Pacific Topsmelt 96-h Acute Survival Test	**Nautilus Environmental (CA)**

Analysis ID:	17-1757-6437	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 9:35	**Analysis:**	Parametric Bioequivalence-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	TST b	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C*b < T	NA	NA	0.8	100	>100	NA	1

TST-Welch's t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:10%)
Lab Control		25	-0.7782	1.476	0.139	5	0.7642	CDF	Significant Effect
		50*	0.2691	1.476		5	<0.1	CDF	Non-Significant Effect
		100*	0.2691	1.476		5	<0.1	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.5280033	0.1760011	3	13.16	<0.0001	Significant Effect
Error	0.2674957	0.01337478	20			
Total	0.795499		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	15.57	4.938	<0.0001	Unequal Variances
Variances	Levene Equality of Variance	15.63	4.938	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.6632	0.884	<0.0001	Non-normal Distribution

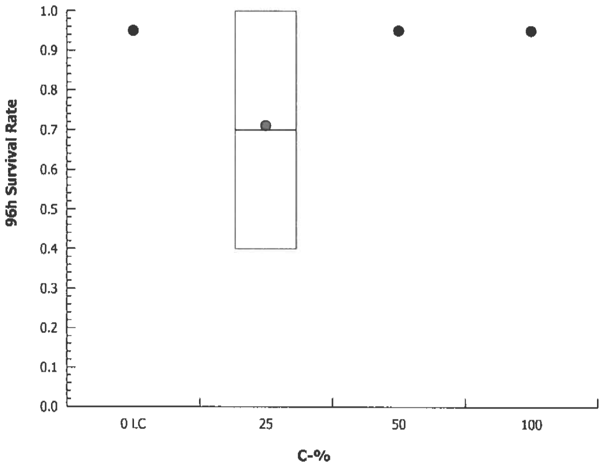
96h Survival Rate Summary

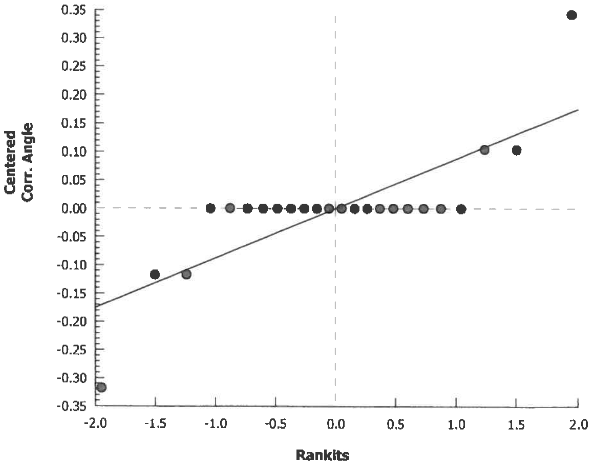
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1	1	1	1	1	1	0	0.0%	0.0%
25		6	0.7	0.4799	0.9201	0.7	0.4	1	0.08563	29.97%	30.0%
50		6	1	1	1	1	1	1	0	0.0%	0.0%
100		6	1	1	1	1	1	1	0	0.0%	0.0%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	6	1.345	1.345	1.345	1.345	1.345	1.345	0	0.0%	0.0%
25		6	1.003	0.76	1.245	0.9966	0.6847	1.345	0.09443	23.07%	25.46%
50		6	1.345	1.345	1.345	1.345	1.345	1.345	0	0.0%	0.0%
100		6	1.345	1.345	1.345	1.345	1.345	1.345	0	0.0%	0.0%

Graphics





Analyst: QA: 8/20/18

Marine Acute Bioassay
Static-Renewal Conditions

Water Quality Measurements
& Test Organism Survival

Client: AMEC/POSD
Sample ID: SIYB-REF
Sample Log-in No.: 18- 0864
Test No.: 1808-S 113

Test Species: *A. affinis*
Start Date/Time: 8/14/2018 1550
End Date/Time: 8/18/2018 1405

	Tech Initials				
	0	24	48	72	96
Counts:	BH/TN	TN	RH	TN	RT
Readings:	UTP	TN	TN	TN	BO
Dilutions made by:	BH		RH		

Concentration %	Rep	Number of Live Organisms					Salinity (ppt)					Temperature Q1 (°C)					Dissolved Oxygen (mg/L)					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	5	5	5	5	5	34.3	34.1	i 34.3	34.4	34.4	20.4	19.9	i 20.7	21.0	21.2	7.8	6.2	i 7.3	6.1	6.3	8.11	7.81	i 8.03	7.83	7.85
#3	B	5	5	5	5	5			f 34.3					f 20.2					f 5.8					f 7.76		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	5	5																				
	F	5	5	5	5	5																				
25	A	5	5.	5	5	3	34.3	34.3	i 34.4	34.5	34.5	20.1	19.8	i 20.7	21.0	20.7	8.2	6.7	i 7.5	6.3	6.6	8.13	7.88	i 8.05	7.90	7.90
	B	5	5	5	5	4			f 34.3					f 20.3					f 6.2					f 7.82		
	C	5	5	5	5	3																				
	D	5	5	5	4	4																				
	E	5	5	4	4	2																				
	F	5	5	5	5	5																				
50	A	5	5	5	5	5	34.5	34.6	i 34.6	34.6	34.6	20.8	19.8	i 20.6	21.0	20.7	8.0	6.2	i 7.8	5.6	6.3	8.11	7.79	i 8.06	7.81	7.84
	B	5	5	5	5	5			f 34.5					f 20.2					f 5.4					f 7.73		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	5	5																				
	F	5	5	5	5	5																				
100	A	5	5	5	5	5	34.5	34.3	i 34.5	34.5	34.7	20.1	19.8	i 20.7	21.0	20.7	8.6	6.2	i 8.5	6.1	6.1	8.11	7.71	i 8.07	7.87	7.91
	B	5	5	5	5	5			f 34.4					f 20.2					f 5.9					f 7.78		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	E	5	5	5	5	5																				
	F	5	5	5	5	5																				

Initial Counts QC'd by: KFP
Initiated by: KFP

Animal Source/Date Received: ABS 8/10/18
Age at Initiation: 15 days

Animal Acclimation Qualifiers (circle all that apply): [✓ Q22] / Q23 / Q24 / none

	Feeding Times				
	0	24	48	72	96
AM:		0940	0900	0845	0900
PM:	1645				

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal
Organisms fed prior to initiation, circle one ([✓ y] / n)

QC Check: uz 8/20/18

Final Review: AC 8/20/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

Appendix B

Sample Receipt Information

Nautilus Environmental
4340 Vandever Avenue
San Diego, CA 92120

Sample Check-In Information

Client: AMEC/ POSD

Tests Performed: Acute topsmelt, mussel development

Project: Shelter Island Yacht Basin TMDL Monitoring

Test ID No.(s) : 1808-S107 to S120

Sample ID:	1) SIYB-1	2) SIYB-2	3) SIYB-3	4) SIYB-4	5) SIYB-5	6) SIYB-6	7) SIYB-REF
Log-in No. (18-xxxx):	0858	0859	0860	0861	0862	0863	0864
Sample Collection Date & Time:	8/13/18 1430	8/13/18 1330	8/13/18 1230	8/13/18 1130	8/13/18 1030	8/13/18 0930	8/13/18 0830
Sample Receipt Date & Time:	8/13/18 1700 →						
Number of Containers & Container Type:	2x10L cubi →						
Approx. Total Volume Received (L):	16	16	15	15	15	15	15
Check-in Temp (°C)	9.5	7.2	11.5	11.0	7.0	5.0	2.0
Temperature OK? [1]	[✓ Y] N	[✓ Y] N	[✓ Y] N	[✓ Y] N	[✓ Y] N	[✓ Y] N	[✓ Y] N
DO (mg/L)	8.3	9.1	@ ~~7.4~~ 7.9	8.2	8.3	8.1	8.4
pH (units)	8.21	8.21	8.15	8.18	8.13	8.13	8.14
Conductivity (µS/cm)	–	–	–	–	–	–	–
Salinity (ppt)	34.6	34.6	34.4	34.4	34.5	34.5	34.4
Alkalinity (mg/L) [2]	91	106	121	97	122	@ ~~148~~ 119	126
Hardness (mg/L) [2, 3]	–	–	–	–	–	–	–
Total Chlorine (mg/L)	<0.02	0.06	0.02	<0.02	0.05	0.03	<0.02
Technician Initials	KFP/AC/ACS →						

Sample Descriptions:

1) Colorless, clear, no odor, no debris
2) ''
3) ''
4) ''
5) ''
6) ''
7) ''

COC Complete? [✓ Y] N

Filtration? [✓ Y] N

Pore Size: 0.45 µm 100% sample for mussel test only

[✓ **Organisms**] or **Debris**

pH Adjustment? Y [✓ N]

	1	2	3	4	5	6
Initial pH:						
Amount of HCl added:						
Final pH:						

Marine Tests:

Control/Dilution Water Source: [✓ LAB SW] ART SW Other: ______

Alkalinity: 112 Salinity: 34ppt

Additional Control? Y N = ______

Alkalinity: ______ Salinity: ______

Sample Salted w/ artificial salt? Y N If yes, target ppt and source? ______

Sample salted w/brine? Y N If yes, target ppt? ______

Cl_2 Adjustment? Y [✓ N]

	1	2	3	4	5	6
Initial Free Cl_2:						
STS added:						
Final Free Cl_2:						

Sample Aeration? Y [✓ N]

	1	2	3	4	5	6
Initial D.O.						
Duration & Rate						
Final D.O.						

Notes [1] Temperature for sample must be 0-6°C if received >24 hours past collection time.

[2] mg/L as CaCO3, [3] Measured for freshwater samples only, NA = Not Applicable

Additional Comments @KFP Q18 8/13/18

Subsamples For Additional Chemistry Required? Y [✓ N]

NH3 **Other** ______

Tech Initials ______

QC Check: 8/20/18

Final Review: AC 8/31/18

Appendix C

Chain of Custody Form

Nautilus Environmental

Chain of Custody (electronic)

4340 Vandever Ave. San Diego, CA 92120

Date 8/13/18 Page 1 of 1

Sample Collection By:	Wood Environment & Infrastructure Solutions, Inc.	
	Report to: Barry Snyder / Corey Sheredy barry.snyder@woodplc.com / corey.sheredy@woodplc.com	Invoice to: Barry Snyder / Corey Sheredy barry.snyder@woodplc.com / corey.sheredy@woodplc.co
Company	Wood Environment & Infrastructure Solutions, Inc.	Wood Environment & Infrastructure Solutions, Inc.
Address	9210 Sky Park Ct. Ste 200	9210 Sky Park Ct. Ste 200
City/State/Zip	San Diego, CA 92123	San Diego, CA 92123
Contact	Corey Sheredy	Barry Snyder
Phone	858-300-4316	858-300-4320
Email	corey.sheredy@woodplc.com	barry.snyder@woodplc.com

ANALYSES REQUIRED

SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	# OF CONTAINERS	COMMENTS	Topsmelt 96-hr Acute Survival	Mussel 48-hr Survival and Dev.							Receipt Temperature (°C)
SIYB-1	8/13/18	1430	SW	10-L Poly	2		X	X							9.5
SIYB-2		1330	SW	10-L Poly	2		X	X							7.2
SIYB-3		1230	SW	10-L Poly	2		X	X							11.5
SIYB-4		1130	SW	10-L Poly	2		X	X							11.0
SIYB-5		1030	SW	10-L Poly	2		X	X							7.0
SIYB-6		0930	SW	10-L Poly	2		X	X							5.0
SIYB-REF	↓	0830	SW	10-L Poly	2		X	X							2.0

PROJECT INFORMATION	**SAMPLE RECEIPT**	
Client:	**Total # Containers:**	14
P.O. No.:	**Good Condition?**	Y
Shipped Via:	**Matches Test Schedule?**	Y

Relinquished By:

Signature: 8/13/18 Date

Print Name: Corey Sheredy 1700 Time

Company: Wood E+I 17/2

Received By (courier):

Signature: Date

Print Name: Time

Company:

Relinquished By (courier):

Signature: Date

Print Name: Time

Company:

Received By Lab:

Signature: Adrienne Gibor 8/13/18 Date

Print Name: Adrienne Gibor 1700 Time

Company: Nautilus

Comments:
Concurrent ref. tox. test for both species (Topsmelt 0,50,100,200,400,800 ug/L)
(Bivalve ref. tox. test copper conc. of 0, 2.5, 5.0, 10, 20 and 40 µg/L)
Topsmelt at 3 concentrations (25,50, 100 percent) and a control. 6 reps.
Bivalve testing 5 concentrations (6.25, 12.5, 25, 50, and 100 percent), and
a control. Also a 100% filtered undiluted sample.5 reps. Look for *Noctiluca* sp.)

Additional costs may be required for sample disposal or storage. Net 30 unless otherwise contracted.

Appendix D

Reference Toxicant Tests

Test Data and Statistical Analyses

Bivalve Survival and Development Test

CETIS Summary Report

Report Date: 31 Aug-18 09:28 (p 1 of 3)
Test Code: 180814msdv | 20-2008-5684

Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Batch ID:	05-7228-6143	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	14 Aug-18 16:00	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Diluted Natural Seawater
Ending Date:	16 Aug-18 15:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	48h	**Source:**	Mission Bay	**Age:**	

Sample ID:	06-4303-4484	**Code:**	180814msdv	**Client:**	Internal
Sample Date:	14 Aug-18	**Material:**	Copper chloride	**Project:**	
Receive Date:	14 Aug-18	**Source:**	Reference Toxicant		
Sample Age:	16h	**Station:**	Copper Chloride		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
14-3194-1364	Combined Development Ra	5	10	7.071	4.31%		Dunnett Multiple Comparison Test
11-3783-5138	Development Rate	5	10	7.071	4.17%		Dunnett Multiple Comparison Test
06-8157-3628	Survival Rate	20	40	28.28	4.55%		Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	µg/L	95% LCL	95% UCL	TU	Method
05-1341-6487	Combined Development Ra	EC25	6.217	6.052	6.401		Linear Interpolation (ICPIN)
		EC50	7.647	7.485	7.825		
21-2390-8581	Development Rate	EC25	6.229	6.034	6.42		Linear Interpolation (ICPIN)
		EC50	7.663	7.502	7.86		
02-2288-1771	Survival Rate	EC25	24.32	23.41	24.84		Linear Interpolation (ICPIN)
		EC50	29.55	28.94	29.89		

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
11-3783-5138	Development Rate	Control Resp	0.9201	0.9 - NL	Yes	Passes Acceptability Criteria
21-2390-8581	Development Rate	Control Resp	0.9201	0.9 - NL	Yes	Passes Acceptability Criteria
02-2288-1771	Survival Rate	Control Resp	0.9856	0.5 - NL	Yes	Passes Acceptability Criteria
06-8157-3628	Survival Rate	Control Resp	0.9856	0.5 - NL	Yes	Passes Acceptability Criteria
14-3194-1364	Combined Development Ra	PMSD	0.0431	NL - 0.25	No	Passes Acceptability Criteria

Analyst: QA: AC9/14/18

CETIS Summary Report

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Combined Development Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.9068	0.8746	0.9389	0.8627	0.9259	0.01158	0.02589	2.86%	0.0%
2.5		5	0.9321	0.9127	0.9515	0.9136	0.9518	0.006993	0.01564	1.68%	-2.8%
5		5	0.8854	0.8534	0.9174	0.8503	0.9176	0.01153	0.02579	2.91%	2.35%
10		5	0.08104	0.03664	0.1254	0.05229	0.1401	0.01599	0.03576	44.12%	91.06%
20		5	0	0	0	0	0	0	0		100.0%
40		5	0	0	0	0	0	0	0		100.0%

Development Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.9201	0.8884	0.9518	0.8919	0.9592	0.01141	0.02551	2.77%	0.0%
2.5		5	0.9321	0.9127	0.9515	0.9136	0.9518	0.006993	0.01564	1.68%	-1.31%
5		5	0.8939	0.8555	0.9323	0.8503	0.9247	0.01384	0.03095	3.46%	2.85%
10		5	0.08457	0.04302	0.1261	0.05333	0.1401	0.01497	0.03347	39.57%	90.81%
20		5	0	0	0	0	0	0	0		100.0%
40		5	0	0	0	0	0	0	0		100.0%

Survival Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.9856	0.961	1	0.9608	1	0.008866	0.01982	2.01%	0.0%
2.5		5	1	1	1	1	1	0	0	0.0%	-1.46%
5		5	0.9908	0.9654	1	0.9542	1	0.00915	0.02046	2.07%	-0.53%
10		5	0.949	0.86	1	0.8301	1	0.03205	0.07166	7.55%	3.71%
20		5	0.9503	0.9095	0.9911	0.915	1	0.0147	0.03288	3.46%	3.58%
40		5	0	0	0	0	0	0	0		100.0%

Combined Development Rate Detail

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	0.9216	0.8627	0.9259	0.9045	0.9191
2.5		0.9355	0.9193	0.9518	0.9405	0.9136
5		0.8503	0.9176	0.875	0.8824	0.9018
10		0.05229	0.1401	0.08861	0.06536	0.05882
20		0	0	0	0	0
40		0	0	0	0	0

Development Rate Detail

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	0.9592	0.8919	0.9259	0.9045	0.9191
2.5		0.9355	0.9193	0.9518	0.9405	0.9136
5		0.8503	0.9176	0.875	0.9247	0.9018
10		0.05333	0.1401	0.08861	0.06993	0.07087
20		0	0	0	0	0
40		0	0	0	0	0

Survival Rate Detail

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	0.9608	0.9673	1	1	1
2.5		1	1	1	1	1
5		1	1	1	0.9542	1
10		0.9804	1	1	0.9346	0.8301
20		0.9281	0.9608	1	0.9477	0.915
40		0	0	0	0	0

Analyst:

QA: AC 9/14/18

CETIS Summary Report

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Combined Development Rate Binomials

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	141/153	132/153	150/162	142/157	159/173
2.5		145/155	148/161	158/166	158/168	148/162
5		142/167	156/170	147/168	135/153	147/163
10		8/153	22/157	14/158	10/153	9/153
20		0/153	0/153	0/163	0/153	0/153
40		0/153	0/153	0/153	0/153	0/153

Development Rate Binomials

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	141/147	132/148	150/162	142/157	159/173
2.5		145/155	148/161	158/166	158/168	148/162
5		142/167	156/170	147/168	135/146	147/163
10		8/150	22/157	14/158	10/143	9/127
20		0/142	0/147	0/163	0/145	0/140
40		0/1	0/1	0/1	0/1	0/1

Survival Rate Binomials

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Control	147/153	148/153	153/153	153/153	153/153
2.5		153/153	153/153	153/153	153/153	153/153
5		153/153	153/153	153/153	146/153	153/153
10		150/153	153/153	153/153	143/153	127/153
20		142/153	147/153	153/153	145/153	140/153
40		0/153	0/153	0/153	0/153	0/153

Analyst:______ QA: AC 9/14/18

CETIS Analytical Report

Report Date: 31 Aug-18 09:28 (p 1 of 4)
Test Code: 180814msdv | 20-2008-5684

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID: 14-3194-1364 **Endpoint:** Combined Development Rate **CETIS Version:** CETISv1.8.7
Analyzed: 31 Aug-18 9:27 **Analysis:** Parametric-Control vs Treatments **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	4.31%	5	10	7.071	

Dunnett Multiple Comparison Test

Control	vs	C-µg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		2.5	-1.606	2.227	0.064	8	0.9914	CDF	Non-Significant Effect
		5	1.231	2.227	0.064	8	0.2485	CDF	Non-Significant Effect
		10*	34.07	2.227	0.064	8	<0.0001	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.633003	1.211001	3	587.2	<0.0001	Significant Effect
Error	0.03299659	0.002062287	16			
Total	3.666		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	1.761	11.34	0.6235	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9752	0.866	0.8590	Normal Distribution

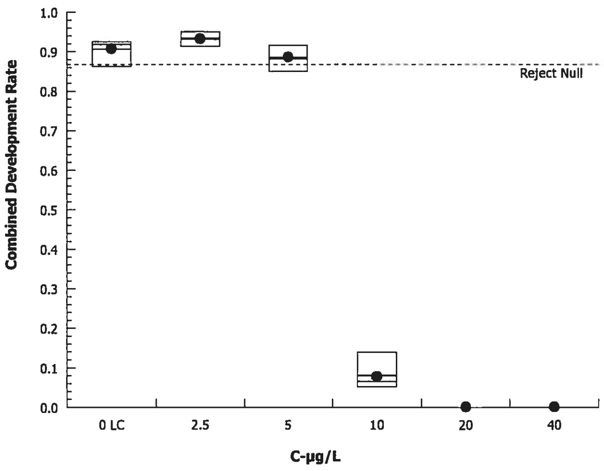
Combined Development Rate Summary

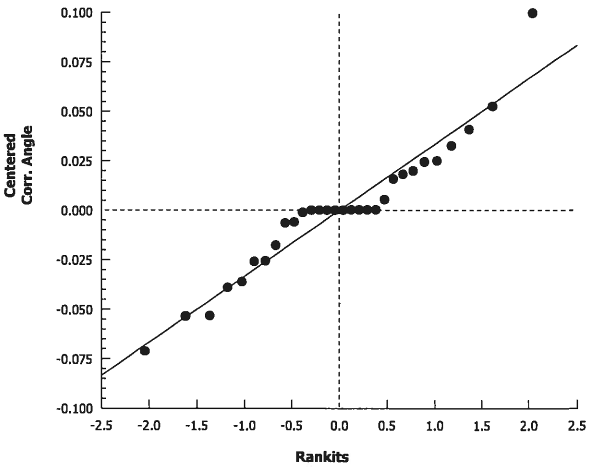
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9068	0.8746	0.9389	0.9191	0.8627	0.9259	0.01158	2.86%	0.0%
2.5		5	0.9321	0.9127	0.9515	0.9355	0.9136	0.9518	0.006993	1.68%	-2.8%
5		5	0.8854	0.8534	0.9174	0.8824	0.8503	0.9176	0.01153	2.91%	2.35%
10		5	0.08104	0.03664	0.1254	0.06536	0.05229	0.1401	0.01599	44.12%	91.06%
20		5	0	0	0	0	0	0	0		100.0%
40		5	0	0	0	0	0	0	0		100.0%

Angular (Corrected) Transformed Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.262	1.21	1.315	1.282	1.191	1.295	0.01893	3.35%	0.0%
2.5		5	1.309	1.27	1.347	1.314	1.272	1.349	0.01401	2.4%	-3.65%
5		5	1.227	1.177	1.278	1.221	1.174	1.28	0.01819	3.32%	2.8%
10		5	0.284	0.2073	0.3608	0.2585	0.2307	0.3837	0.02764	21.76%	77.5%
20		5	0.04018	0.03948	0.04088	0.04043	0.03917	0.04043	0.000252	1.4%	96.82%
40		5	0.04043	0.04043	0.04044	0.04043	0.04043	0.04043	0	0.0%	96.8%

Graphics





Analyst:

QA: AC 9/14/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID: 11-3783-5138 **Endpoint:** Development Rate **CETIS Version:** CETISv1.8.7
Analyzed: 31 Aug-18 9:27 **Analysis:** Parametric-Control vs Treatments **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	4.17%	5	10	7.071	

Dunnett Multiple Comparison Test

Control	vs	C-µg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		2.5	-0.6954	2.227	0.068	8	0.9262	CDF	Non-Significant Effect
		5	1.511	2.227	0.068	8	0.1671	CDF	Non-Significant Effect
		10*	32.77	2.227	0.068	8	<0.0001	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.672007	1.224002	3	529.8	<0.0001	Significant Effect
Error	0.0369621	0.002310131	16			
Total	3.708969		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	1.286	11.34	0.7326	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9605	0.866	0.5530	Normal Distribution

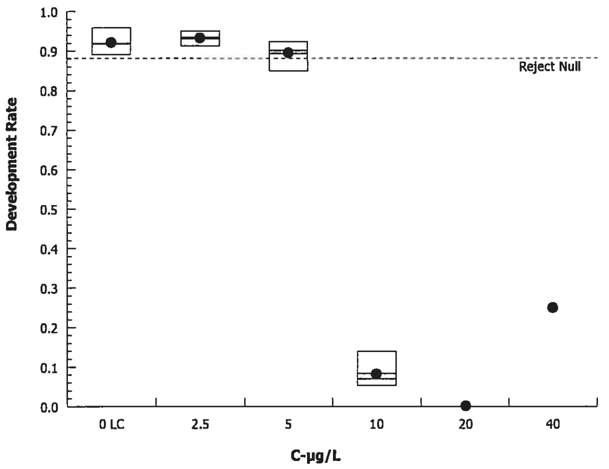
Development Rate Summary

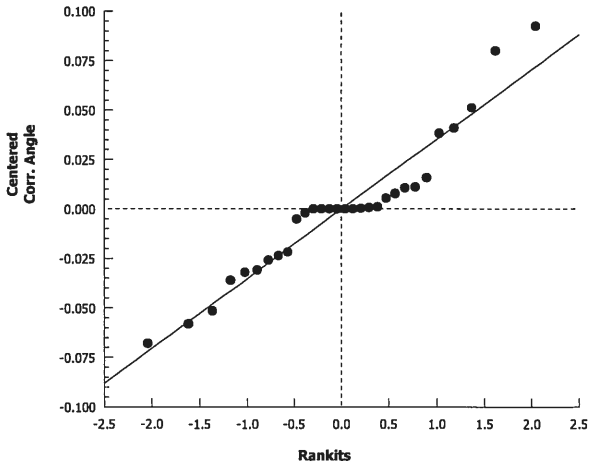
C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9201	0.8884	0.9518	0.9191	0.8919	0.9592	0.01141	2.77%	0.0%
2.5		5	0.9321	0.9127	0.9515	0.9355	0.9136	0.9518	0.006993	1.68%	-1.31%
5		5	0.8939	0.8555	0.9323	0.9018	0.8503	0.9247	0.01384	3.46%	2.85%
10		5	0.08457	0.04302	0.1261	0.07087	0.05333	0.1401	0.01497	39.57%	90.81%
20		5	0	0	0	0	0	0	0		100.0%
40		5	0	0	0	0	0	0	0		100.0%

Angular (Corrected) Transformed Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.287	1.225	1.35	1.282	1.236	1.367	0.02247	3.9%	0.0%
2.5		5	1.309	1.27	1.347	1.314	1.272	1.349	0.01401	2.4%	-1.64%
5		5	1.242	1.18	1.303	1.252	1.174	1.293	0.02219	4.0%	3.57%
10		5	0.2912	0.2202	0.3622	0.2695	0.233	0.3837	0.02558	19.64%	77.38%
20		5	0.04124	0.03972	0.04276	0.04153	0.03917	0.04227	0.000546	2.96%	96.8%
40		5	0.5236	0.5234	0.5238	0.5236	0.5236	0.5236	0	0.0%	59.33%

Graphics





Analyst:

QA: AC 9/14/18

CETIS Analytical Report

Report Date: 31 Aug-18 09:28 (p 3 of 4)
Test Code: 180814msdv | 20-2008-5684

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Analysis ID:	06-8157-3628	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	31 Aug-18 9:27	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	4.55%	20	40	28.28	

Dunnett Multiple Comparison Test

Control	vs C-µg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control	2.5	-0.9524	2.305	0.145	8	0.9729	CDF	Non-Significant Effect
	5	-0.3969	2.305	0.145	8	0.9032	CDF	Non-Significant Effect
	10	1.276	2.305	0.145	8	0.2722	CDF	Non-Significant Effect
	20	1.698	2.305	0.145	8	0.1468	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1003535	0.02508839	4	2.524	0.0731	Non-Significant Effect
Error	0.198794	0.009939701	20			
Total	0.2991476		24			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	2.137	4.893	0.1265	Equal Variances
Variances	Levene Equality of Variance	4.226	4.431	0.0122	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9509	0.8877	0.2633	Normal Distribution

Survival Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	0.9856	0.961	1	1	0.9608	1	0.008866	2.01%	0.0%
2.5		5	1	1	1	1	1	1	0	0.0%	-1.46%
5		5	0.9908	0.9654	1	1	0.9542	1	0.00915	2.07%	-0.53%
10		5	0.949	0.86	1	0.9804	0.8301	1	0.03205	7.55%	3.71%
20		5	0.9503	0.9095	0.9911	0.9477	0.915	1	0.0147	3.46%	3.58%
40		5	0	0	0	0	0	0	0		100.0%

Angular (Corrected) Transformed Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	5	1.47	1.368	1.573	1.53	1.371	1.53	0.03688	5.61%	0.0%
2.5		5	1.53	1.53	1.531	1.53	1.53	1.53	0	0.0%	-4.08%
5		5	1.495	1.398	1.593	1.53	1.355	1.53	0.03503	5.24%	-1.7%
10		5	1.39	1.187	1.593	1.43	1.146	1.53	0.07303	11.75%	5.47%
20		5	1.363	1.238	1.488	1.34	1.275	1.53	0.04494	7.37%	7.28%
40		5	0.04043	0.04043	0.04044	0.04043	0.04043	0.04043	0	0.0%	97.25%

Analyst:________ QA: AC 9/14/18

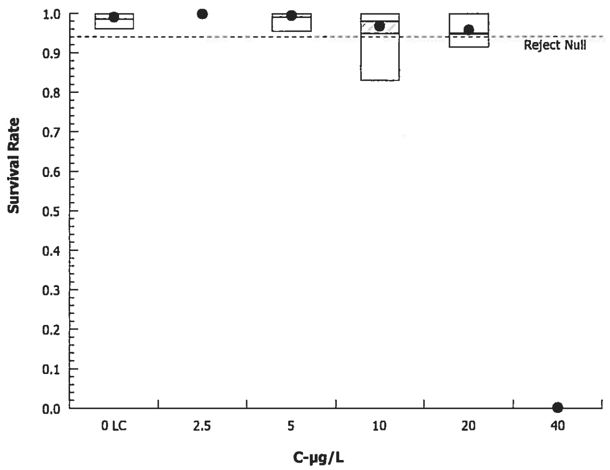
CETIS Analytical Report

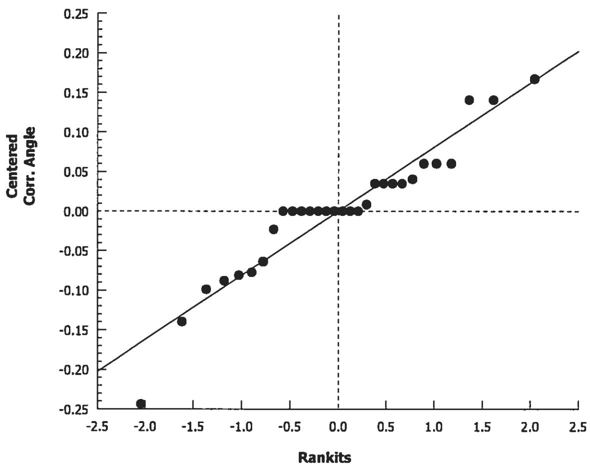
Report Date: 31 Aug-18 09:28 (p 4 of 4)
Test Code: 180814msdv | 20-2008-5684

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID:	06-8157-3628	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	31 Aug-18 9:27	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





Analyst:______ QA: AC 9/14/18

CETIS Analytical Report

Report Date: 31 Aug-18 09:28 (p 1 of 3)
Test Code: 180814msdv | 20-2008-5684

Bivalve Larval Survival and Development Test | **Nautilus Environmental (CA)**

Analysis ID: 05-1341-6487 **Endpoint:** Combined Development Rate **CETIS Version:** CETISv1.8.7
Analyzed: 31 Aug-18 9:27 **Analysis:** Linear Interpolation (ICPIN) **Official Results:** Yes

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	658766	1000	Yes	Two-Point Interpolation

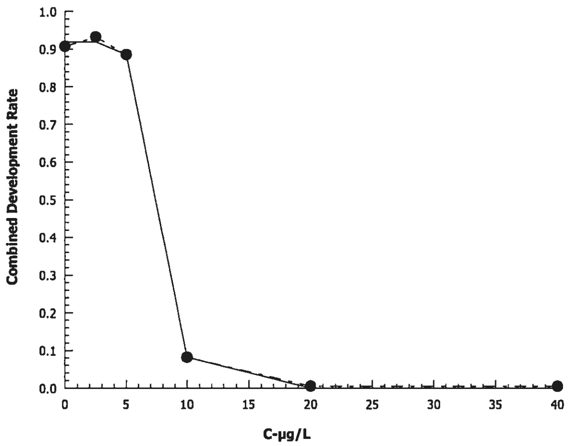
Point Estimates

Level	µg/L	95% LCL	95% UCL
EC25	6.217	6.052	6.401
EC50	7.647	7.485	7.825

Combined Development Rate Summary

C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	Calculated Variate(A/B) A	B
0	Lab Control	5	0.9068	0.8627	0.9259	0.01158	0.02589	2.86%	0.0%	724	798
2.5		5	0.9321	0.9136	0.9518	0.006993	0.01564	1.68%	-2.8%	757	812
5		5	0.8854	0.8503	0.9176	0.01153	0.02579	2.91%	2.35%	727	821
10		5	0.08104	0.05229	0.1401	0.01599	0.03576	44.12%	91.06%	63	774
20		5	0	0	0	0	0		100.0%	0	775
40		5	0	0	0	0	0		100.0%	0	765

Graphics



Analyst:

QA: AC 9/14/18

CETIS Analytical Report

Bivalve Larval Survival and Development Test			**Nautilus Environmental (CA)**
Analysis ID: 21-2390-8581	**Endpoint:** Development Rate	**CETIS Version:** CETISv1.8.7	
Analyzed: 31 Aug-18 9:27	**Analysis:** Linear Interpolation (ICPIN)	**Official Results:** Yes	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1959877	1000	Yes	Two-Point Interpolation

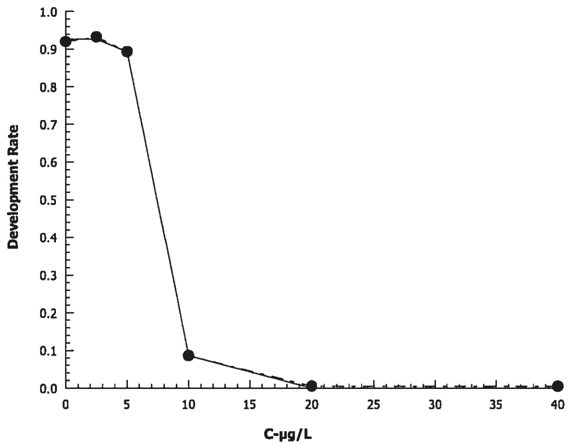
Point Estimates

Level	µg/L	95% LCL	95% UCL
EC25	6.229	6.034	6.42
EC50	7.663	7.502	7.86

Development Rate Summary

			Calculated Variate(A/B)								
C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.9201	0.8919	0.9592	0.01141	0.02551	2.77%	0.0%	724	787
2.5		5	0.9321	0.9136	0.9518	0.006993	0.01564	1.68%	-1.31%	757	812
5		5	0.8939	0.8503	0.9247	0.01384	0.03095	3.46%	2.85%	727	814
10		5	0.08457	0.05333	0.1401	0.01497	0.03347	39.57%	90.81%	63	735
20		5	0	0	0	0	0		100.0%	0	737
40		5	0	0	0	0	0		100.0%	0	5

Graphics



Analyst:

QA: AC 9/14/18

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Analysis ID: 02-2288-1771 **Endpoint:** Survival Rate **CETIS Version:** CETISv1.8.7
Analyzed: 31 Aug-18 9:27 **Analysis:** Linear Interpolation (ICPIN) **Official Results:** Yes

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	161563	1000	Yes	Two-Point Interpolation

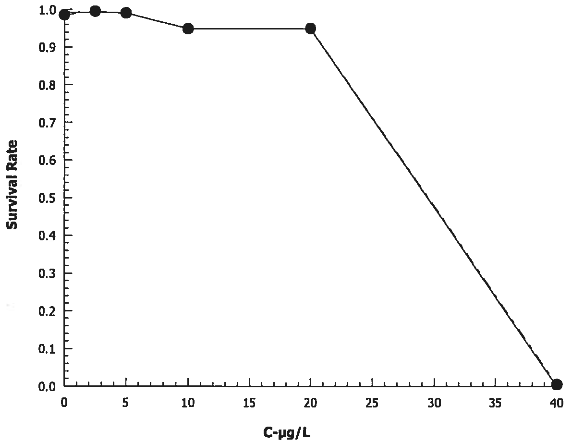
Point Estimates

Level	µg/L	95% LCL	95% UCL
EC25	24.32	23.41	24.84
EC50	29.55	28.94	29.89

Survival Rate Summary

			Calculated Variate(A/B)								
C-µg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Control	5	0.9856	0.9608	1	0.008866	0.01982	2.01%	0.0%	754	765
2.5		5	1	1	1	0	0	0.0%	-1.46%	765	765
5		5	0.9908	0.9542	1	0.00915	0.02046	2.07%	-0.53%	758	765
10		5	0.949	0.8301	1	0.03205	0.07166	7.55%	3.71%	726	765
20		5	0.9503	0.915	1	0.0147	0.03288	3.46%	3.58%	727	765
40		5	0	0	0	0	0		100.0%	0	765

Graphics



Analyst: QA: AC 9/14/18

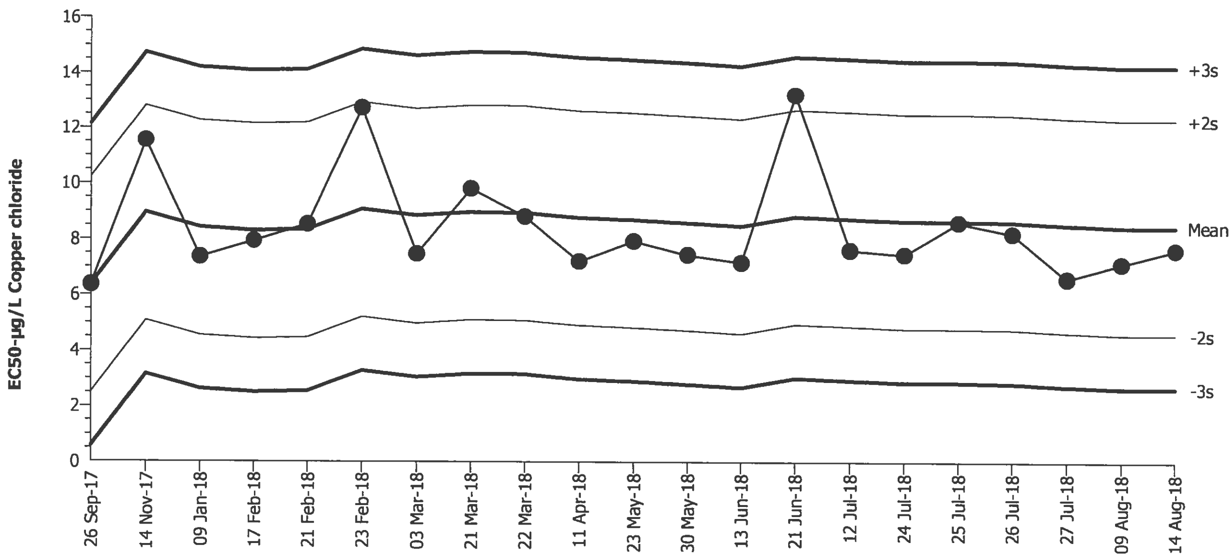
CETIS QC Plot

Report Date: 31 Aug-18 15:50 (1 of 1)

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Test Type: Development-Survival **Organism:** Mytilus galloprovincialis (Bay Mussel **Material:** Copper chloride
Protocol: EPA/600/R-95/136 (1995) **Endpoint:** Combined Development Rate **Source:** Reference Toxicant-REF

Bivalve Larval Survival and Development Test



Mean: 8.458 **Count:** 20 **-2s Warning Limit:** 4.598 **-3s Action Limit:** 2.668
Sigma: 1.93 **CV:** 22.80% **+2s Warning Limit:** 12.32 **+3s Action Limit:** 14.25

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2017	Sep	26	15:20	6.361	-2.097	-1.087			16-9466-0599	13-1748-4735
2		Nov	14	14:55	11.54	3.081	1.597			01-4993-5723	08-5477-5502
3	2018	Jan	9	18:10	7.354	-1.104	-0.5721			04-5285-7395	20-6992-2708
4		Feb	17	13:40	7.933	-0.5245	-0.2718			18-1123-8751	15-4632-7252
5			21	17:15	8.527	0.06911	0.03581			05-1063-6451	12-0290-2264
6			23	16:20	12.73	4.27	2.213	(+)		00-6303-0605	11-1356-6857
7		Mar	3	15:50	7.46	-0.998	-0.5171			19-6934-2768	20-7451-4422
8			21	17:05	9.806	1.348	0.6985			02-7309-4256	05-5120-8430
9			22	17:40	8.803	0.3453	0.1789			21-0931-2488	01-1710-7608
10		Apr	11	16:30	7.205	-1.253	-0.649			00-9869-1493	21-3555-0861
11		May	23	14:40	7.934	-0.5236	-0.2713			05-3172-2053	00-1341-7982
12			30	15:15	7.445	-1.013	-0.5249			15-6685-9250	04-3478-1273
13		Jun	13	14:30	7.17	-1.288	-0.6672			10-9498-3126	08-8831-4149
14			21	16:35	13.23	4.767	2.47	(+)		12-0279-9325	10-0964-0885
15		Jul	12	13:40	7.626	-0.832	-0.4311			05-9398-7303	09-0812-3414
16			24	17:00	7.459	-0.9988	-0.5175			07-1843-3215	00-8101-8865
17			25	14:35	8.615	0.1568	0.08123			20-1533-8241	12-5094-7751
18			26	19:50	8.219	-0.2388	-0.1237			21-0493-2534	09-9542-7511
19			27	22:20	6.604	-1.854	-0.9608			08-8104-2824	02-8766-8884
20		Aug	9	16:30	7.139	-1.319	-0.6832			13-3605-5507	19-4975-0187
21			14	16:00	7.647	-0.8115	-0.4204			20-2008-5684	05-1341-6487

Analyst:

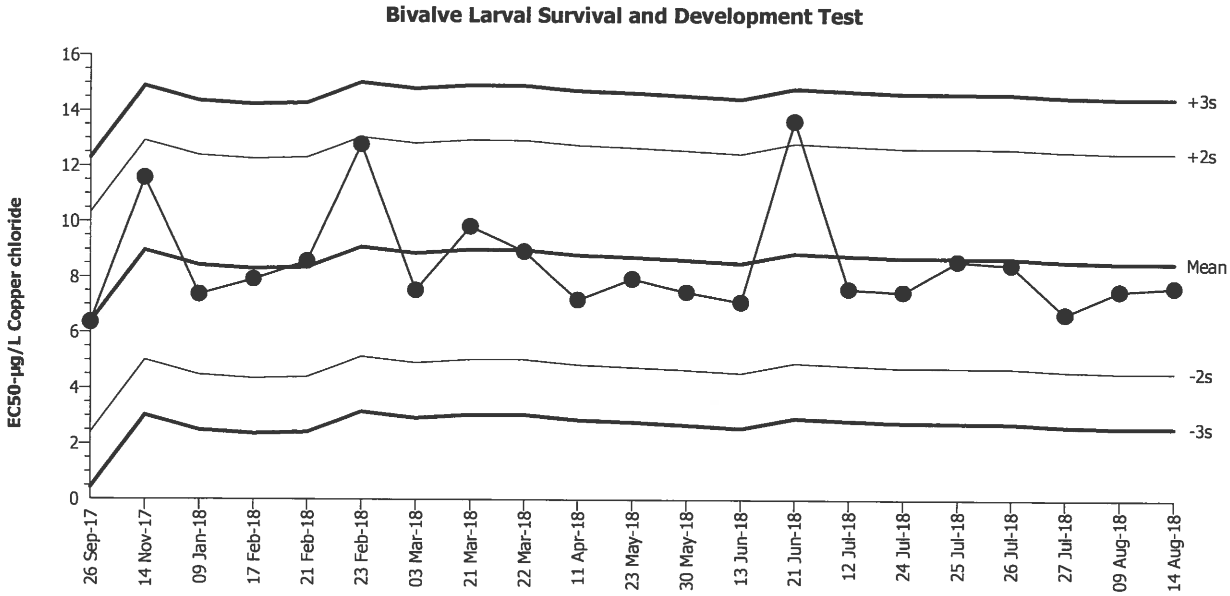
QA: AC 9/14/18

CETIS QC Plot

Report Date: 31 Aug-18 15:50 (1 of 1)

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Test Type: Development-Survival **Organism:** Mytilus galloprovincialis (Bay Mussel **Material:** Copper chloride
Protocol: EPA/600/R-95/136 (1995) **Endpoint:** Development Rate **Source:** Reference Toxicant-REF



Mean: 8.529 **Count:** 20 **-2s Warning Limit:** 4.573 **-3s Action Limit:** 2.595
Sigma: 1.978 **CV:** 23.20% **+2s Warning Limit:** 12.49 **+3s Action Limit:** 14.46

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2017	Sep	26	15:20	6.361	-2.168	-1.096			16-9466-0599	11-8425-8000
2		Nov	14	14:55	11.57	3.038	1.536			01-4993-5723	07-2294-3186
3	2018	Jan	9	18:10	7.373	-1.156	-0.5846			04-5285-7395	20-6951-3088
4		Feb	17	13:40	7.92	-0.6092	-0.308			18-1123-8751	11-1401-7033
5			21	17:15	8.571	0.04246	0.02147			05-1063-6451	15-8645-0592
6			23	16:20	12.79	4.259	2.153	(+)		00-6303-0605	10-0047-7991
7		Mar	3	15:50	7.528	-1.001	-0.5063			19-6934-2768	12-0461-1979
8			21	17:05	9.827	1.298	0.6564			02-7309-4256	03-7060-1379
9			22	17:40	8.929	0.3998	0.2021			21-0931-2488	16-8934-6156
10		Apr	11	16:30	7.19	-1.339	-0.6768			00-9869-1493	05-3456-6127
11		May	23	14:40	7.953	-0.5762	-0.2913			05-3172-2053	01-9754-8323
12			30	15:15	7.472	-1.057	-0.5344			15-6685-9250	00-0424-3245
13		Jun	13	14:30	7.106	-1.423	-0.7192			10-9498-3126	09-4280-0501
14			21	16:35	13.64	5.112	2.584	(+)		12-0279-9325	18-3187-1603
15		Jul	12	13:40	7.593	-0.9362	-0.4733			05-9398-7303	07-1306-5321
16			24	17:00	7.485	-1.044	-0.5279			07-1843-3215	09-3515-7957
17			25	14:35	8.591	0.0619	0.0313			20-1533-8241	03-1984-9148
18			26	19:50	8.463	-0.06576	-0.03324			21-0493-2534	11-1607-0827
19			27	22:20	6.698	-1.831	-0.9257			08-8104-2824	05-4006-9575
20		Aug	9	16:30	7.533	-0.9963	-0.5037			13-3605-5507	14-7304-8426
21			14	16:00	7.663	-0.8657	-0.4377			20-2008-5684	21-2390-8581

Analyst: QA: AC 9/14/18

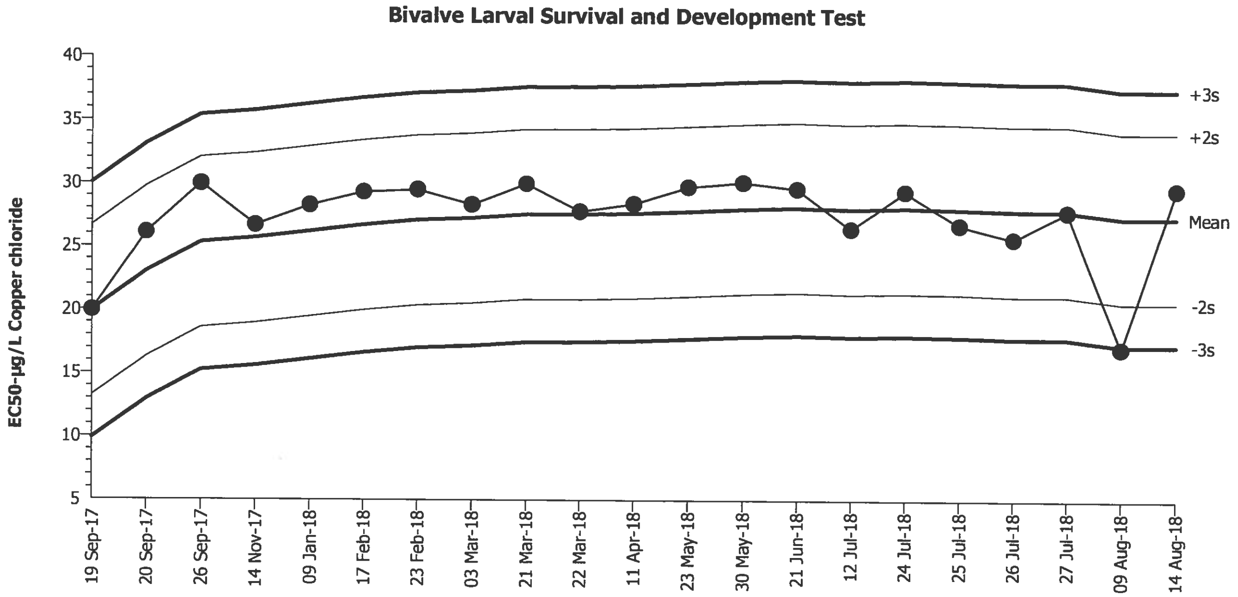
CETIS QC Plot

Report Date: 31 Aug-18 15:51 (1 of 1)

Bivalve Larval Survival and Development Test

Nautilus Environmental (CA)

Test Type: Development-Survival
Protocol: EPA/600/R-95/136 (1995)
Organism: Mytilus galloprovincialis (Bay Mussel
Endpoint: Survival Rate
Material: Copper chloride
Source: Reference Toxicant-REF



Mean: 27.32
Sigma: 3.356
Count: 20
CV: 12.30%
-2s Warning Limit: 20.6
+2s Warning Limit: 34.03
-3s Action Limit: 17.25
+3s Action Limit: 37.38

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2017	Sep	19	15:55	19.95	-7.37	-2.196	(-)		09-3234-3361	08-9117-5181
2			20	14:55	26.08	-1.244	-0.3707			00-4690-7275	12-3940-6067
3			26	15:20	29.93	2.609	0.7775			16-9466-0599	09-0658-8644
4		Nov	14	14:55	26.67	-0.6533	-0.1947			01-4993-5723	14-1143-5772
5	2018	Jan	9	18:10	28.23	0.9114	0.2716			04-5285-7395	01-8451-1585
6		Feb	17	13:40	29.27	1.952	0.5817			18-1123-8751	04-9429-9500
7			23	16:20	29.47	2.146	0.6393			00-6303-0605	12-1686-6094
8		Mar	3	15:50	28.28	0.9648	0.2875			19-6934-2768	13-5946-3260
9			21	17:05	29.94	2.619	0.7804			02-7309-4256	13-2431-8150
10			22	17:40	27.77	0.4456	0.1328			21-0931-2488	01-1099-3220
11		Apr	11	16:30	28.39	1.065	0.3174			00-9869-1493	21-4456-8842
12		May	23	14:40	29.71	2.386	0.7109			05-3172-2053	14-8144-8581
13			30	15:15	30.08	2.758	0.8219			15-6685-9250	10-4215-3436
14		Jun	21	16:35	29.57	2.247	0.6695			12-0279-9325	13-3450-4530
15		Jul	12	13:40	26.42	-0.8956	-0.2669			05-9398-7303	07-5883-6989
16			24	17:00	29.36	2.036	0.6068			07-1843-3215	03-6636-4748
17			25	14:35	26.73	-0.5881	-0.1752			20-1533-8241	08-4449-0054
18			26	19:50	25.66	-1.66	-0.4945			21-0493-2534	13-6871-8537
19			27	22:20	27.79	0.472	0.1406			08-8104-2824	20-5810-3775
20		Aug	9	16:30	17.03	-10.29	-3.066	(-)	(-)	13-3605-5507	09-9544-0667
21			14	16:00	29.55	2.226	0.6632			20-2008-5684	02-2288-1771

Analyst:

QA: AC 9|14|18

CETIS Test Data Worksheet

Report Date: 10 Aug-18 10:43 (p 1 of 1)
Test Code: 20-2008-5684/180814msdv

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Start Date: 14 Aug-18
End Date: 16 Aug-18
Sample Date: 14 Aug-18
Species: Mytilus galloprovincialis
Protocol: EPA/600/R-95/136 (1995)
Material: Copper chloride
Sample Code: 180814msdv
Sample Source: Reference Toxicant
Sample Station: Copper Chloride

C-µg/L	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
			1			157	22	AC 8/30/18
			2		Q18 AC	~~177~~ 162	150	
			3		8/30	157	142	
			4			158	14	
			5			170	156	
			6			0	0	
			7			0	0	
			8			155	145	
			9			0	0	
			10			140	0	
			11			145	0	
			12			163	147	
			13			ⓐ ~~0~~ 147	0	
			14			168	158	
			15			162	148	
			16			142	0	
			17			166	158	
			18			143+10 ~~143~~ⓐ	ⓐ~~133~~ ~~143~~	10
			19			146	135	
			20			173	159	
			21			161	148	
			22			168	147	
			23			0	0	
			24			163	0	
			25			150	8	
			26			147	141	
			27			148	132	
			28			0	0	
			29			127	9	
			30			167	142	

ⓐ Q18 AC 8/30/18

Analyst: AC QA: 09/14/18

CETIS Test Data Worksheet

Report Date: 10 Aug-18 10:43 (p 1 of 1)
Test Code: 20-2008-5684/180814msdv

Bivalve Larval Survival and Development Test **Nautilus Environmental (CA)**

Start Date: 14 Aug-18
End Date: 16 Aug-18
Sample Date: 14 Aug-18
Species: Mytilus galloprovincialis
Protocol: EPA/600/R-95/136 (1995)
Material: Copper chloride
Sample Code: 180814msdv
Sample Source: Reference Toxicant
Sample Station: Copper Chloride

C-µg/L	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	LC	1	26			149	142	AC 8/16/18
0	LC	2	27			148	132	↓
0	LC	3	2			161	149	
0	LC	4	3			155	140	
0	LC	5	20			175	160	
2.5		1	8					
2.5		2	21					
2.5		3	17			155	147	RT 8/17/18
2.5		4	14					
2.5		5	15					
5		1	30					
5		2	5					
5		3	22					
5		4	19			135	122	RT
5		5	12					
10		1	25					
10		2	1			155	13	RT
10		3	4					
10		4	18					
10		5	29					
20		1	16					
20		2	13					
20		3	24					
20		4	11			132	0	RT
20		5	10					
40		1	7					
40		2	28					
40		3	9					
40		4	23					
40		5	6			0	0	RT

QC'y AC

Analyst: AC QA: 09/14/18

Marine Chronic Bioassay **Water Quality Measurements**

Client: Internal
Sample ID: $CuCl_2$
Test No.: 180814msdv

Test Species: *M. galloprovincialis*
Start Date/Time: 8/14/2018 1600
End Date/Time: 8/16/2018 1530

Concentration (µg/L)	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control	31.5	31.5	31.4	16.0	14.8	14.9	8.0	8.3	7.8	7.99	7.86	7.90
2.5	31.7	31.8	32.1	15.2	14.2	14.3	8.4	8.5	8.1	8.05	8.01	7.97
5	31.8	31.9	32.1	15.1	14.0	14.1	8.5	8.5	8.2	8.04	8.01	7.96
10	31.9	31.9	32.1	15.2	14.1	14.1	8.5	8.4	8.3	8.04	8.00	7.95
20	31.8	31.8	32.1	15.1	14.0	14.1	8.5	8.4	8.3	8.04	8.01	7.95
40	31.8	31.8	32.0	15.1	14.0	14.0	8.5	8.4	8.3	8.06	8.00	7.95

Technician Initials:

	0	24	48
WQ Readings:	EG	RT	EG
Dilutions made by:	AC		

High conc. made (µg/L):	40
Vol. Cu stock added (mL):	2.1
Final Volume (mL):	500
Cu stock concentration (µg/L):	9580

Comments:
0 hrs:
24 hrs:
48 hrs:

QC Check: AC 8/31/18

Final Review: 9/14/16

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

Marine Chronic Bioassay **Larval Development Worksheet**

Client: Internal/CuCl2
Test No.: 180814msdv
Test Species: M. galloprovincialis
Animal Source: M. Bay
Date Received: 6/29/18
Test Chambers: 30mL glass shell vials
Sample Volume: 10 mL

Start Date/Time: 8/14/18 1600
End Date/Time: 8/16/18 1530
Technician Initials: [illegible]/AC/EG

Spawn Information

First Gamete Release Time: 1130

Sex	Number Spawning
Male	3
Female	2

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2	Light spawning, fair motility
Female 1	1	Uniform size, shape, color, low density, no fat
Female 2	2	Uniform size, shape, color, fair density, no fat
Female 3		

Egg Fertilization Time: 1245

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	98
Female 2	100
Female 3	

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 6 embryos

Number Counted:

7	3
7	8
5	5
3	8
4	7

Mean: 5.7

Mean 5.7 X 50 = 285 embryos/ml

Initial Density: 285 = 0.95 (dilution factor)
Desired Final Density: 300
(to inoculate with 0.5 ml)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No.	No. Dividing	Total	% Dividing	Mean % Dividing
TQ1	161	161	100	99.7
TQ2	162	162	100	
TQ3	150	150	100	
TQ4	140	141	99.3	
TQ5	154	155	99.4	

Q18AC8/16/18
48-h QC: ~~146~~ 143/156 = 91.7%

Comments: $\bar{X}$ = 153.4

QC Check: AC 8/31/18

Final Review: [illegible] 9/14/18

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

Pacific Topsmelt 96-hr Survival

CETIS Summary Report

Report Date: 20 Aug-18 10:21 (p 1 of 1)
Test Code: 180814aara | 15-6494-9229

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID: 01-6263-2491
Start Date: 14 Aug-18 16:00
Ending Date: 18 Aug-18 14:15
Duration: 94h

Test Type: Survival (96h)
Protocol: EPA/821/R-02-012 (2002)
Species: Atherinops affinis
Source: Aquatic Biosystems, CO

Analyst:
Diluent: Diluted Natural Seawater
Brine: Not Applicable
Age: 15d

Sample ID: 05-8591-1541
Sample Date: 14 Aug-18
Receive Date: 14 Aug-18
Sample Age: 16h

Code: 180814aara
Material: Copper chloride
Source: Reference Toxicant
Station: Copper Chloride

Client: Internal
Project:

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
20-9744-9467	96h Survival Rate	100	200	141.4	28.4%		Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	µg/L	95% LCL	95% UCL	TU	Method
17-8173-7294	96h Survival Rate	EC50	196.4	157.6	244.7		Spearman-Kärber

96h Survival Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	0.9	0.5818	1	0.6	1	0.1	0.2	22.22%	0.0%
50		4	1	1	1	1	1	0	0	0.0%	-11.11%
100		4	0.75	0.4453	1	0.6	1	0.09574	0.1915	25.53%	16.67%
200		4	0.55	0.2453	0.8547	0.4	0.8	0.09574	0.1915	34.82%	38.89%
400		4	0.1	0	0.2837	0	0.2	0.05774	0.1155	115.5%	88.89%
800		4	0	0	0	0	0	0	0		100.0%

96h Survival Rate Detail

C-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	0.6	1	1
50		1	1	1	1
100		0.8	0.6	0.6	1
200		0.4	0.4	0.8	0.6
400		0.2	0	0.2	0
800		0	0	0	0

Analyst:______ QA: EG 8/27/18

CETIS Analytical Report

Pacific Topsmelt 96-h Acute Survival Test **Nautilus Environmental (CA)**

Analysis ID: 20-9744-9467 **Endpoint:** 96h Survival Rate **CETIS Version:** CETISv1.8.7
Analyzed: 20 Aug-18 10:21 **Analysis:** Parametric-Control vs Treatments **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	28.4%	100	200	141.4	

Dunnett Multiple Comparison Test

Control	vs	C-µg/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		50	-0.907	2.356	0.298	6	0.9687	CDF	Non-Significant Effect
		100	1.377	2.356	0.298	6	0.2415	CDF	Non-Significant Effect
		200*	3.08	2.356	0.298	6	0.0126	CDF	Significant Effect
		400*	6.999	2.356	0.298	6	<0.0001	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.495081	0.6237702	4	19.47	<0.0001	Significant Effect
Error	0.4806227	0.03204151	15			
Total	2.975703		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1.132	4.893	0.3789	Equal Variances
Variances	Levene Equality of Variance	3.39	4.893	0.0364	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9557	0.866	0.4625	Normal Distribution

96h Survival Rate Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	0.9	0.5818	1	1	0.6	1	0.1	22.22%	0.0%
50		4	1	1	1	1	1	1	0	0.0%	-11.11%
100		4	0.75	0.4453	1	0.7	0.6	1	0.09574	25.53%	16.67%
200		4	0.55	0.2453	0.8547	0.5	0.4	0.8	0.09574	34.82%	38.89%
400		4	0.1	0	0.2837	0.1	0	0.2	0.05774	115.5%	88.89%
800		4	0	0	0	0	0	0	0		100.0%

Angular (Corrected) Transformed Summary

C-µg/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.23	0.8651	1.596	1.345	0.8861	1.345	0.1148	18.66%	0.0%
50		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	-9.33%
100		4	1.056	0.7075	1.405	0.9966	0.8861	1.345	0.1096	20.75%	14.17%
200		4	0.8407	0.5202	1.161	0.7854	0.6847	1.107	0.1007	23.96%	31.68%
400		4	0.3446	0.1258	0.5634	0.3446	0.2255	0.4636	0.06874	39.9%	72.0%
800		4	0.2255	0.2255	0.2256	0.2255	0.2255	0.2255	0	0.0%	81.67%

Analyst:______ QA: Eh 8/27/18

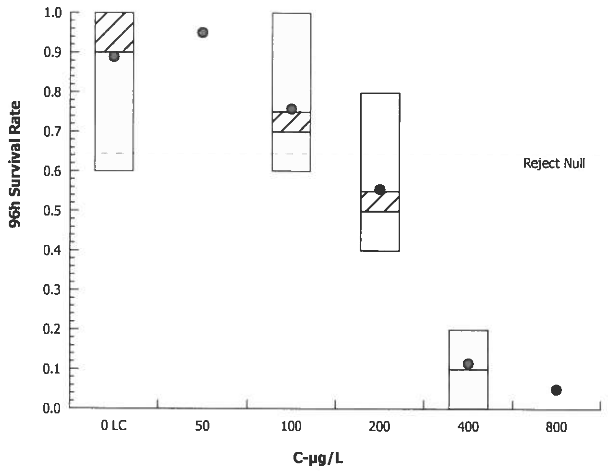
CETIS Analytical Report

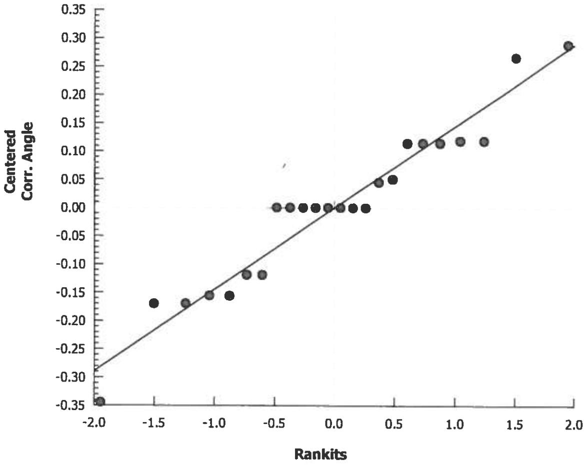
Report Date: 20 Aug-18 10:21 (p 2 of 2)
Test Code: 180814aara | 15-6494-9229

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID: 20-9744-9467
Analyzed: 20 Aug-18 10:21
Endpoint: 96h Survival Rate
Analysis: Parametric-Control vs Treatments
CETIS Version: CETISv1.8.7
Official Results: Yes

Graphics





Analyst:

QA: EG 8/27/18

CETIS Analytical Report

Report Date: 20 Aug-18 10:21 (p 1 of 1)
Test Code: 180814aara | 15-6494-9229

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	17-8173-7294	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	20 Aug-18 10:21	**Analysis:**	Untrimmed Spearman-Kärber	**Official Results:**	Yes

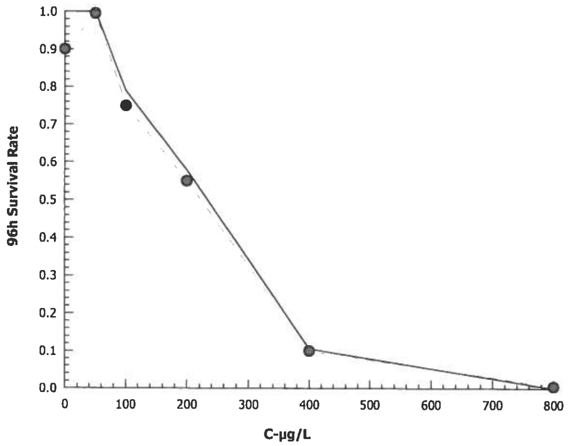
Spearman-Kärber Estimates

Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0.1	0.00%	2.293	0.04779	196.4	157.6	244.7

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-µg/L	**Control Type**	**Count**	**Mean**	**Min**	**Max**	**Std Err**	**Std Dev**	**CV%**	**%Effect**	**A**	**B**
0	Lab Control	4	0.9	0.6	1	0.1	0.2	22.22%	0.0%	18	20
50		4	1	1	1	0	0	0.0%	-11.11%	20	20
100		4	0.75	0.6	1	0.09574	0.1915	25.53%	16.67%	15	20
200		4	0.55	0.4	0.8	0.09574	0.1915	34.82%	38.89%	11	20
400		4	0.1	0	0.2	0.05774	0.1155	115.5%	88.89%	2	20
800		4	0	0	0	0	0		100.0%	0	20

Graphics



Analyst:

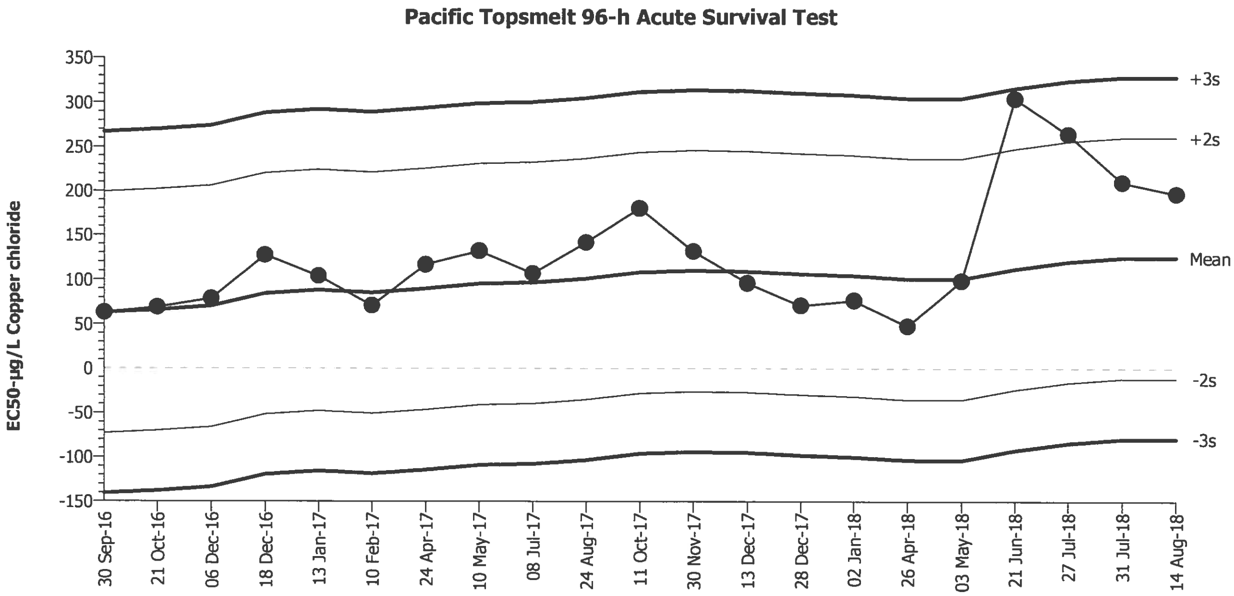
QA: EG 8/27/18

CETIS QC Plot

Report Date: 20 Aug-18 10:23 (1 of 1)

Pacific Topsmelt 96-h Acute Survival Test | **Nautilus Environmental (CA)**

Test Type:	Survival (96h)	**Organism:**	Atherinops affinis (Topsmelt)	**Material:**	Copper chloride
Protocol:	EPA/821/R-02-012 (2002)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	124.3	**Count:**	20	**-2s Warning Limit:**	-11.62	**-3s Action Limit:**	-79.59
Sigma:	67.97	**CV:**	54.70%	**+2s Warning Limit:**	260.3	**+3s Action Limit:**	328.2

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2016	Sep	30	15:30	63	-61.3	-0.9019			15-5016-1485	00-5251-2482
2		Oct	21	15:05	68.85	-55.45	-0.8158			12-5359-1342	08-1980-0032
3		Dec	6	14:00	78.46	-45.84	-0.6744			11-0191-2089	11-9997-9668
4			18	14:30	127.1	2.789	0.04103			07-4756-7914	09-8348-7658
5	2017	Jan	13	16:05	103.9	-20.37	-0.2998			06-1491-3172	18-6378-7266
6		Feb	10	14:50	70.71	-53.59	-0.7884			15-5537-9211	16-0070-6651
7		Apr	24	13:15	116.7	-7.617	-0.1121			04-2593-1548	15-9565-1968
8		May	10	15:25	132	7.651	0.1126			18-0705-1608	09-7991-9714
9		Jul	8	11:00	106.5	-17.84	-0.2625			02-7767-0662	04-3078-9331
10		Aug	24	14:45	141.4	17.12	0.2519			04-3270-4077	21-0546-3622
11		Oct	11	15:15	180.3	55.95	0.8232			09-8131-0051	08-6143-6647
12		Nov	30	12:15	131.5	7.17	0.1055			06-5828-7628	11-9084-4410
13		Dec	13	15:35	95.76	-28.54	-0.4199			20-5100-4727	07-8527-1377
14			28	13:00	70.71	-53.59	-0.7884			16-4874-9266	20-1729-5429
15	2018	Jan	2	15:00	76.37	-47.93	-0.7051			07-8786-9002	01-0853-3714
16		Apr	26	16:00	47.5	-76.8	-1.13			13-5076-1359	11-6152-1189
17		May	3	11:30	98.19	-26.11	-0.3841			10-2125-8586	19-5652-0046
18		Jun	21	17:15	304.1	179.8	2.645	(+)		01-0576-9762	09-0246-7639
19		Jul	27	15:45	263.9	139.6	2.054	(+)		14-8822-7369	11-4350-5971
20			31	16:30	209.6	85.29	1.255			19-5107-0005	20-6864-5330
21		Aug	14	16:00	196.4	72.08	1.061			15-6494-9229	17-8173-7294

Analyst:______

QA: EG 8/27/18

Marine Acute Bioassay
Static-Renewal Conditions

Water Quality Measurements
& Test Organism Survival

Client: Internal
Sample ID: $CuCl_2$
Test No.: 180814aara

Test Species: *A. affinis*
Start Date/Time: 8/14/2018 1600
End Date/Time: 8/18/2018 1415

	Tech Initials				
	0	24	48	72	96
Counts:	TN	TN	RH	TN	RT
Readings:	RH	TN	TN	TN	BO
Dilutions made by:	RH	—	RH	—	—
High conc. made (µg/L):	800	--	400	--	--
Vol. Cu stock added (mL):	16.0	-	8.0	--	--
Final Volume (mL):	2000	--	2000	--	--

Cu stock concentration (µg/L): 100,000

Concentration __(µg/L)__	Rand #	Number of Live Organisms					Salinity (ppt)					Temperature (°C) G1					Dissolved Oxygen (mg/L)					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	22	5	5	5	5	5	29.6	29.6	i 30.1	30.2	30.0	20.6	20.0	i 20.5	21.1	21.7	7.2	6.5	i 7.3	6.3	6.3	8.15	7.78	i 8.10	7.82	7.84
	2	5	5	5	5	3			f 29.4					f 20.6					f 6.0					f 7.74		
	10	5	5	5	5	5																				
	15	5	5	5	5	5																				
50	24	5	5	6	5	5	29.4	29.7	i 30.2	30.2	30.1	20.5	19.9	i 20.5	21.0	21.1	7.1	6.6	i 7.2	6.2	6.2	8.14	7.79	i 8.10	7.83	7.82
	8	5	5	5	5	5			f 29.7					f 20.6					f 6.0					f 7.74		
	17	5	5	5	5	5																				
	11	5	5	5	5	5																				
100	12	5	5	4	4	4	29.4	29.6	i 30.2	30.1	30.1	20.6	20.1	i 20.5	21.1	21.1	7.1	6.1	i 7.2	5.6	5.7	8.12	7.73	i 8.10	7.79	7.75
	4	5	5	4	4	3			f 29.7					f 20.6					f 5.5					f 7.65		
	1	5	5	5	4	3																				
	19	5	5	5	5	5																				
200	23	5	5	4	3	2	29.4	29.7	i 30.3	30.1	30.3	20.6	19.9	i 20.6	21.0	21.1	7.1	6.6	i 7.2	6.1	6.0	8.15	7.75	i 8.10	7.83	7.85
	13	5	5	5	4	2			f 29.7					f 20.6					f 5.8					f 7.72		
	14	5	5	5	5	4																				
	18	5	5	4	4	3																				
400	9	5	1	1	1	1	29.3	29.5	i 30.1	30.1	30.1	20.7	20.1	i 20.6	21.1	21.1	7.0	6.5	i 7.2	6.5	6.4	8.14	7.81	i 8.10	7.95	7.94
	16	5	1	1	0	—			f 29.5					f 20.6					f 6.1					f 7.76		
	7	5	1	1	1	1																				
	5	5	0	—	—	—																				
800	3	5	0				29.3	29.4	i -	-	-	20.6	20.0	i -	-	-	7.1	6.7	i -	-	-	8.12	7.81	i -	-	-
	21	5	0	ALL					f -					f -					f -					f -		
	6	5	0		DEAD																					
	20	5	0																							

Rand # QC: RH
Initial Counts QC'd by: KRP
Initiated by: KTP

Animal Source/Date Received: ABS 8/10/18
Age at Initiation: 15d
Animal Acclimation Qualifiers (circle all that apply): [✓ Q22] / Q23 / Q24 / none

	Feeding Times				
	0	24	48	72	96
AM:	--	0940	0900	0845	0900
PM:	1645	--	--	--	--

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal

Organisms fed prior to initiation, circle one ([✓ y] / n)

QC Check: AC 8/20/18

Final Review: EG 8/27/18

Appendix E

Laboratory Qualifier Codes

Glossary of Qualifier Codes:

Q1 - Temperatures out of recommended range; corrective action taken and recorded in Test Temperature Correction Log

Q2 - Temperatures out of recommended range; no action taken, test terminated same day

Q3 - Sample aerated prior to initiation or renewal due to dissolved oxygen (D.O.) levels below 6.0 mg/L

Q4 - Test aerated; D.O. levels dropped below 4.0 mg/L

Q5 - Test initiated with aeration due to an anticipated drop in D.O.

Q6 - Airline obstructed or fell out of replicate and replaced; drop in D.O. occurred

Q7 - Salinity out of recommended range

Q8 - Spilled test chamber/ Unable to recover test organism(s)

Q9 - Inadequate sample volume remaining, 50% renewal performed

Q10 - Inadequate sample volume remaining, no renewal performed

Q11 - Sample out of holding time; refer to QA section of report

Q12 - Replicate(s) not initiated; excluded from data analysis

Q13 - Survival counts not recorded due to poor visibility or heavy debris

Q14 - D.O. percent saturation was checked and was ≤ 110%

Q15 - Did not meet minimum test acceptability criteria. Refer to QA section of report.

Q16 - Percent minimum significant difference (PMSD) was <u>below</u> the lower bound limit for acceptability. This indicates that statistics may be over-sensitive in detecting a difference from the control due to low variability in the data set.

Q17 - Percent minimum significant difference (PMSD) was <u>above</u> the upper bound limit for acceptability. This indicates that statistics may be under-sensitive in detecting a difference from the control due to high variability in the data set.

Q18 - Incorrect Entry

Q19 - Illegible Entry

Q20 - Miscalculation

Q21 - Other (provide reason in comments section)

Q22 - Greater than 10% <u>mortality</u> observed upon receipt and/or in holding prior to test initiation. Organisms acclimated to test conditions at Nautilus and ultimately deemed fit to use for testing.

Q23 - Test organisms received at a <u>temperature</u> greater than 3°C outside the recommended test temperature range. However, due to age-specific protocol requirements and/or sample holding time constraints, the organisms were used to initiate tests upon the day of arrival. Organisms were acclimated to the appropriate test conditions upon receipt and prior to test initiation.

Q24 - Test organisms received at <u>salinity</u> greater than 3 ppt outside of the recommended test salinity range. However, due to age-specific protocol requirements and/or sample holding time constraints, the organisms were used to initiate tests upon the day of arrival. Organisms were acclimated to the appropriate test conditions upon receipt and prior to test initiation.

Updated: 6/30/15

APPENDIX E

CORRESPONDENCE AND AGENCY MEMORANDA

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LETTER FROM THE REGIONAL BOARD REGARDING COMMENTS ON 2012 SIYB TMDL MONITORING AND PROGRESS REPORT

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Attachment A

CALIFORNIA
Water Boards

Edmund G. Brown Jr.

Matthew Rodriquez

California Regional Water Quality Control Board, San Diego Region

July 26, 2013

Mr. Wayne Darbeau
President/CEO
San Diego Unified Port District
3165 Pacific Highway
San Diego, CA 92101

In reply refer to:
Place ID:650648:WChiu

Subject: **Comments on 2012 Shelter Island Yacht Basin Total Maximum Daily Load Monitoring and Progress Report**

Mr. Darbeau:

In accordance with Provision A.3 of Investigative Order No. R9-2011-0036, as amended, the San Diego Unified Port District (Port District) submitted the *2012 Shelter Island Yacht Basin Total Maximum Daily Load Monitoring and Progress Report* (Report) to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) on March 29, 2013. The San Diego Water Board has reviewed the Report and offers the following comments.

Compliance with Dissolved Copper Total Maximum Daily Load (TMDL)

The Shelter Island Yacht Basin (SIYB) TMDL includes the following compliance schedule:

Stage	Required Dissolved Copper Load Reduction	Compliance Date
1	0%	December 1, 2007
2	10%	December 1, 2012
3	40%	December 1, 2017
4	76%	December 1, 2022

The Port District's *Shelter Island Yacht Basin TMDL Implementation Compliance Monitoring Plan* (Monitoring Plan) proposed utilizing data associated with the conversion of boat hulls from copper based anti-fouling paints (AFPs) to alternative AFPs for the purpose of determining compliance with the first load reduction required by the December 1, 2012 compliance date. Based on the data submitted and information provided in the Report, the 10 percent reduction in dissolved copper loading required to demonstrate compliance with the SIYB TMDL by the December 1, 2012 compliance date was achieved.

Because of the progress that the Port District has been able to achieve by implementing the *Shelter Island Yacht Basin Dissolved Copper Total Maximum Daily Load Implementation Plan*

Tomas Morales, Chair | David Gibson, Executive Officer

9174 Sky Park Court, Suite 100, San Diego, CA 92123-4353 | (858) 467-2952 | www.waterboards.ca.gov/sandiego

♻ Recycled Paper

Attachment A

(Implementation Plan), the San Diego Water Board continues to support the dissolved copper load reduction approach described in the Implementation Plan. Converting boat hulls to alternative AFPs with little or no copper is still expected to have the greatest effect on reducing dissolved copper loads discharged to SIYB.

As long as the Port District continues implementing the Implementation Plan and demonstrates progress toward attainment of the dissolved copper load reduction required by the December 1, 2017 compliance date, the San Diego Water Board will continue to forego using its regulatory authority to implement the SIYB TMDL by regulating the discharge of dissolved copper to SIYB under waste discharge requirements (WDRs), conditional waivers of WDRs, waste discharge prohibitions, or through the issuance of enforcement actions. The San Diego Water Board will re-evaluate its regulatory options for implementing the SIYB TMDL after reviewing and considering each subsequent Annual Monitoring and Progress Report.

Monitoring Program Modification Recommendations

In the Report, the Port District recommended several modifications to the monitoring and data collection for the monitoring program, including the following:

a. Remove the free copper ion activity measurement from future monitoring because of the lack of USEPA guidance and time constraints caused by the instrument calibration process;

b. Include the Test of Significant Toxicity (TST) calculation as an additional statistical analysis for reporting toxicity data;

c. Remove the collection of hull registration data (i.e., vessel registration numbers) because of concerns expressed that this information may become part of a public document; and

d. To more accurately calculate the amount of copper loading to SIYB, allow the assumption that vessels with aged copper AFPs have a copper release (i.e. leaching or loading) rate similar to low copper AFPs (0.45 kg/yr) because the research (provided in Appendix E in the Report) indicates copper leach rates degrade over time, particularly after the first 2-3 years after application.

The information and documentation provided to support the Port District's recommendations to modify the monitoring and data collection for the monitoring program are acceptable to the San Diego Water Board. Please revise the Monitoring Plan in accordance with the recommended modifications described and submit it to the San Diego Water Board by September 30, 2013.

In closing, the San Diego Water Board appreciates the Port District's continued leadership and efforts towards achieving the required dissolved copper load reductions in SIYB.

Attachment A

In the subject line of any response, please include the reference number Place ID:650648:wchiu. For questions or comments, please contact Wayne Chiu by phone at 858-637-5558, or by email at wchiu@waterboards.ca.gov.

Respectfully,

David W. Gibson
Executive Officer

DWG:dtb:esb:wc

cc: Bay Club Marina
2131 Shelter Island Drive
San Diego, California 92106

Half Moon Anchorage
2131 Shelter Island Drive
San Diego, California 92106

San Diego Yacht Club
1011 Anchorage Lane
San Diego, California 92106

Shelter Island Marina
2051 Shelter Island Drive
San Diego, California 92106

Silver Gate Yacht Club
2091 Shelter Island Drive
San Diego, California 92106

Southwestern Yacht Club
2702 Qualtrough Street
San Diego, California 92106

Tech Staff Info & Use	
Order No.	R9-2001-0036
Party (GT/CIWQS) ID	NA
File No.	NA
WDID	NA
NPDES No.	NA
Reg. Measure ID	NA
Place ID	650648
Person ID	NA
Inspection ID	NA

LETTER TO THE REGIONAL BOARD REQUESTING VERIFICATION OF 2017 INTERIM COMPLIANCE

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PORT of
SAN DIEGO
Waterfront of Opportunity

June 28, 2018

California Regional Water Quality Control Board
San Diego Region
2375 Northside Drive, Suite 100
San Diego, CA 92108-2700
Attn: Mr. Wayne Chiu,

Subject: Request for verification of interim and final compliance targets for the Shelter Island Yacht Basin Dissolved Copper Total Maximum Daily Load Monitoring (TMDL)

Dear Mr. Chiu,

We thank you for meeting with the San Diego Unified Port District (Port) and Shelter Island Master Leaseholders Group (SIMLG) on May 24, 2018 to discuss the progress on the Shelter Island Yacht Basin TMDL and receive the findings from the 2017 TMDL Monitoring and Progress Report (2017 Report). We appreciate your time and commitment to this project.

As presented in the 2017 Report and discussed at the meeting, the District and the SIMLG continue to make diligent efforts to implement best management practices and reduce copper loads. We believe we continue to be in compliance with the TMDL. Moreover, as presented in the 2017 Report, a 45.4% load reduction was documented which surpasses the 2017 interim load reduction compliance target of 40%. It is our understanding from that meeting, that the 2017 interim target has been achieved. In addition, we also clarified that compliance with the final TMDL phase is the requirement to reduce copper loading to 567kg/yr., a 76% load reduction.

Having a clear understanding of compliance is critical as we approach the final phase of this TMDL and set our sights on successfully meeting the 76% loading reduction requirement. As such, the District is providing this letter to (1) memorialize our discussion at the May 24th meeting, and (2) respectfully request written confirmation from the Regional Board for the following items:

1. Confirmation that the 45.4% load reduction identified in 2017 Report and its supporting data satisfies the 2017 interim compliance target.
2. Confirmation of the final compliance target (567 kg/yr. copper loading) and compliance expectations (compliance based on copper loading).

We look forward to receiving your response. On behalf of the District we appreciate your continued support and participation and look forward to working with you as we embark on the final phase of this TMDL.

Please feel free to contact me at (619) 725-6073 or Kelly Tait at (619) 686-6372 if you have any questions on the TMDL Report or any other copper reduction efforts the District is undertaking.

Respectfully,

Karen Holman
Director, Environmental Protection
San Diego Unified Port District

KH/aa
CC via email:
Randa Coniglio, Jason H. Giffen, Kelly Tait, John Carter, Port
Shelter Island Master Leaseholders Group
Sharon Cloward, SDPTA

D2#1525641

LETTER FROM THE REGIONAL BOARD REGARDING REVIEW OF 2017 SIYB TMDL

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CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

San Diego Regional Water Quality Control Board

September 11, 2018

Karen Holman
Director, Environmental Protection
San Diego Unified Port District
3165 Pacific Highway
San Diego, CA 92101

In reply refer to / attn:
CW-650648:jhaas

Via email only: kholman@portofsandiego.org

Subject: REVIEW OF 2017 MONITORING REPORT, SHELTER ISLAND YACHT BASIN COPPER TMDL

Dear Ms. Holman,

Staff of the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) have reviewed the 2017 TMDL Monitoring and Progress Report (2017 Report) submitted in March 2018 regarding progress on the Shelter Island Yacht Basin Dissolved Copper Total Maximum Daily Load (Shelter Island TMDL). The Shelter Island Yacht Basin is a popular recreational marina located in the north end of San Diego Bay. The San Diego Water Board appreciates the San Diego Unified Port District (Port District) efforts to protect and restore water quality so that the Basin's water can support beneficial uses for people and wildlife.

The most sensitive beneficial uses of the Yacht Basin's waters are those designated for protection of marine aquatic life and aquatic dependent wildlife. Those beneficial uses are threatened or impaired due to elevated levels of dissolved copper. Copper used in antifouling paints to prevent buildup of marine organisms on a vessel's hull can leach into the environment where, even at low concentrations, it is toxic to a variety of aquatic organisms and is persistent in the environment. The combination of the large number of recreational vessels and reduced tidal flushing at Shelter Island Yacht Basin has resulted in concentrations of dissolved copper that exceed numeric water quality objectives for dissolved copper and narrative water quality objectives for toxicity and pesticides.

Twenty-two years ago (in 1996), the San Diego Water Board placed the Shelter Island Yacht Basin on the Clean Water Act Section 303(d) List of Water Quality Limited Segments due to elevated levels of dissolved copper in the water column. The San Diego Water Board adopted the Shelter Island TMDL in 2005, and the USEPA granted final approval of the TMDL in February 2006.

TOMAS MORALES, CHAIR | DAVID GIBSON, EXECUTIVE OFFICER

2375 Northside Drive, Suite 100, San Diego, California 92108-2700 | www.waterboards.ca.gov/sandiego

♻ RECYCLED PAPER

The TMDL calculated and established a loading capacity for dissolved copper discharges into the Shelter Island Yacht Basin of 1.6 kilograms/day or 567 kilograms/year. That meant that a 76 percent overall reduction of residual copper loading to the Yacht Basin would be required to restore the marine aquatic life and aquatic dependent wildlife beneficial uses. The TMDL established a phased compliance schedule for achieving that reduction as follows:

Interim Loading Targets for Attainment of the TMDL

Stage	Time Period	Percent Reduction from Current Estimated Loading	Estimated Interim Target Loading (kg/year of dissolved Cu)
Stage 1	Years 1-2	0%	n/a
Stage 2	Years 2-7	10%	1,900
Stage 3	Years 7-12	40%	1,300
Stage 4	Years 12-17	76%	567

The TMDL schedule was based on a timeline intended to minimize adverse economic impact to the boating community from the transition to alternative boat hull paints that were less toxic than the paints used when the TMDL was adopted in 2005. The TMDL schedule recognized that within 15 years, new boats docked in the Yacht Basin could reasonably be painted with nontoxic or less toxic coatings, and that the copper coating on existing boats could reasonably be replaced with nontoxic or less toxic coatings during routine hull stripping.

Notably, in 2013 Governor Brown signed Assembly Bill 425 (Atkins) and directed the Department of Pesticide Regulation (DPR) to establish a leach rate for copper-based antifouling paints to protect aquatic environments from the effects of exposure to copper-based antifouling paints. In January 2018 DPR issued its final decision to establish a maximum allowable copper leach rate of 9.5 µg/cm^2/day for all copper-based antifouling paint and coating products labeled for use on recreational vessels. DPR's new restrictions on copper-based antifouling paints and coatings became effective as of July 1, 2018.[1]

The Port District's 2017 Report marks the end of Stage 3 of the interim loading targets, and suggests that overall the Yacht Basin is meeting the 40 percent reduction target as a result of improved use of best management practices and vessel conversions to less toxic hull coatings.

Thus, in large part to the leadership of the Port District, loadings of dissolved copper have been significantly reduced even prior to the new DPR rule. With DPR's copper paint regulations newly in effect, both the Port District and the San Diego Water Board expect to see reductions in dissolved copper over the next few years.

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[1] Information on DPR's program is at https://www.cdpr.ca.gov/docs/registration/reevaluation/chemicals/antifoulant_paints.htm

(footnote continued on next page)

The 2017 Report also provides some water quality measurements to assess the status of the beneficial uses. Consistent with results of previous years, the 2017 data show dissolved copper continues to exceed the Water Quality Objectives at most sampling locations,[2] although only the two stations farthest inside the basin had statistically significant effects on developing mussel larvae (stations SIYB-1 and SIYB-2, see Attachment 1). While the dissolved copper loading rates are an indicator of progress toward TMDL attainment, ultimately water quality data as reported to the USEPA pursuant to Clean Water Act sections 305b and 303d will determine whether the beneficial uses are attained.

Both the Port District and the San Diego Water Board have recognized that the new DPR paint regulations cannot solely be relied upon to achieve the TMDL's final target and restore the impaired beneficial uses.[3] Ongoing and additional efforts by the Port District to ensure best management practices for paints and associated marina activities, combined with the new DPR regulations, provide a pathway for success. The San Diego Water Board has confidence in the Port District's leadership toward achieving the TMDL targets and restoring the beneficial uses.

For further questions regarding the Shelter Island TMDL, please contact Jeremy Haas at 619-521-3009 or Jeremy.Haas@waterboards.ca.gov.

Respectfully,

JAMES G. SMITH
Assistant Executive Officer

JGS:jch

Attachment: Shelter Island Yacht Basin Sampling Locations, from 2017 Report

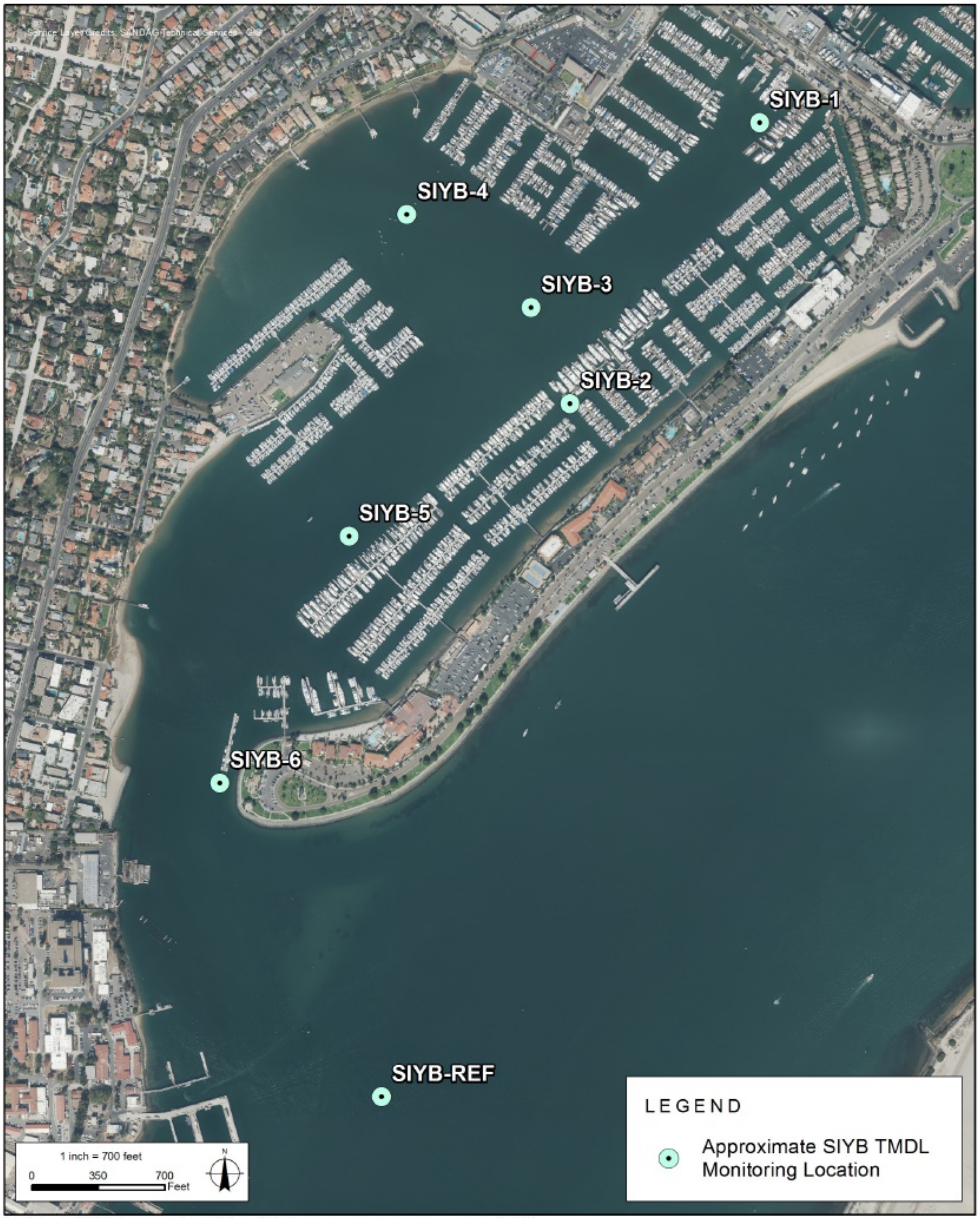
cc via email:
Kelly Tait, San Diego Unified Port District
Sharon Cloward, San Diego Unified Port District Tenants Association
Ruth Kolb, City of San Diego
Sue Keydel, USEPA Region IX
Jeremy Haas, Cynthia Gorham, Laurie Walsh, Wayne Chiu, San Diego Water Board

---

[2] Five of the six sampling stations exceeded the California Toxics Rule (CTR) criterion continuous concentration (CCC) water quality objective (WQO) of 3.1 µg/L, and four of the six stations exceeded the CTR acute criterion maximum concentration (CMC) WQO (4.8 µg/L).

[3] See Feb. 24, 2015 letter to DPR from the Port District and San Diego Water Board.

Attachment: Shelter Island Yacht Basin sampling locations. Figure 2-1 from the 2017 Report



Path: Q:\Aquatics\POSD\ShelterIsland\YachtBasin\MXD\Review\TMDL_MonitoringLocations_overview.mxd, corey.sheredy 7/11/2016

Figure 2-1. Shelter Island Yacht Basin TMDL Sampling Station Locations

REGIONAL BOARD EXECUTIVE OFFICER'S REPORT
(OCTOBER 2018)

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and viable ecological habitat. These activities, in combination with military land use activities and natural environmental conditions, have the potential to cause contaminated soil to become airborne and accumulate in areas where impacts to human and ecological receptors could occur, such as the military housing, school, and playground just east of the Agricultural Fields.

Discharges from the West Agricultural Fields and Maintenance Facility Compound to the Creek, Estuary, and Pacific Ocean pose a threat to water quality, designated beneficial uses, and ecological and human receptors. San Diego Water Board staff will continue efforts to stop these discharges and will update the Board as new information becomes available.

4. Shelter Island Yacht Basin Dissolved Copper TMDL Meets Stage 3 Milestone on Time

Staff Contact: Jeremy Haas

The Shelter Island Yacht Basin is a popular recreational marina located in the north end of San Diego Bay. Twenty-two years ago (in 1996), the San Diego Water Board placed the Shelter Island Yacht Basin on the Clean Water Act Section 303(d) List of Water Quality Limited Segments due to elevated levels of dissolved copper in the water column. The San Diego Water Board adopted the Shelter Island TMDL in 2005, and the USEPA granted final approval of the TMDL in February 2006. Since then the San Diego Unified Port District (Port District) has been working with marinas and the boating community in the Yacht Basin to reduce copper loading. Earlier this year, the Port District submitted the 2017 annual report on the progress of the Shelter Island TMDL.

The Shelter Island Yacht Basin

The Port District's 2017 Report demonstrates that overall the Yacht Basin is meeting the 40 percent reduction target set by the San Diego Water Board as an interim loading target to be met by 2018. The Port attributes the success to improved use of best management practices and vessel conversions to less toxic hull coatings.

The most sensitive beneficial uses of the Yacht Basin's waters are those designated for protection of marine aquatic life and aquatic dependent wildlife. Those beneficial uses are threatened or impaired due to elevated levels of dissolved copper. Copper used in antifouling paints to prevent buildup of marine organisms on a vessel's hull can leach into the environment where, even at low concentrations, it is toxic to a variety of aquatic organisms and is persistent in the environment.

The TMDL required that a 76 percent overall reduction of residual copper loading to the Yacht Basin to restore the marine aquatic life and aquatic dependent wildlife beneficial uses. The TMDL established a phased compliance schedule for achieving that reduction as follows:

Interim Loading Targets for Attainment of the Shelter Island Yacht Basin Dissolved Copper TMDL			
Stage	Time Period	Percent Reduction from Current Estimated Loading	Estimated Interim Target Loading (kg/year of dissolved Cu)
Stage 1	Years 1-2	0%	n/a
Stage 2	Years 2-7	10%	1,900
Stage 3	Years 7-12	40%	1,300
Stage 4	Years 12-17	76%	567

Notably, in 2013 Governor Brown signed Assembly Bill 425 (Atkins) and directed the Department of Pesticide Regulation (DPR) to establish a leach rate for copper-based antifouling paints to protect aquatic environments from the effects of exposure to copper-based antifouling paints. In January 2018 DPR issued its final decision to establish a maximum allowable copper leach rate of 9.5 µg/cm^2/day for all copper-based antifouling paint and coating products labeled for use on recreational vessels. DPR's new restrictions on copper-based antifouling paints and coatings became effective as of July 1, 2018.[4]

The 2017 Annual Report also provides some water quality measurements to assess the status of the beneficial uses. Consistent with results of previous years, the 2017 data show dissolved copper continues to exceed the Water Quality Objectives at most sampling locations,[5] although only the two stations farthest inside the basin had statistically significant effects on developing mussel larvae (stations SIYB-1 and SIYB-2, see Attachment 1). While the dissolved copper loading rates are an indicator of progress toward TMDL attainment, ultimately water quality data as reported to the USEPA pursuant to Clean Water Act sections 305b and 303d will determine whether the beneficial uses are attained.

Both the Port District and the San Diego Water Board have recognized that the new DPR paint regulations cannot solely be relied upon to achieve the TMDL's final target and restore the impaired beneficial uses. Ongoing and additional efforts by the Port District to ensure best management practices for paints and associated marina activities, combined with the new DPR regulations, provide a pathway for success.

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[4] Information on DPR's program is at https://www.cdpr.ca.gov/docs/registration/reevaluation/chemicals/antifoulant_paints.htm

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[5] Five of the six sampling stations exceeded the California Toxics Rule (CTR) criterion continuous concentration (CCC) water quality objective (WQO) of 3.1 µg/L, and four of the six stations exceeded the CTR acute criterion maximum concentration (CMC) WQO (4.8 µg/L).

In conclusion, in large part to the leadership of the Port District, loadings of dissolved copper have been significantly reduced even prior to the new DPR rule. With DPR's copper paint regulations newly in effect, reductions in dissolved copper should be observed over the next few years.

5. Partnering for a Cleaner River Bed, San Diego River

Staff Contact: Sheila Christine McQuaid Moran

It all started with a question – Can the Water Board help? Even though we were not sure how, our answer was "yes" because this project spoke directly to the Water Board's mission "to protect, enhance, and restore the quality of California's water resources" and aligned with the goals of our region's Practical Vision. In the end, not only was it possible, it made a significant impact and strengthened meaningful relationships with public and private partners.

What were we asked to do? The San Diego River Park Foundation (Foundation) needed us to combine services with the California Department of Fish and Wildlife (CDFW) to provide temporary dumpsters for the cleanup efforts of the Foundation to remove thousands of pounds of trash left behind after law enforcement cleared out a large transient encampment along the river in April 2017. Media coverage at the time provided perspective of what the Foundation was facing with this cleanup. One of the articles stated the encampment spanned almost an acre along the San Diego River near the 5900 block of Fairmont Avenue and was filled with tents, trash, waste, and what appeared to be a chop shop for stolen bicycles.[6] Another article estimated that encampment held about 50 tons of trash.[7] Both shared concerns for human health hazards and destruction of the habitat in that area as debris went right up to the edge of the river.

While we could not offer staff to assist in the cleanup, we could find funds to help with proper disposal of the waste. This would be a new type of partnership for us and required review and input from the State Water Board Division of Administrative Services (DAS). Initially, we considered the dumpsters and waste hauling to be a service, which could be done with a fairly simple service order. However, upon review of our request, DAS suggested the activities better aligned with the purposes of the State Board's Cleanup and Abatement Account (CAA) managed by the Division of Financial Assistance (DFA). Switching course and working with DAS, DFA, the Foundation, and potential contractors, we rapidly secured $4,836.00 to cover up to six dumpsters for the cleanup and disposal of waste from the large abandoned encampment during the period of May 17, 2017 – June 30, 2017 (see June 2017 EO Report).

Our continued task beyond the initial setup of funding was to manage the CAA contract and be a liaison between the Foundation and our contractor, EDCO Disposal Corporation (EDCO), to coordinate the delivery and removal of the dumpsters during the last month and a half of Fiscal Year 16. However, the contractor unexpectedly decided not to charge for tonnage fees. As a result, money left from the original cleanups in Fiscal Year 16 could support cleanups further down the river to the end of Fiscal Year 17 (June 2018). We coordinated dumpsters for a few more events until we estimated funds would be fully expended. Again, EDCO, the contractor, surprised us by listing all the dumpsters provided in Fiscal Year 17 as donations instead of

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[6] https://www.10news.com/news/volunteers-clean-up-massive-homeless-encampment-along-san-diego-river-in-mission-valley

[7] https://www.kpbs.org/news/2017/apr/26/volunteers-clean-large-san-diego-homeless-camp/

MARINA AND YACHT CLUB SELF-CERTIFICATION FORMS

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Marina Self-Certification Form
[Add Date]
JANUARY 15, 2019

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Michael J. Ardelt

NAME MICHAEL J. ARDELT
POSITION/TITLE GENERAL MANAGER
COMPANY NAME BAY CLUB HOTEL & MARINA LP

Gold Coast Anchorage

Marina Self-Certification Form
December 20, 2018

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Katherine Leisey

KATHERINE LEISEY
MARINA MANAGER
GOLD COAST ANCHORAGE

PO BOX 6633 • SAN DIEGO, CALIFORNIA 92166 • OFFICE: (619)222-4255 • FAX: (619)222-9109
MARINA LOCATED AT 2353 SHELTER ISLAND DR • SAN DIEGO, CALIFORNIA 92106

Marina Self-Certification Form
[Add Date] 12-20-18

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

NAME Richard BARTELL
TITLE/POSITION PRESIDENT
COMPANY NAME BARTELL Hotels dba Humphreys HALF MOON Inn and Suites

Marina Self-Certification Form

[Add Date]

1/14/19

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

, GM, KONA KAI MARINA

NAME

TITLE/POSITION

COMPANY NAME

PORT of
SAN DIEGO
Waterfront of Opportunity

VIA US MAIL AND ELECTRONIC MAIL

December 17, 2018

La Playa Yacht Club
Attn: Frank Taliaferro, Commodore
elon@cox.net
P.O. Box 6691
San Diego, CA 92166

Subject: SIYB Vessel Tracking Submittal Requirements

Dear Mr. Taliaferro,

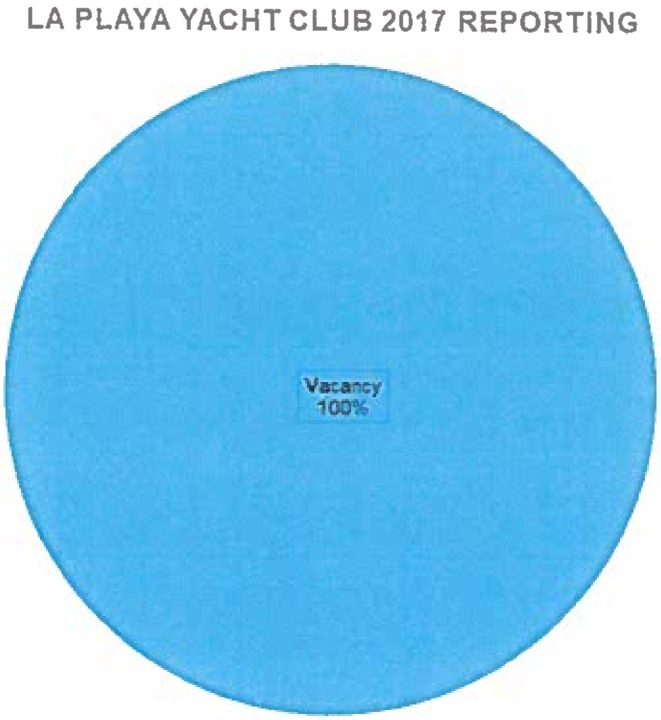
As you are aware, the Shelter Island Yacht Basin (SIYB) is under a Total Maximum Daily Load (TMDL) regulatory directive related to elevated levels of dissolved copper in the basin. The TMDL requires a 76% reduction of dissolved copper loading by the year 2022. To date, the Shelter Island Master Leaseholder Group (SIMLG) has been instrumental in gathering data on vessel hull paint, educating boaters on alternative paint options and coordinating with the Port on in-water hull cleaning permit oversight. The Port appreciates your assistance with these efforts.

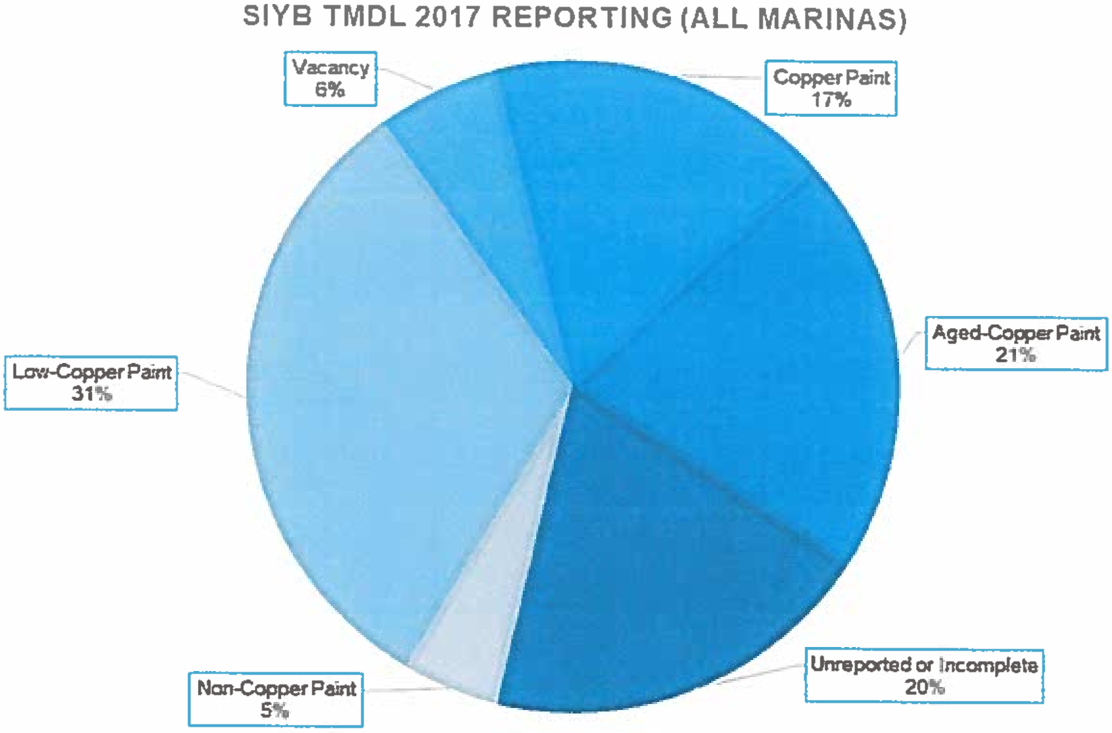
2017 marked an important compliance milestone for the SIYB TMDL that required an interim loading reduction requirement of 40%, which was achieved with an actual loading reduction of 45.4% and confirmed in October 2018 by the San Diego Regional Water Quality Control Board (Regional Board). The reporting of paint usage within each marina leasehold is essential in calculating the reduction as we work towards the final compliance requirement in 2022. As such, your assistance in providing accurate and timely information is critical to determining compliance and measuring progress towards the final compliance requirement in 2022.

Investigative Order No. R9-2011-0036 directs the Port to monitor and regularly report to the Regional Board on the progress being made in implementing the SIYB TMDL and achieving the required dissolved copper load reductions. Thank you for your efforts to this point in providing the paint usage and vessel occupancy data for your marina. We have seen an improvement in the amount of accurately reported data, however, there remains a large basin-wide fraction (20%) of vessels with unknown or incomplete paint records.

Attached to this letter is an assessment of last year's vessel paint tracking data comparing your marina with the average for all marinas in SIYB for the 2017 calendar year (Attachment 1). For 2017, the La Playa Yacht Club did not have any vessels. Thank you for reporting this

2017 Reporting Comparisons; Marina vs Basin-Wide





Marina Self-Certification Form
[Add Date]

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

[NAME
[TITLE / POSITION]
COMPANY NAME

Marina Self-Certification Form
[Add Date]

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Cathy Guarino, off. mgr. Crows nest Yachts

[NAME
[TITLE / POSITION]
[COMPANY NAME]

PORT of SAN DIEGO
Waterfront of Opportunity

VIA US MAIL AND ELECTRONIC MAIL

December 17, 2018

San Diego Yacht Club
Attn: Terry Anglin, General Manager
terry@sdyc.org
1011 Anchorage Lane
San Diego, CA 92106

Subject: SIYB Vessel Tracking Submittal Requirements

Dear Mr. Anglin,

As you are aware, the Shelter Island Yacht Basin (SIYB) is under a Total Maximum Daily Load (TMDL) regulatory directive related to elevated levels of dissolved copper in the basin. The TMDL requires a 76% reduction of dissolved copper loading by the year 2022. To date, the Shelter Island Master Leaseholder Group (SIMLG) has been instrumental in gathering data on vessel hull paint, educating boaters on alternative paint options and coordinating with the Port on in-water hull cleaning permit oversight. The Port appreciates your assistance with these efforts.

2017 marked an important compliance milestone for the SIYB TMDL that required an interim loading reduction requirement of 40%, which was achieved with an actual loading reduction of 45.4% and confirmed in October 2018 by the San Diego Regional Water Quality Control Board (Regional Board). The reporting of paint usage within each marina leasehold is essential in calculating the reduction as we work towards the final compliance requirement in 2022. As such, your assistance in providing accurate and timely information is critical to determining compliance and measuring progress towards the final compliance requirement in 2022.

Investigative Order No. R9-2011-0036 directs the Port to monitor and regularly report to the Regional Board on the progress being made in implementing the SIYB TMDL and achieving the required dissolved copper load reductions. Thank you for your efforts to this point in providing the paint usage and vessel occupancy data for your marina. We have seen an improvement in the amount of accurately reported data, however, there remains a large basin-wide fraction (20%) of vessels with unknown or incomplete paint records.

Attached to this letter is an assessment of last year's vessel paint tracking data comparing your marina with the average for all marinas in SIYB for the 2017 calendar year (Attachment 1). For 2017, the San Diego Yacht Club reported 7% of records that were unknown or incomplete. Thank you for your efforts, to date in collecting accurate vessel data. Please continue your efforts to obtain a high-quality data set for the basin.

The Port will continue to require the Marina Self-Certification form and 5-year Record Retention requirement for all data pertaining to the Investigative Order. The Self-Certification template is attached.

Thank you for your continued efforts to reduce copper loading into SIYB. We hope that with your assistance, we will continue to improve the data reporting. Signed certification statements can be sent via electronic mail to Kelly Tait, Senior Environmental Specialist at ktait@portofsandiego.org. Additionally, if you have any questions, please do not hesitate to contact Kelly at 619-686-6372 or at the aforementioned email address.

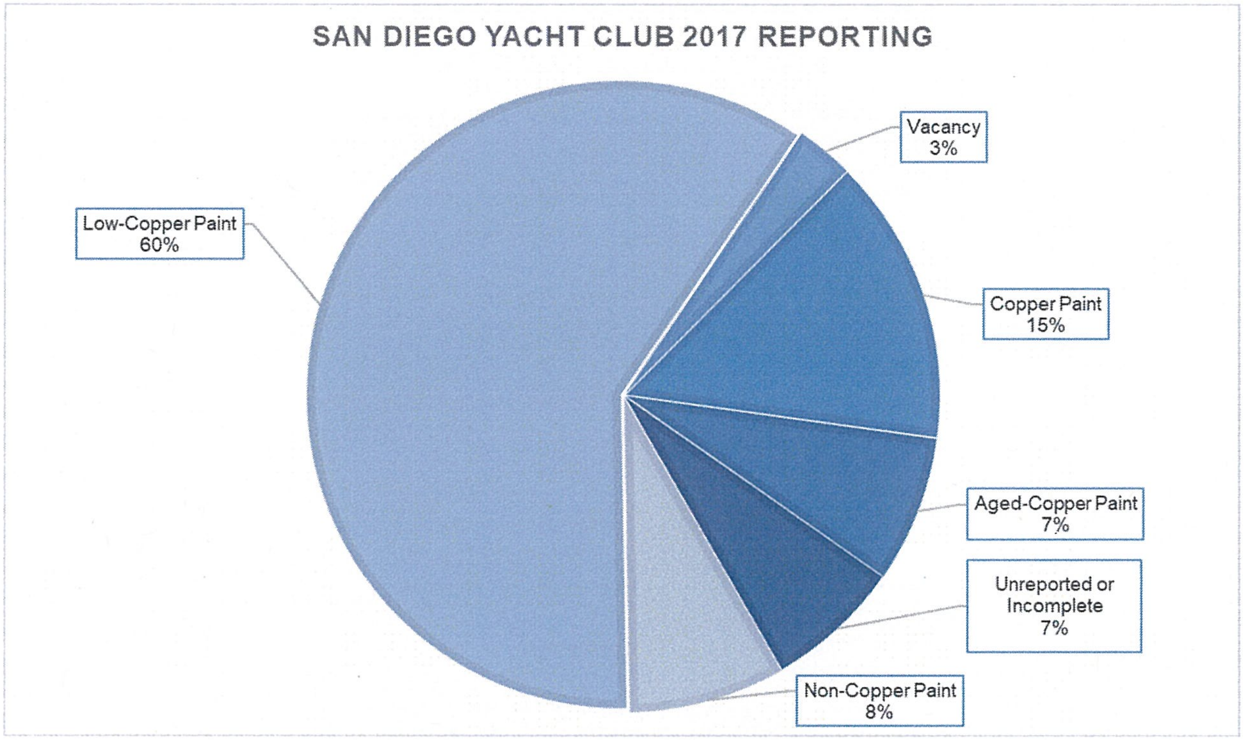
Sincerely,

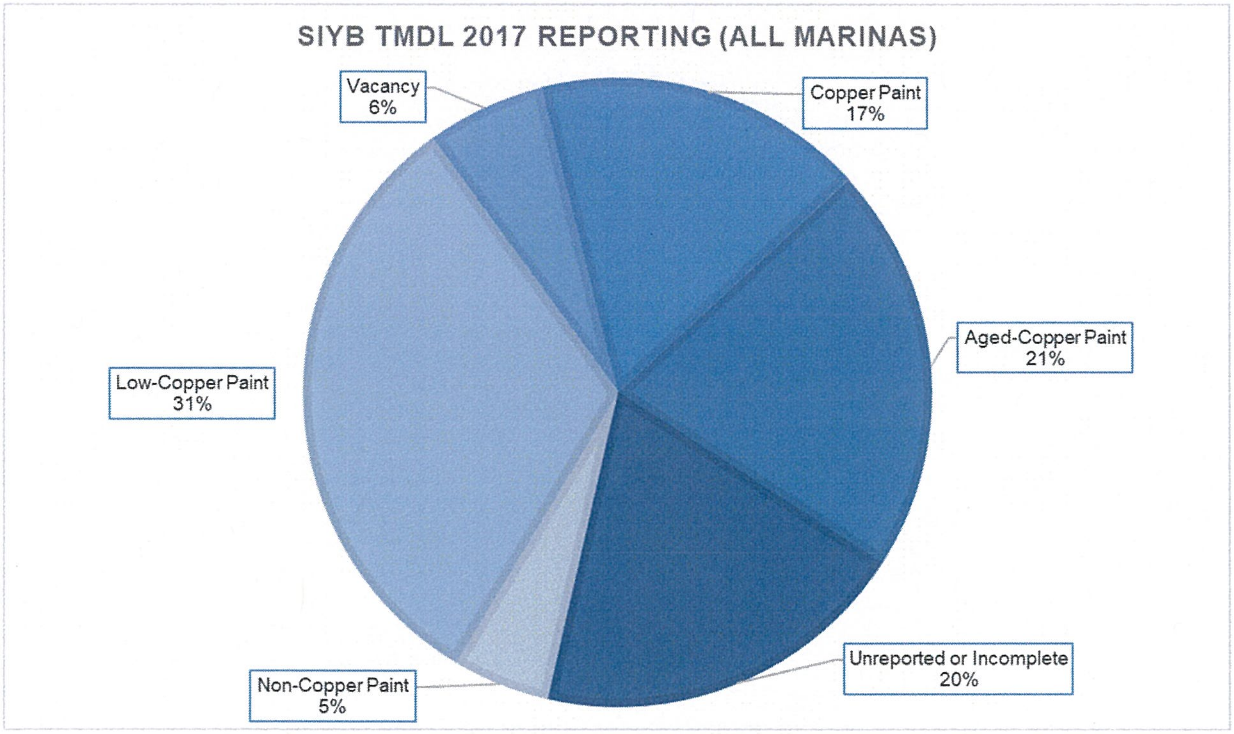
Karen Holman
Director, Environmental Protection
San Diego Unified Port District

Attachments:
Attachment 1: 2017 Vessel Tracking Statistics for SIYB and Marinas
Attachment 2: Marina Self-Certification Form

KT;aa

2017 Reporting Comparisons; Marina vs Basin-Wide





Marina Self-Certification Form
[Add Date] December 28th, 2018

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Ty Olsen

NAME Ty Olsen
TITLE/POSITION Dockmaster
COMPANY NAME San Diego Yacht Club

PORT of SAN DIEGO
Waterfront of Opportunity

VIA US MAIL AND ELECTRONIC MAIL

December 17, 2018

Silver Gate Yacht Club
Attn: Terry Van Winkle, Commodore
commodore@sgyc.org
2091 Shelter Island Drive
San Diego, CA 92106

Subject: SIYB Vessel Tracking Submittal Requirements

Dear Mr. Van Winkle,

As you are aware, the Shelter Island Yacht Basin (SIYB) is under a Total Maximum Daily Load (TMDL) regulatory directive related to elevated levels of dissolved copper in the basin. The TMDL requires a 76% reduction of dissolved copper loading by the year 2022. To date, the Shelter Island Master Leaseholder Group (SIMLG) has been instrumental in gathering data on vessel hull paint, educating boaters on alternative paint options and coordinating with the Port on in-water hull cleaning permit oversight. The Port appreciates your assistance with these efforts.

2017 marked an important compliance milestone for the SIYB TMDL that required an interim loading reduction requirement of 40%, which was achieved with an actual loading reduction of 45.4% and confirmed in October 2018 by the San Diego Regional Water Quality Control Board (Regional Board). The reporting of paint usage within each marina leasehold is essential in calculating the reduction as we work towards the final compliance requirement in 2022. As such, your assistance in providing accurate and timely information is critical to determining compliance and measuring progress towards the final compliance requirement in 2022.

Investigative Order No. R9-2011-0036 directs the Port to monitor and regularly report to the Regional Board on the progress being made in implementing the SIYB TMDL and achieving the required dissolved copper load reductions. Thank you for your efforts to this point in providing the paint usage and vessel occupancy data for your marina. We have seen an improvement in the amount of accurately reported data, however, there remains a large basin-wide fraction (20%) of vessels with unknown or incomplete paint records.

Attached to this letter is an assessment of last year's vessel paint tracking data comparing your marina with the average for all marinas in SIYB for the 2017 calendar year (Attachment 1). For 2017, the Silver Gate Yacht Club reported 5% of records that were unknown or incomplete. Thank you for your efforts, to date in collecting accurate vessel data. Please continue your efforts to obtain a high-quality data set for the basin.

The Port will continue to require the Marina Self-Certification form and 5-year Record Retention requirement for all data pertaining to the Investigative Order. The Self-Certification template is attached.

Thank you for your continued efforts to reduce copper loading into SIYB. We hope that with your assistance, we will continue to improve the data reporting. Signed certification statements can be sent via electronic mail to Kelly Tait, Senior Environmental Specialist at ktait@portofsandiego.org. Additionally, if you have any questions, please do not hesitate to contact Kelly at 619-686-6372 or at the aforementioned email address.

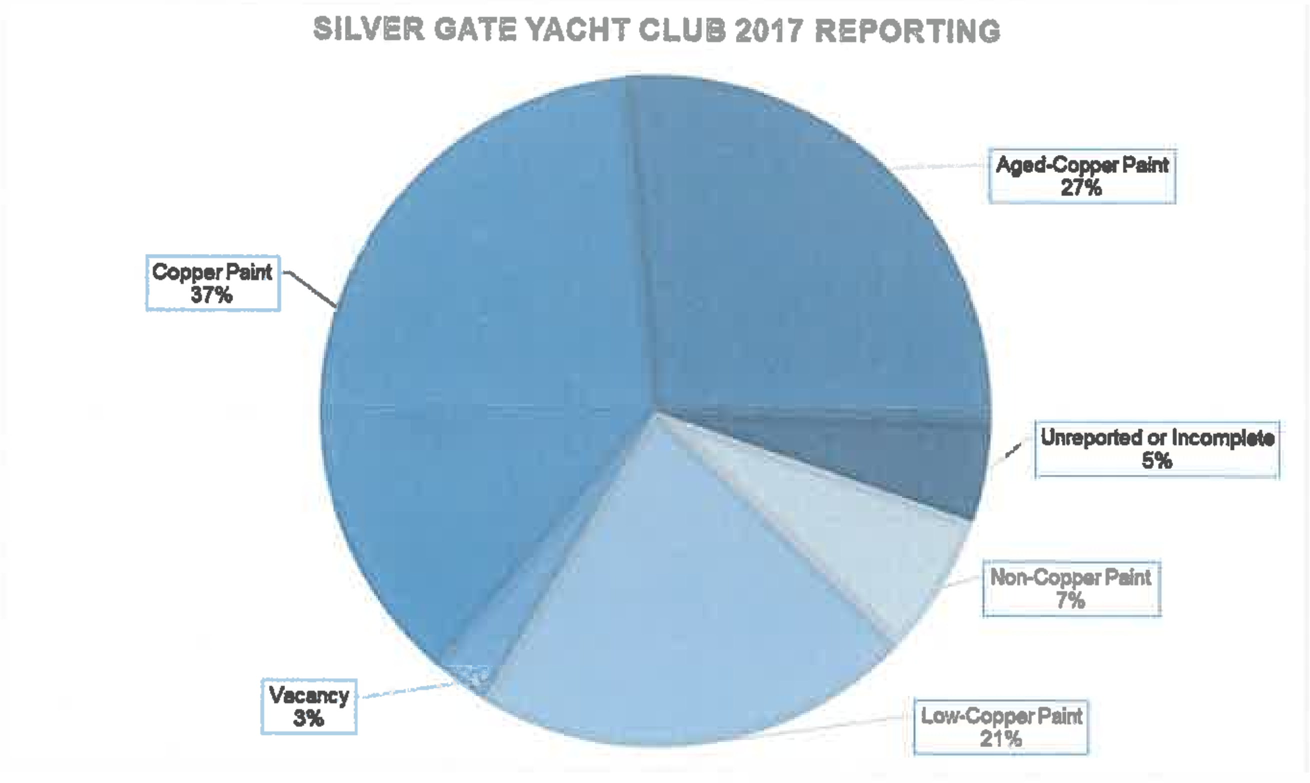
Sincerely,

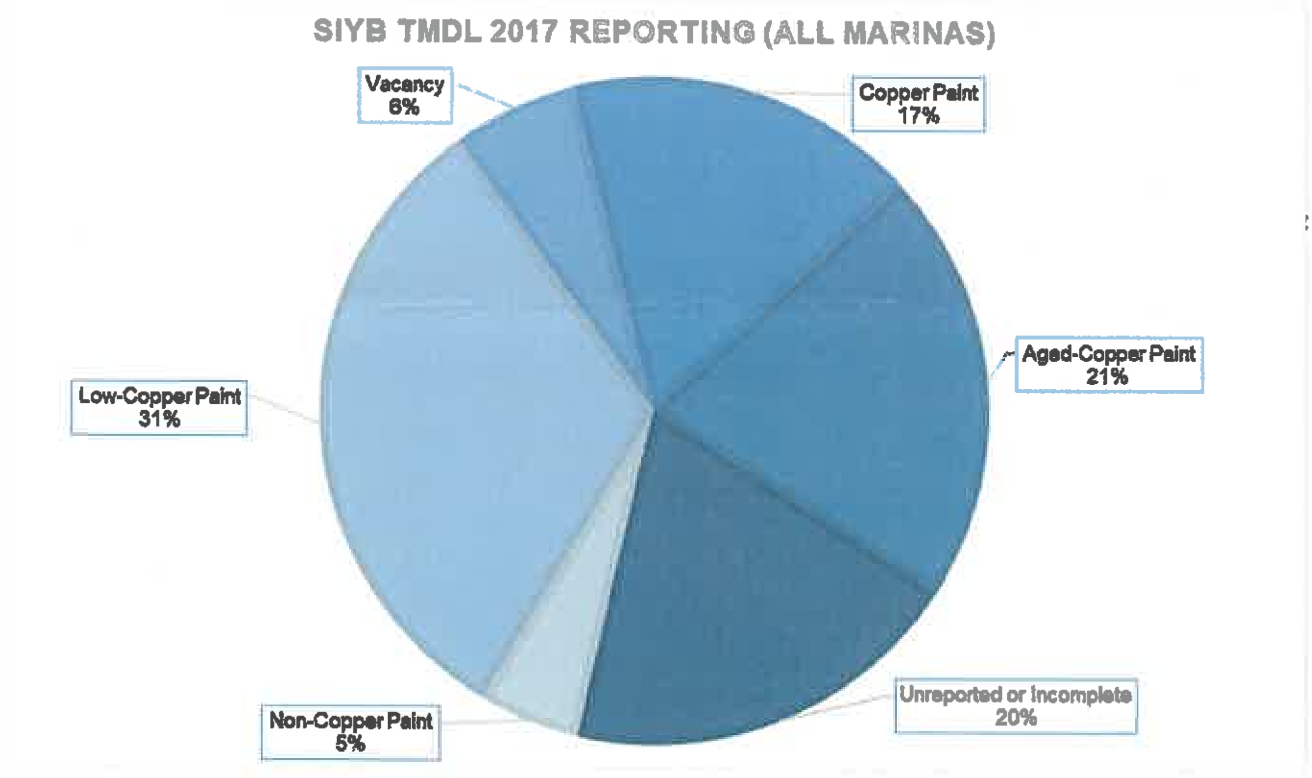
Karen Holman
Director, Environmental Protection
San Diego Unified Port District

Attachments:
- Attachment 1: 2017 Vessel Tracking Statistics for SIYB and Marinas
- Attachment 2: Marina Self-Certification Form

KT;aa

2017 Reporting Comparisons; Marina vs Basin-Wide





Marina Self-Certification Form
[Add Date]

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

NAME George Woodley
TITLE/POSITION Commodore
COMPANY NAME Silver Gate Yacht Club

Marina Self-Certification Form
[Add Date]

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

[NAME RICHARD BARTELL
[TITLE / POSITION] PRESIDENT
[COMPANY NAME] BARTELL Hotels dba Shelter Island MARINA

Marina Self-Certification Form
[Add Date] January 15, 2019

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

NAME Craig Wong
TITLE/POSITION General Manager
COMPANY NAME Southwestern Yacht Club

Marina Self-Certification Form TONGA LANDING
[Add Date] 1-8-19

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

NAME Ross Tefft
TITLE/POSITION President
COMPANY NAME Silver Seas Yachts