# Trust Lands Use Plan
# Revised Draft and Mitigated Negative Declaration
# Comments

***Comments received during the public review period:***

**February 21, 2025 – March 27, 2025**

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# Revised Draft TLUP and MND Comments

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## Comments from Agencies

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***GAVIN NEWSOM, Governor***
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March 25, 2025

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**TRUST LANDS USE PLAN**
**MITIGATED NEGATIVE DECLARATION**
**SCH #2025020759**

Dear Mr. Campbell:

The California Department of Fish and Wildlife (Department) received a Mitigated Negative Declaration (MND) from the San Diego Unified Port District (District) for the Trust Lands Use Plan (TLUP, Project), pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that the Department, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

**DEPARTMENT ROLE**

The Department is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the state. (Fish & G. Code, section 711.7, subd. (a) & 1802; Pub. Resources Code, section 21070; CEQA Guidelines section 15386, subd. (a).) The Department, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, section 1802.) Similarly for purposes of CEQA, the Department is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources. The Department is also responsible for

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

marine biodiversity protection under the Marine Life Protection Act in coastal marine waters of California, and ensuring fisheries are sustainably managed under the Marine Life Management Act.

## DEPARTMENT PERMITTING

The Department and the California Fish and Game Commission oversee and regulate aquaculture activities in the state under the authority provided by the Fish and Game Code and Title 14 of the California Code of Regulations. Section 235 of Title 14, California Code of Regulations requires the owner of each aquaculture facility that is used for the controlled growing and harvest of aquatic plants and animals in the state to register annually with the Department. Additional approvals required from the Department for aquaculture operations include importation permits for most live plant or animal species sourced from out of state (Cal. Code Regs, tit. 14, section 236), and broodstock collection permits for take of aquatic plants or animals for use as broodstock for aquaculture purposes (Cal. Code Regs, tit. 14, section 243). The Department may prohibit an aquaculture operation or the culturing of any species at any location where it is determined it would be detrimental to adjacent native wildlife (Fish & G. Code, section 15102). The Department encourages the District and prospective aquaculture operators within the South Central Bay Planning District to engage with the Department to ensure the culture species and operation plans will not detrimentally impact native wildlife.

## PROJECT DESCRIPTION SUMMARY

**Proponent:** San Diego Unified Port District

**Objective:** The objective of the TLUP is to set a comprehensive vision for the District's management of the approximately 8,000 acres of tidelands and submerged lands granted under Senate Bill 507. The TLUP is a planning document, therefore, it does not specify or authorize individual projects or site-specific developments. Alternatively, the TLUP offers a planning vision, guidance, and standards that will govern any potential future development within the TLUP boundaries. The TLUP governs the use, design, improvement, and preservation of these public trust lands and establishes specific goals, objectives, policies, and standards to:

1) Direct future use of the Senate Bill 507-granted trust lands including future development, preservation and other uses;
2) Facilitate a diverse range of uses and activities including, but not limited to, safe navigations, commerce, fisheries, and recreation;
3) Provide a broad range of proposed public improvements; and
4) Promote environmental stewardship of tidelands.

The TLUP is comprised of planning districts grouped by geographical areas in San Diego Bay which include water use designations, special allowances, planned improvements, and development standards. The four planning districts and the proposed future developments for each district discussed in the MND are as follows:

1) North Bay Planning District: Potential expansion of bait barges, baitfish storage, and associated vendor operations.

2) North Central Bay Planning District: Routine maintenance of the San Diego-Coronado Bay Bridge and pipelines which are existing uses and activities.

3) South Central Bay Planning District: Shellfish and seaweed aquaculture.

4) South Bay Planning District: Shoreline restoration or other shoreline adaptation strategies, if needed, to address coastal flooding on the Bayshore Bikeway and the development of seating, public art, signage, etc. in the Recreation Open Space area.

**Location:** The Project site is located within San Diego Bay waters (7,903 acres of submerged lands) and tidelands (99 acres of land in the South Bay Planning District).

## BIOLOGICAL SIGNIFICANCE

**Discussion and Comment:** San Diego Bay waters support many resident and migratory fish and special status wildlife such as seabirds, marine mammals, and sea turtles. Important marine plants such as eelgrass (*Zostera marina*) support those fish and wildlife species and may be present throughout shallow coastal environments in the San Diego Bay. Eelgrass is important as fish nursery habitat and supports juvenile and adult fish. San Diego Bay waters also support commercially and recreationally important fish and invertebrate species such as California halibut (*Paralichthys californicus*), California spiny lobster (*Panulirus interruptus*), barred sand bass (*Paralabrax nebulifer*), white seabass (*Atractoscion nobilis*), sea cucumbers (*Parastichopus* spp.), and the Northern anchovy (*Engraulis mordax*), which is an important forage fish.

Intertidal flats and salt marsh throughout San Diego Bay also provide important foraging habitat for shorebirds, including special-status species such as Western snowy plover (*Charadrius nivosus nivosus*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*). Sandy beaches and coastal dunes along the edges of San Diego Bay provide nesting habitat for California least tern (*Sternula antillarum*) and Western snowy plover. Coastal scrub communities in the terrestrial area surrounding the Bay provide nesting and foraging habitat for sensitive species such as coastal California gnatcatcher (*Polioptila californica*).

## COMMENTS AND RECOMMENDATIONS

The Department offers the comments and recommendations below to assist the District in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct, and indirect impacts on fish and wildlife resources.

**Individual Projects and Site-Specific Developments**

**Comments:** The Department understands that the TLUP is a planning document that offers a planning vision, guidance, and standards that will govern any potential future development within the TLUP boundaries. Therefore, the TLUP does not specify or authorize individual projects or site-specific developments. Additionally, site-specific design elements and associated impact-specific mitigation are not analyzed in high resolution within the MND.

**Recommendations:** The Department recommends that the MND note that all proposed future individual projects and site-specific developments within the TLUP area will be fully analyzed in subsequent CEQA documents. The future CEQA documents should include site-specific design elements, analyze project-specific impacts, and include impact-specific mitigation.

**Native Eelgrass Impacts**

**Comments:** Eelgrass is present throughout the bay, including within the TLUP North Bay Planning District area where the construction of overwater structures may occur and within the South Central Bay Planning District where installation and operation of aquaculture facilities may occur. Native eelgrass species create large beds beneficial for fish habitat and have been identified as special aquatic sites and given protections by the Clean Water Act. The Magnuson-Stevens Fishery Conservation and Management Act identifies eelgrass as a Habitat Area of Special Concern. Additionally, the importance of eelgrass protection and restoration, as well as the marine ecological benefits of eelgrass, is identified in Pub. Resources Code section 35630. The Department uses the California Eelgrass Mitigation Policy (CEMP) (NOAA 2014, Attachment 1), developed by the National Marine Fisheries Service (NMFS), for guidance on surveying eelgrass, avoiding and minimizing impacts to eelgrass, assessing eelgrass impacts, eelgrass mitigation measures and compensation, and for identifying appropriate eelgrass mitigation and donor sites.

**Recommendations:** The Department recommends that the District develops plans to avoid and minimize potential impacts to eelgrass to the maximum extent feasible if eelgrass beds or patches are identified within or adjacent to the project area. Future projects with construction and/or installation activities within the TLUP area should be developed consistent with the CEMP to avoid and minimize disturbance, damage, and losses of eelgrass. This includes avoiding impacts to eelgrass associated with construction of overwater structures; bottom disturbances; construction turbidity; sedimentation, shading, and falling debris; and shading and anchoring within eelgrass habitat associated with construction barges and vessels.

The Department appreciates that the MND included a mitigation measure (MM-BIO-01) to conduct comprehensive pre- and post-construction eelgrass surveys consistent with the CEMP if any unavoidable eelgrass impacts, such as shading from overwater coverage, occur. Additionally, according to MM-BIO-01, the

Department appreciates that any impacts to eelgrass will be mitigated for using guidance described within the CEMP.

If eelgrass harvest and transplanting is required for mitigation, a Scientific Collecting Permit (SCP) from the Department will be required prior to harvest and transplanting activities. The SCP may include permit conditions such as donor eelgrass surveys, submittal of an eelgrass harvest and transplant plan, limits on number of turions collected, methods for collection and transplanting, notification of activities, and reporting requirements. Please visit the Department's SCP webpage for more information: https://wildlife.ca.gov/Licensing/Scientific-Collecting.

**Fisheries Impacts**

**Comments:** The Department is concerned that the TLUP's shellfish and seaweed aquaculture operations in the South Central Bay Planning District could impact numerous commercial and recreational fisheries. Adverse impacts could result from the loss of accessible fishing area, loss or damage of fishing gear from snagging on infrastructure, navigational hazards, degradation of habitat, and effects on wild populations. The South Central Bay Planning District is located within Essential Fish Habitat for various federally managed fish species within the Pacific Coast Groundfish Fishery Management Plan (FMP), Coastal Pelagic Species FMP, and FMP for U.S. West Coast Fisheries for Highly Migratory Species under the Magnuson-Stevens Fishery Conservation and Management Act. The site is also located within potential habitat and fishing areas for state-managed fisheries, such as California halibut (*Paralichthys californicus*), spiny lobster (*Panulirus interruptus*), Northern anchovy (*Engraulis mordax*), barred sand bass (*Paralabrax nebulifer*), white seabass (*Atractoscion nobilis*), and sea cucumbers (*Parastichopus* spp.).

**Recommendations:** The Department recommends that future CEQA analyses for proposed aquaculture operations in the TLUP include a detailed analysis of commercial and recreational fisheries that focus on impacts to both federally and state managed fisheries, species, and associated habitats. The fisheries analyses should be described in detail in the future CEQA analyses, including any outreach to the fishing community. The CEQA analyses should also include discussion of mitigation measures.

**Aquaculture Impacts**

**Comments:** Aquaculture facilities could impact wildlife in a variety of ways such as entanglement, behavioral changes, displacement of native species, and altering the genetic composition of wild populations. The Department is concerned about potential entanglement of marine mammals, sea turtles, and birds associated with activities and gear, particularly buoy and grow ropes, for the TLUP's proposed aquaculture operations in the South Central Bay Planning District. As the MND noted, the protected marine mammal and sea turtle species found in San Diego Bay could be at risk of entanglement due to the aquaculture operations. Seabirds may

also become entangled when feeding. Aquaculture operations also have the potential to alter species behavior and use of the TLUP area for feeding, breeding, and migration.

The Department is also concerned with the potential for cultured shellfish and seaweed species to naturalize outside of cultivation areas and impact native marine species. Although no culture species are identified in the MND or TLUP, several commonly cultivated species in California, including the Pacific oyster, are non-native species that have the potential to naturalize outside of cultivation areas and impact native marine species. Over the past two decades, the Pacific oyster has colonized all the San Diego County estuarine systems (Crooks et al. 2015). In San Diego Bay, monitoring trends since 2013 reveal substantial increases in non-native Pacific oyster densities and indicate now-regular recruitment (Wolfe et al. 2024). Rising temperatures have been linked to this increase in density and the potential to displace native species and modify habitat has become a management concern (Herbert et al. 2012; Herbert et al. 2016). As sea temperature rises, spawning events in San Diego Bay may become more frequent and result in further colonization of non-native cultured species.

Seaweed aquaculture in California waters is a nascent industry with many unknowns in potential impacts to native wildlife. Seaweed aquaculture has the potential to increase the competition for light among other autotrophic organisms, including pelagic phytoplankton and benthic macroalgae. Similarly, competition for nutrients may also be increased. A reduction in the abundance of phytoplankton during the growing season was observed at a large-scale kelp farm in China (Shi et al., 2011). Changes in primary productivity can have consequential impacts on marine food webs. Farmed kelp material that escapes the aquaculture facility may also interact with wildlife. Kelp may break or detach from aquaculture gear or release reproductive material into the environment with potential adverse impacts. Interbreeding between hatchery-raised individuals and wild individuals can potentially alter the genetic composition of wild populations, which can cause a loss of genetic diversity and fitness in wild populations and alter ecosystem function. Additionally, if kelp fragments escaping the farm carry pathogens, parasites, or non-native species, there are additional risks to adjacent wild populations.

**Recommendations:** The Department appreciates that the District has committed to preparing and implementing measures (MM-BIO-02) to minimize risks to marine wildlife by including mitigation plans for essential fish habitat, benthic impacts, and green sea turtle entanglement hazards. The Department recommends that future CEQA analyses for proposed projects within the TLUP and Aquaculture Mitigation plans developed under MM-BIO-2 address all potential impacts to wild fish populations and other marine wildlife that may result from interactions with the proposed aquaculture operation.

The CEQA analyses should discuss how the proposed project will avoid, minimize, and respond to wildlife interactions, including entanglement and release of farmed

shellfish and seaweed material, which have the potential to significantly impact marine resources. The Department recommends that the District consult with NMFS regarding any other necessary avoidance and mitigation measures to reduce impacts to marine mammals and sea turtles. The Department recommends that the CEQA analyses discuss how aquaculture gear will withstand storm events and include protocols for regular inspection of infrastructure to prevent entanglements and marine debris.

The CEQA analyses should detail measures to address the impacts of shading and increased competition of light among other autotrophic organisms and release of farmed shellfish or seaweed material. The Department recommends that Aquaculture Mitigation Plans developed under MM-BIO-2 incorporate avoidance, minimization, and mitigation measures to reduce the potential for naturalization of cultured species.

**Changes to Water Quality and Hydrodynamics**

**Comments:** The proposed TLUP aquaculture operations may result in changes to oceanographic conditions that could impact marine resources. Possible changes in hydrodynamics caused by aquaculture facilities may exacerbate impacts due to nutrient enrichment and/or lead to changes in sedimentation and larval transport and dispersal. In an area of high-density suspended kelp and bivalve aquaculture in China, He et al. (2022) found that alterations in onshore currents, upwelling, and water exchange led to a significant reduction in nutrient supply. However, most research on this topic has occurred in nearshore environments. There is a need to better understand the hydrodynamic effects of San Diego Bay aquaculture facilities and how these effects may lead to changes in the transport of nutrients, sediment, and larvae.

**Recommendations:** The Department recommends the future CEQA analyses for proposed aquaculture operations in the TLUP evaluate potential impacts to oceanographic conditions including water quality, benthic conditions, and hydrodynamics that may be caused by the project's development. The project applicant should describe best management practices that will minimize waste and water quality impacts. To best track changes to oceanographic conditions and the benthic community, the Department recommends that the implementation of ongoing monitoring that includes baseline assessments of habitat and ocean conditions in the area prior to construction. The applicant should consult with the Department and other resource agencies when developing monitoring plans.

**Invasive Species and Disease Transmission**

**Comments:** The Department is concerned about possible introduction of invasive species and/or pathogens resulting from the proposed TLUP aquaculture operations. Aquaculture gear and equipment may also facilitate introduction or spread of

invasive species that require habitat with three-dimensional structure or hard substrate.

**Recommendations:** The Department recommends the future aquaculture projects within the TLUP develop and maintain a Hazard Analysis and Critical Control Point (HACCP) plan detailing measures to detect and control aquatic invasive species and pathogens at the facility. The HACCP plan should include methods to prevent the introduction of aquatic invasive species into the facility and operational practices that prevent the spread of aquatic invasive species within and outside the facility as well as a detailed monitoring plan. A comprehensive HACCP is critical to the protection of State resources from invasive species and disease transmission.

**Monitoring and Oversight**

**Comments:** A strong monitoring program is key to the preservation of marine resources and the success of any marine aquaculture project, including for any proposed aquaculture project within the TLUP.

**Recommendations:** The Department recommends that comprehensive monitoring and reporting plans be established for future aquaculture projects within the TLUP. The plans should include, but not be limited to, regular independent monitoring to assess proper gear functioning and required maintenance, impacts to fish and wildlife resources, water quality impacts, changes to hydrodynamics and sediment deposition, benthic and substrate impacts, and introduction/transport of pathogens and invasive species. The plans should also include procedures for marine debris management (with unique marking/branding of all aquaculture gear with contact information) and rapid reporting of entanglement events. The Department recommends working with state and federal resource agencies to include in the plan detailed adaptive management strategies to determine trigger points that, when reached, require consultation and corrective actions to avoid negative impacts.

**Invasive Species Impacts**

**Comments:** Disturbance of the bottom sediments from construction and anchoring may redistribute non-native species that compete with native species. This could cause widespread adverse impacts to eelgrass and marine ecology. The invasive alga *Caulerpa taxifolia* is listed as a federal noxious weed under the U.S. Plant Protection Act and while deemed eradicated in 2006 is monitored for potential future emergence. Another invasive alga species found recently in Newport Bay and San Diego Bay is *Caulerpa prolifera*, which is also a potential threat to growth and expansion of native eelgrass beds and other native algae. *Caulerpa prolifera* can grow as deep as 50 meters and appears to be more tolerant of low light environments than most other macroalgae. Additionally, since all *Caulerpa* species pose a serious risk in harming native marine life, Fish and Game Code Section 2300 was amended in 2023 so that no person shall sell, possess, import, transport, transfer, release alive in the state, or give away without consideration all species of

the genus *Caulerpa*, with the exception of bona fide scientific research upon authorization by the Department.

**Recommendations:** Prior to any bottom-disturbing construction activities such as anchoring onto the San Diego Bay floor, the Department recommends conducting pre-construction *Caulerpa spp.* surveys to identify potential existence of invasive *Caulerpa spp.* in accordance with the Caulerpa Control Protocol https://media.fisheries.noaa.gov/2021-12/caulerpa-control-protocol-v5.pdf (October 2021). Any sightings of *Caulerpa spp.* should be reported within 24 hours to the Department (Caulerpa@wildlife.ca.gov), and NMFS at 562-980-4037 (nmfs.wcr.caulerpa@noaa.gov).

**Shoreline Adaptation Strategies**

The TLUP proposes ECO Policy 1.1.19 to ensure that the District prioritizes the use of nature-based solutions composed of natural or sustainable materials that increase shoreline biodiversity and coastal resiliency. Examples of nature-based adaptation strategies included in the TLUP include, but are not limited to, living shorelines, beneficial reuse of sediment and sand replenishment, and habitat restoration. The MND notes that shoreline restoration and other shoreline adaptation strategies are included within the TLUP to address coastal flooding on the Bayshore Bikeway in the South Bay Planning District. Additionally, the South Central Bay District's vision includes increased conservation through restoration, living shorelines, and other efforts that enhance habitat, water quality, and coastal resiliency. The Department understands that the TLUP is a planning document, so no individual nature-based projects are specified within the MND. The Department anticipates providing additional comments related to shoreline adaptation strategies for the CEQA analyses for proposed aquaculture operations in the TLUP and looks forward to coordinating with the District.

**Special-Status Plant Impacts**

**Comments:** The MND provides a compendium of special-status terrestrial plant species known to occur in the Project region. Several CESA-listed species were identified as having a low or moderate potential to occur on the Project site, including: coastal dunes milk-vetch (*Astragalus tener* var. *titi;* CESA endangered; ESA endangered; California Rare Plant Rank (CRPR) 1B.1), salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*; CESA endangered; ESA endangered; CRPR 1B.2), and Orcutt's spineflower (*Chorizanthe orcuttiana*; CESA endangered; ESA endangered; CRPR 1B.2). While TLUP is a planning document and does not identify individual Project impacts nor site-specific development, the MND incorporates Mitigation Measure BIO-3 (MM-BIO-3) to provide mitigation framework for potential impacts to special-status terrestrial plants. The measure includes focused surveys for special-status plant species during the appropriate bloom period. If special-status species are detected, the MND currently requires a Conceptual Restoration Plan; this Plan includes relocation and seed collection for the purposes

of off-site compensatory mitigation, as well as a post-relocation management and monitoring requirement.

The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to sensitive plant species, as studies have shown that these efforts are experimental in nature and largely unsuccessful. Research shows that even under optimal conditions, transplantation was effective in only 15% of cases studied (Fiedler, 1991). Additional research (Howald, 1996) highlights the challenges associated with transplanting rare species, including the stress caused by digging, transport, replanting, the lack of reliable and scientifically tested methods for safely handling and relocating plants, and the potential disruption of existing population dynamics when introducing individuals to a new area that may already be at carrying capacity.

Given that transplanting rare plants to new locations often has limited success, should the Port pursue these methods as mitigation for sensitive plant species, the MND or any Project-specific CEQA documents should provide strong evidence to demonstrate the feasibility of the proposed mitigation for the species affected. If translocation is determined to be feasible for a particular species, a Translocation Plan should be developed and provided to the Wildlife Agencies for review and comment. The Plan should include provisions for what will occur in the event the mitigation fails. In the probable scenario that translocation is not feasible, based on the life history of the species, then compensatory mitigation should be pursued. This mitigation should include seed collection, a five-year monitoring and management component, and be accompanied by an in-perpetuity land protection instrument (i.e., a conservation easement) and a non-wasting endowment.

Furthermore, the Department considers adverse impacts to a species protected by CESA, for the purposes of CEQA, to be significant without mitigation. Take of any endangered, threatened, or candidate species that results from the project is prohibited, except as authorized by state law (Fish & G. Code, sections 2080, 2085). Consequently, if the Project or any Project-related activity during the life of the Project will result in take of a species designated as endangered or threatened, or a candidate for listing under CESA, the Department recommends that the Project proponent seek appropriate take authorization under CESA prior to implementing the Project. Appropriate authorization from the Department may include an incidental take permit (ITP) or a consistency determination (CD) in certain circumstances, among other options (Fish and G. Code sections 2080.1, 2081, subds. (b),(c)). Early consultation is encouraged, as significant modification to a Project and mitigation measures may be required in order to obtain a CESA Permit. The Project-specific CEQA document must address all Project impacts to CESA-listed species and specify a mitigation monitoring and reporting program that will meet the requirements of an ITP. The biological mitigation monitoring and reporting proposals should be of

sufficient detail and resolution to satisfy the requirements for a CESA ITP. The Project proponent must also ensure adequate dedicated funding (e.g., a non-wasting endowment) to implement and monitor the success criteria of the measures (Fish and G. Code section 2081).

**Recommendations:** The Department recommends that MM-BIO-3 in the MND be updated to include the following changes, indicated in ~~strikethrough~~ and **bold**: Focused surveys shall be conducted to determine the presence/absence of federally and/or state listed plant species, or CRPR 1B.1 or 1B.2 species previously observed, or with high or moderate potential to occur. For species that can only be reliably detected during specific blooming periods, focus**ed** surveys ~~may need to~~ **will** be conducted during those periods to determine presence/absence. **If CESA or ESA listed plant species are identified in the Project area, the Wildlife Agencies (the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service) shall be notified. If the Project may result of take of any CESA endangered, threatened, or candidate plant species, the project Proponent shall seek appropriate take authorization under CESA prior to implementing the Project.** If ~~these~~ **sensitive** species occur within the proposed construction, access, staging, or stockpiling areas of a future project, one of two ~~equally suitable~~ options shall be implemented:

1. Construction areas shall be modified to avoid direct impacts to mapped sensitive plant species. **If special-status plants are detected, the Project biologist shall flag individual plants and/or install temporary fencing around populations of sensitive plants. Best Management Practices shall include worker education, to ensure that all impacts to sensitive plants are avoided.**

**If impacts to sensitive plant species cannot be feasibly avoided, then:**

**2. Compensatory mitigation for impacts to sensitive plants shall include:**

A. Implement**ation of** an approved Conceptual Restoration Plan or acquisition of mitigation credits**, which shall be approved by the Wildlife Agencies prior to implementation. The Conceptual Restoration Plan shall** ~~that~~ provide~~s~~ one or more of the following measures**, if determined to be feasible**:

i. Impacted plants would be salvaged and relocated; **if translocation is selected, the Project-specific CEQA document and Conceptual Restoration Plan shall provide strong evidence to demonstrate the feasibility of the proposed mitigation for the species affected. If translocation is determined not to be feasible, compensatory mitigation shall be pursued, which will include seed collection, a five-year monitoring and management component, and be accompanied by an in-perpetuity land protection instrument (i.e., a conservation easement) and a non-wasting endowment.**

ii. Seeds from impacted plants would be collected for use at an off-site location;

iii. Off-site habitat that supports the species impacted shall be enhanced and/or supplemented with seed collected on site; and/or

iv. Comparable habitat supporting the species at an off-site location shall be preserved.

B. Mitigation that involves relocation, enhancement, or transplanting sensitive plants may be conducted in combination with other habitat mitigation (e.g., wetlands HMMP) and shall include the following:

i. Conceptual planting plan, including grading and temporary irrigation if necessary to create appropriate habitat conditions to support the species;

ii. Planting specifications (e.g., seed source, soil suitability, container size);

iii. Monitoring program including success criteria (e.g., a minimum number of sensitive plant individuals, a minimum percent cover of native species, a maximum percent cover of non-native species); and

iv. 5-year post construction maintenance and preservation plan (e.g., sensitive plant monitoring, adaptive management actions).

**v. Provisions for what will occur in the event the mitigation fails.**

**California Least Tern**

**Comments:** The MND indicates that California least tern have a high potential to occur in the TLUP area. The California least tern was listed as endangered in 1970 under the authority of the Federal ESA, designated as fully protected in 1970, and listed as endangered in 1971 under the authorities of CESA. As a fully protected species, take cannot be authorized for least tern and impacts must be fully avoided. California least tern exhibit high nest site fidelity from year to year (Atwood and Massey 1988). Construction and noise-generating activities within 500 feet of known nest sites should not overlap the beginning of nesting season, as they could preclude terns from returning to the nesting site. Mitigation Measure BIO-4 (MM BIO-4) provides mitigation framework for future Projects under the TLUP which may impact bird species, including measures specific to California least tern. While the Department appreciates inclusion of the mitigation framework to guide future Projects, we recommend several revisions to ensure that impacts to California least tern are avoided.

**Recommendations:** To avoid take of California least tern, the Department recommends that MM-BIO-4 in the MND be amended to include the following changes, indicated in ~~strikethrough~~ and **bold**:

For California least terns specifically:

- Noise generating activities shall be conducted outside of the California least tern nesting season (September 16th to March 31st).
- If the nesting season cannot be avoided and the project is within 500 feet of ~~a~~ **suitable** nest**ing habitat**, then **a California least tern monitoring and avoidance plan shall be prepared for review and approval by the California Department of Fish and Wildlife and the US Fish and Wildlife Service (collectively the Wildlife Agencies), prior to the beginning of construction activities. The plan shall include, at a minimum:** California least tern pre-construction nest surveys~~,~~ **and** nest monitoring.~~, and~~ **A 500-foot buffer and/or** sound and visual barriers shall be implemented prior to the beginning of construction activities**. The buffer and/or barriers shall be** subject to District approval, ~~which may~~ **and shall** include consultation with ~~USFWS~~ **the Wildlife Agencies** ~~where appropriate~~, including as part of any required permit application by the project proponent. **Noise levels shall not exceed 60 dBA or pre-construction ambient levels, whichever is higher, as measured from the edge of the 500-foot buffer. A biological monitor shall be on site during all noise-generating activities.**
- **If the Project area is within 0.5 miles of a known nesting site, construction activities shall not overlap with the beginning of nesting season (April 1), as construction noise may prevent California least terns from returning to known nest sites.**
- When construction activities will occur within ~~500 feet~~ **0.5 miles** of suitable California least tern nesting habitat, a qualified biologist shall conduct surveys prior to activity initiation.
- If a nest is detected, **the Wildlife Agencies shall be notified, and** a 500-foot buffer shall remain in place until the nest has fledged or is no longer active. No loud construction activities **or human disturbance** shall occur within the 500-foot buffer.
- The qualified biologist shall remain on-site during all construction activities that occur within, or adjacent to, nesting habitat for California least tern during the nesting season to ensure compliance with the 500-foot buffer and to modify or stop work in accordance with this mitigation measure. **If California least tern behavior modification or nest abandonment is observed within, or outside of, the buffer area, work shall be halted and the Wildlife Agencies shall be notified.**

**Light-footed Ridgway's Rail**

**Comments:** The MND identifies a high potential for light-footed Ridgway's rail (rail) to occur within the TLUP area, particularly in coastal salt marsh habitat. Rail is both ESA and CESA-listed endangered, as well as a state fully protected species. Given rail's reliance on high-quality salt marsh habitat for breeding and foraging, any project that alters or disturbs these areas might result in impacts such as nest abandonment,

loss of eggs, reduced health and vigor, or loss of young rails. Habitat loss and degradation remain the primary threats to rails, as coastal salt marshes have experienced severe declines due to urbanization, hydrological alterations, and rising sea levels (Zembal et al. 2023). MM BIO-4 incorporates measures specific to rail within the mitigation framework for future TLUP Projects which may impact sensitive bird species. Rails are highly dependent on vocal communication for territory defense and mate attraction, making them particularly susceptible to acoustic disturbances that could mask their calls, increase stress levels, or increase vulnerability to predation (Zembal et al. 2014). Studies have shown that anthropogenic noise can decrease avian reproductive success, leading to decreased numbers of fledglings and smaller clutch sizes (Halfwerk et al. 2011). Due to rail's vulnerability to disturbance, the Department recommends that construction adjacent to rail habitat be avoided during nesting season. Given rail's strong nesting site fidelity, construction and noise generating activities within 500 feet of potential habitat should not overlap the beginning of breeding season (March 15), as disturbances during this time could preclude successful pairing and nesting. The Department recommends that future projects in the TLUP either improve or avoid altering wetland habitat which may support the species. The Department recommends revising the rail-specific measures in MM BIO-4 and incorporating into the MND as an independent mitigation measure, to ensure that impacts to rail are fully avoided. Additionally, any proposed mitigation should include a long-term monitoring program to assess rail presence, reproductive success, and habitat conditions post-project implementation.
**Recommendations:** To avoid impacts to light-footed Ridgway's rail, the Department recommends that MM-BIO-4 in the MND be amended to include the following changes, indicated in ~~strikethrough~~ and **bold**:

For light-footed Ridgway's rail specifically:

- Noise generating activities within 500 feet of suitable nesting habitat (i.e., coastal salt marsh) shall be conducted outside of the light-footed Ridgway's rail nesting season (September 16th to March 14th).
- If the nesting season cannot be avoided, a minimum of three focused pre-construction surveys shall be conducted within suitable habitat on separate days, to determine the presence of Ridgway's rails in or adjacent to the project impact area. Surveys shall begin a maximum of 7 days prior to performing project construction and one survey will be conducted the day immediately prior to performing project construction. **Surveys shall be conducted by a qualified biologist, approved by the Wildlife Agencies. The biologist resume shall demonstrate previous experience surveying for light-footed Ridgway's rail and identifying calls and detections following the most recent protocols (e.g.**

**U.S. Fish and Wildlife Service survey protocols[2]), including utilizing playback calls. Results of the surveys shall be provided to the Wildlife Agencies prior to the start of Project construction.**

- Before each day of work begins in or within 500 feet of coastal salt marsh habitat, the qualified biologist shall survey the construction area to determine if Ridgway's rails have entered the area. If any rails are found within the survey area, the biologist shall either stop noise-generating work or, if feasible, direct construction personnel to begin in an area more than 500 feet from the rails.
- **If rails are detected, noise levels within the 500-foot buffer shall not exceed 60 dBA or pre-construction ambient noise levels, as measured from the edge of the buffer.**
- If a nest is detected, a 500-foot buffer shall remain in place until the nest has fledged or is no longer active. No loud construction activities **or noise levels exceeding 60 dBA** shall occur within the 500-foot buffer.
- **For Projects which occur within 500 feet of suitable nesting habitat, construction activities shall not overlap the beginning of nesting season (March 15), as construction noise may prevent light-footed Ridgway's rail from pairing with a mate.**
- The qualified biologist shall remain on-site during all construction activities that occur within, or adjacent to, nesting habitat for light-footed Ridgway's rail during the nesting season to ensure compliance with the 500-foot buffer and to modify or stop work in accordance with this mitigation measure. **Work shall halt immediately if any modifications in light-footed Ridgway's rail behavior is observed, or if a nest is abandoned, and the Wildlife Agencies shall be notified.**
- **For any projects which occur within 500 feet of occupied rail habitat, a long-term monitoring program shall be prepared to assess rail presence, reproductive success, and habitat conditions post-project implementation. The program shall be approved by the Wildlife Agencies.**

**ENVIRONMENTAL DATA**

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, section 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be filled out and submitted online at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

[2] California Ridgway's (Clapper) Rail Survey Protocol | FWS.gov

**ENVIRONMENTAL DOCUMENT FILING FEES**

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by the Department. Payment of the environmental document filing fee is required for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, section 753.5; Fish & G. Code, section 711.4; Pub. Resources Code, section 21089.)

**CONCLUSION**

The Department appreciates the opportunity to comment on the MND to assist the District in identifying and mitigating Project impacts on biological resources. Questions regarding this letter or further coordination should be directed to Leslie Hart, Environmental Scientist at R7CEQA@wildlife.ca.gov.

Sincerely,

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## ATTACHMENTS

Attachment 1: NMFS. 2014. California Eelgrass Mitigation Policy, National Marine Fisheries Service.

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NOAA FISHERIES
West Coast Region

# California Eelgrass Mitigation Policy and Implementing Guidelines

## October 2014

Photo credit: www.Lorenz-Avelar.com

## Table of Contents

## I. National Marine Fisheries Service's (NMFS) California Eelgrass Mitigation Policy

### A. Policy Statement

It is NMFS' policy to recommend **no net loss of eelgrass habitat function** in California.

For all of California, compensatory mitigation should be recommended for the loss of existing eelgrass habitat function, but only after avoidance and minimization of effects to eelgrass have been pursued to the maximum extent practicable. Our approach is congruous with the approach taken in the federal Clean Water Act guidelines under section 404(b)(1) (40 CFR 230). In absence of a complete functional assessment, eelgrass distribution and density should serve as a proxy for eelgrass habitat function. Compensatory mitigation options include comprehensive management plans, in-kind mitigation, mitigation banks and in-lieu-fee programs, and out-of-kind mitigation. While in-kind mitigation is preferred, the most appropriate form of compensatory mitigation should be determined on a case-by-case basis.

Further, it is the intent of this policy to ensure that there is no loss associated with delays in establishing compensatory mitigation. This should be accomplished by creating a greater amount of eelgrass than is lost, if the mitigation is performed contemporaneously or after the impacts occur. To achieve this, NMFS, in most instances, should recommend compensatory mitigation for vegetated and unvegetated eelgrass habitat be successfully completed at a ratio of at least 1.2:1 mitigation area to impact area. This ratio is based on present value calculation[1] using a discount rate of 0.03 (NOAA-DARP 1999). This ratio assumes that restored eelgrass habitat achieves habitat function comparable to existing eelgrass habitat within a period of three years or less (Hoffman 1986, Evans & Short 2005, Fonseca *et al.* 1990).

For ongoing projects, once mitigation has been successfully implemented to compensate for the loss of eelgrass habitat function within a specified footprint, NMFS should not recommend additional mitigation for subsequent loss of eelgrass habitat if 1) ongoing project activities result in subsequent loss of eelgrass habitat function within the same footprint for which mitigation was completed and 2) the project applicant can document that no new area of eelgrass habitat is impacted by project activities.

This policy does not address mitigation for potential eelgrass habitat. NMFS recognizes impacts to potential eelgrass habitat may preclude eelgrass movement or expansion to suitable unvegetated areas in the future, potentially resulting in declines in eelgrass abundance over time. In addition, it does not address other shallow water habitats. Regulatory protections in the estuarine/marine realm typically focus on wetlands and submerged aquatic vegetation. Mudflats, sandflats, and other superficially bare habitats do not garner the same degree of recognition and

[1] Present Value (PV) is a calculation used in finance to determine the present day value of an amount that is received at a future date. The premise of the equation is that receiving something today is worth more than receiving the same item at a future date; $PV = C_1/(1+r)^n$ where $C_1$= resource at period 1, r= interest or discount rate, n=number of periods.

concern, even though these are some of the most productive and fragile ecosystems (Reilly *et al*. 1999). NMFS will continue to collaborate with federal and state partners on these issues.

### B. Eelgrass Background and Information

Eelgrass species (*Zostera marina* L. and *Z. pacifica*) are seagrasses that occur in the temperate unconsolidated substrate of shallow coastal environments, enclosed bays, and estuaries. Eelgrass is a highly productive species and is considered to be a "foundation" or habitat forming species. Eelgrass contributes to ecosystem functions at multiple levels as a primary and secondary producer, as a habitat structuring element, as a substrate for epiphytes and epifauna, and as sediment stabilizer and nutrient cycling facilitator. Eelgrass provides important foraging areas and shelter to young fish and invertebrates, food for migratory waterfowl and sea turtles, and spawning surfaces for invertebrates and fish such as the Pacific herring. Eelgrass also provides a significant source of carbon to the detrital pool which provides important organic matter in sometimes food-limited environments (*e.g.*, submarine canyons). In addition, eelgrass has the capacity to sequester carbon in the underlying sediments and may help offset carbon emissions. Given the significance and diversity of the functions and services provided by seagrass, Costanza *et al.* (2007) determined seagrass ecosystems to be one of Earth's most valuable.

California supports dynamic eelgrass habitats that range in extent from less than 11,000 acres to possibly as much as 15,000 acres statewide. This is inclusive of estimates for poorly documented beds in smaller coastal systems as well as open coastal and insular areas. While among the most productive of habitats, the overall low statewide abundance makes eelgrass one of the rarest habitats in California. Collectively just five systems, Humboldt Bay, San Francisco Bay, San Diego Bay, Mission Bay and Tomales Bay support over 80 percent of the known eelgrass in the state. The uneven distribution of eelgrass resources increases the risk to this habitat and also contributes to its dynamic nature. Further, the narrow depth range within which eelgrass can occur further places this habitat at risk in the face of global climate change and sea level rise predictions.

Seagrass habitat has been lost from temperate estuaries worldwide (Duarte 2002, Lotze *et al.* 2006, Orth *et al.* 2006). While both natural and human-induced mechanisms have contributed to these losses, impacts from human population expansion and associated pollution and upland development is the primary cause (Short and Wyllie-Echeverria 1996). Human activities that affect eelgrass habitat distribution and abundance, including, but not limited to, urban development, harbor development, aquaculture, agricultural runoff, effluent discharges, and upland land use associated sediment discharge (Duarte 2008) occur throughout California. For example, dredging and filling; shading and alteration of circulation patterns; and watershed inputs of sediment, nutrients, and unnaturally concentrated or directed freshwater flows can directly and indirectly destroy eelgrass habitats. Conversely, in many areas great strides have been made at restoring water quality and expanding eelgrass resources through directed efforts at environmental improvements and resource enhancement. While improvements in eelgrass management have occurred overall, the importance of eelgrass both ecologically and economically, coupled with ongoing human pressure and potentially increasing degradation and losses associated with climate change, highlight the need to protect, maintain, and where feasible, enhance eelgrass habitat.

## C. Purpose and Need for Eelgrass Mitigation Policy

Eelgrass warrants a strong protection strategy because of the important biological, physical, and economic values it provides, as well as its importance to managed species under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Vegetated shallows that support eelgrass are also considered special aquatic sites under the 404(b)(1) guidelines of the Clean Water Act (40 C.F.R. § 230.43). The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) developed this policy to establish and support a goal of protecting this resource and its habitat functions, including spatial coverage and density of eelgrass habitats. This NMFS policy and implementing guidelines are being shared with agencies and the public to ensure there is a clear and transparent process for developing eelgrass mitigation recommendations.

Pursuant to the MSA, eelgrass is designated as an essential fish habitat (EFH) habitat area of particular concern (HAPC) for various federally-managed fish species within the Pacific Coast Groundfish Fishery Management Plan (FMP) (PFMC 2008). An HAPC is a subset of EFH that is rare, particularly susceptible to human-induced degradation, especially ecologically important, and/or located in an environmentally stressed area. HAPC designations are used to provide additional focus for conservation efforts.

This policy and guidelines support but do not expand upon existing NMFS authorities under the MSA, the Fish and Wildlife Coordination Act (FWCA), and the National Environmental Policy Act (NEPA). Pursuant to the EFH provisions of the MSA, FWCA, and obligations under the NEPA as a responsible agency, NMFS annually reviews and provides recommendations on numerous actions that may affect eelgrass resources throughout California. Section 305(b)(1)(D) of the MSA requires NMFS to coordinate with, and provide information to, other federal agencies regarding the conservation and enhancement of EFH. Section 305(b)(2) requires all federal agencies to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency that may adversely affect EFH. Under section 305(b)(4) of the MSA, NMFS is required to provide EFH Conservation Recommendations to federal and state agencies for actions that would adversely affect EFH (50 C.F.R. § 600.925). NMFS makes its recommendations with the goal of avoiding, minimizing, or otherwise compensating for adverse effects to EFH. When impacts to NMFS trust resources are unavoidable, NMFS may recommend compensatory mitigation to offset those impacts. In order to fulfill its consultative role, NMFS may also recommend, among other things, the development of mitigation plans, habitat distribution maps, surveys and survey reports, progress milestones, monitoring programs, and reports verifying the completion of mitigation activities.

Eelgrass impact management and mitigation throughout California has historically been undertaken without a statewide strategy. Federal actions with impacts to eelgrass require considerable NMFS staff time for project review, coordination and development of conservation recommendations. As federal staff resources vary with budgets, and threats to aquatic resources remain steady or increase, regulatory streamlining and increased efficiency are crucial for continued protection of important coastal habitats, including eelgrass. The California Eelgrass Mitigation Policy (CEMP) is meant to increase efficiency of existing regulatory authorities in a

programmatic manner, provide transparency to federal agencies and action proponents, and ensure that unavoidable impacts to eelgrass habitat are fully and appropriately mitigated. It is the intent of NMFS to collaborate with other federal, state, and local agencies charged with the protection of marine resources to seek a unified approach to actions affecting eelgrass such that consistency across agencies with respect to this resource may be enhanced.

## D. Relevance to Other Federal and State Policies

Based on our understanding of existing federal and state policies regarding aquatic resource conservation, the CEMP does not conflict with existing policies and complements the federal and state wetland policies as described below. NMFS does not intend to make any recommendations, which, if adopted by the action agency and carried out, would violate other federal, state, or local laws. The CEMP also complements the NOAA Aquaculture Policy and National Shellfish Initiative and builds upon the NOAA Seagrass Conservation Guidelines and the Southern California Eelgrass Mitigation Policy.

### 1. Corps/EPA Mitigation Rule and supporting guidance

In 2008, the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) issued revised regulations governing compensatory mitigation for authorized impacts to wetlands, streams, and other waters of the U.S. under Section 404 of the Clean Water Act. The regulations emphasize avoiding impacts to wetlands and other water resources. For unavoidable impacts, the rule incorporates Natural Resource Council recommendations to improve planning, implementing and managing wetland replacement projects, including: science-based assessment of impacts and compensation measures, watershed assessments to drive mitigation sites and plans, measurable and enforceable ecological performance standards for evaluating mitigation projects, mitigation monitoring to document whether the mitigation employed meets ecological performance standards, and complete compensation plans. The regulations also encourage the expansion of mitigation banking and in lieu fee agreements to improve the quality and success of compensatory mitigation projects.

The NMFS policy to recommend no net loss of eelgrass function and the eelgrass mitigation guidelines offered herein align with the provisions of the EPA and Corps mitigation rule, but provide more specific recommendations on how to avoid and minimize impacts to eelgrass and how to implement eelgrass surveys, assessments, mitigation, and monitoring.

### 2. State of California Wetland Conservation Policies

The 1993 State of California Wetlands Conservation Policy established a framework and strategy to ensure no overall net loss and long-term gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property, reduce procedural complexity in administration of state and federal wetlands conservation programs, and encourage partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetlands conservation and restoration.

The State of California is also developing a Wetland and Riparian Area Protection Policy. The first phase of this effort was published as the "Preliminary Draft Wetland Area Protection Policy" with the purpose of protecting all waters of the State, including wetlands, from dredge and fill discharges. It includes a wetland definition and associated delineation methods, an assessment framework for collecting and reporting aquatic resource information, and requirements applicable to discharges of dredged or fill material. The draft specifies that dredge or fill projects will provide for replacement of existing beneficial uses through compensatory mitigation. The preliminary policy includes a determination that compensatory mitigation will sustain and improve the overall abundance, diversity and condition of aquatic resources in a project watershed area.

Based on the definition of wetlands included in these state wetland policies, the policies do not directly apply to subtidal eelgrass habitat, but may apply to intertidal eelgrass habitat. The NMFS policy of recommending no net loss to eelgrass habitat function and recommendations for compensatory mitigation for eelgrass impacts complement the state protection policies for wetlands.

### 3. NOAA Aquaculture Policy and National Shellfish Initiative

In 2011, NOAA released the National Marine Aquaculture Policy and the National Shellfish Initiative. The Policy encourages and fosters sustainable aquaculture development that provides domestic jobs, products, and services and that is in harmony with healthy, productive, and resilient marine ecosystems, compatible with other uses of the marine environment, and consistent with the National Policy for the Stewardship of the Ocean, our Coasts, and the Great Lakes (National Ocean Policy). The goal of the Initiative is to increase populations of bivalve shellfish in our nation's coastal waters—including oysters, clams, abalone, and mussels—through both sustainable commercial production and restoration activities. The Initiative supports shellfish industry jobs and business opportunities to meet the growing demand for seafood, while protecting and enhancing habitat for important commercial, recreational, and endangered and threatened species and species recovery. The Initiative also highlights improved water quality, nutrient removal, and shoreline protection as benefits from shellfish production and restoration. Both the Policy and the Initiative seek to improve interagency coordination for permitting commercial and restoration shellfish projects, as well as support research and other data collection to assess and refine conservation strategies and priorities.

The regulatory efficiencies, transparency, and compensation for impacts to eelgrass promoted by the CEMP directly support the National Aquaculture Policy statements and National Shellfish Initiative through: (1) protection of eelgrass, an important component of productive and resilient coastal ecosystems in California and habitat for wild species, and (2) improved coordination with federal partners regarding planning and permitting for commercial shellfish projects. Furthermore, research conducted under the direction of the National Shellfish Initiative could be informed by and also inform NMFS consultations regarding eelgrass impacts and mitigation in California.

4. NOAA Seagrass Conservation Guidelines

The NOAA publication, "Guidelines for the Conservation and Restoration of Seagrasses in the United States and Adjacent Waters" (1998) was developed by Mark Fonseca of NOAA's Beaufort Laboratory along with Jud Kenworthy and Gordon Thayer and was funded by NOAA's Coastal Ocean Program. The document presents an overview of seagrass conservation and restoration in the United States, discusses important issues that should be addressed in planning seagrass restoration projects, describes different planting methodologies, proposes monitoring criteria and means for evaluation success, and discusses issues faced by resource managers. The CEMP considers information presented in the Fonseca *et al*. document, but deviates in some cases in order to provide reasonable and practicable guidelines for eelgrass conservation in California.

5. Southern California Eelgrass Mitigation Policy

In southern and central California, eelgrass mitigation has been addressed in accordance with the Southern California Eelgrass Mitigation Policy applied by NMFS, US Fish & Wildlife Service, California Department of Fish and Wildlife, California Coastal Commission, US Army Corps of Engineers, and other resource and regulatory agencies since 1991, and which has generally been effective at ensuring eelgrass impacts are mitigated in most circumstances. Given the success of the Southern California Eelgrass Mitigation Policy over its 20-year history, this policy reflects an expansion of the application of the Southern California policy with minor modifications to ensure a high standard of statewide eelgrass management and protection. This policy will supersede the Southern California Eelgrass Mitigation Policy for all areas of California upon its adoption.

## II. Implementing Guidelines for California

This policy and guidelines will serve as the guidance for staff and managers within NMFS for developing recommendations concerning eelgrass issues through EFH and FWCA consultations and NEPA reviews throughout California. This policy will inform NMFS's position on eelgrass issues for California in other roles as a responsible, advisory, or funding agency or trustee. In addition, this document provides guidance to assist NMFS in performing its consultative role under the statutes described above. Finally, pursuant to NMFS obligation to provide information to federal agencies under Section 305(b)(1)(D) of the MSA, this policy serves that role by providing information intended to further the conservation and enhancement of EFH. Should this policy or guidelines be inconsistent with any formally-promulgated NMFS regulations, those formally-promulgated regulations will take precedence over any inconsistent provisions of this policy.

While many of the activities impacting eelgrass are similar across California, eelgrass stressors and growth characteristics differ between southern California (U.S./Mexico border to Pt. Conception), central California (Point Conception to San Francisco Bay entrance), San Francisco Bay, and northern California (San Francisco Bay to the California/Oregon border). The amount of scientific information available to base management decisions on also differs among areas within California, with considerably more information and history with eelgrass habitat management in southern California than the other regions. Gaps in region-specific scientific

information do not override the need to be protective of eelgrass habitat while relying on the best information currently available from areas within and outside of California. Although the primary orientation of this policy is toward statewide use, where indicated below, specific elements of this policy may differ between southern California, central California, northern California and San Francisco Bay.

NMFS will continue to explore the science of eelgrass habitat and improve our understanding of eelgrass habitat function, impacts, assessment techniques, and mitigation efficacy. Approximately every 5 years, NMFS intends to evaluate monitoring and survey data collected by federal agencies and action proponents per the recommendations of these guidelines. NMFS managers will determine if updates to these guidelines are appropriate based on information evaluated during the 5-year review. Updates to these guidelines and supporting technical information will be available on the NMFS website.

The information below serves as a common starting place for NMFS recommendations to achieve no net loss of eelgrass habitat function. NMFS employees should not depart from the guidelines provided herein without appropriate justification and supervisory concurrence. However, the recommendations that NMFS ultimately makes should be provided on a case-by-case basis to provide flexibility when site specific conditions dictate. In the EFH context, NMFS recommendations are provided to the action agency, which has final approval of the action; in accordance with the MSA, the action agency may take up NMFS recommendations or articulate its reasons for not following the recommendations. In the FWCA context, NMFS makes recommendations which must be considered, but the action agency is ultimately responsible for the wildlife protective measures it adopts (if any). For these reasons, neither this policy nor its implementing guidelines are to be interpreted as binding on the public.

### A. Eelgrass Habitat Definition

Eelgrass distribution fluctuates and can expand, contract, disappear, and recolonize areas within suitable environments. Vegetated eelgrass areas can expand by as much as 5 meters (m) and contract by as much as 4 m annually (Donoghue 2011). Within eelgrass habitat, eelgrass is expected to fluctuate in density and patch extent based on prevailing environmental factors (*e.g.*, turbidity, freshwater flows, wave and current energy, bioturbation, temperature, etc.). To account for seagrass fluctuation, Fonseca *et al.* (1998) recommends that seagrass habitat include the vegetated areas as well as presently unvegetated spaces between seagrass patches.

In addition, there is an area of functional influence, where the habitat function provided by the vegetated cover extends out into adjacent unvegetated areas. Those functions include detrital enrichment, energy dampening and sediment trapping, primary productivity, alteration of current or wave patterns, and fish and invertebrate use, among other functions. The influence of eelgrass on the local environment can extend up to 10 m from individual eelgrass patches, with the distance being a function of the extent and density of eelgrass comprising the bed as well as local biologic, hydrographic, and bathymetric conditions (Bostrom and Bonsdorff 2000, Bostrom *et al*. 2001, Ferrell and Bell 1991, Peterson *et al*. 2004, Smith *et al.* 2008, van Houte-Howes *et al.* 2004, Webster *et al*. 1998). Detrital enrichment will generally extend laterally as well as down slope from the beds, while fish and invertebrates that utilize eelgrass beds may move away from the

eelgrass core to areas around the bed margins for foraging and in response to tides or diurnal cycles (Smith *et al*. 2008).

To encompass fluctuating eelgrass distribution and functional influence around eelgrass cover, for the purposes of this policy and guidelines, eelgrass habitat is defined as areas of vegetated eelgrass cover (any eelgrass within 1 $m^2$ quadrat and within 1 m of another shoot) bounded by a 5 m wide perimeter of unvegetated area (See Attachment 1 for a graphical depiction of this definition). Unvegetated areas may have eelgrass shoots a distance greater than 1 m from another shoot, and may be internal as well as external to areas of vegetated cover. For isolated patches and on a case-by-case basis, it may be acceptable to include an unvegetated area boundary less than or greater than 5 m wide. The definition excludes areas of unsuitable environmental conditions such as hard bottom substrates, shaded locations, or areas that extend to depths below those supporting eelgrass. Suitable depths can vary substantially depending upon site-specific conditions. In general, eelgrass does not extend deeper than 12 feet mean lower low water (MLLW) in most protected bays and harbors in Southern California, and is more limited in Central and Northern California embayments. However, eelgrass can grow much deeper in entrance channels and offshore areas

### B. Surveying Eelgrass

NMFS may recommend action agencies conduct surveys of eelgrass habitat to evaluate effects of a proposed action. Eelgrass habitat should be surveyed using visual or acoustic methods and mapping technologies and scales appropriate to the action, scale, and area of work. Surveys should document both vegetated eelgrass cover as well as unvegetated areas within eelgrass habitat (See section II.A. for definition). Assessing impacts to eelgrass habitat relies on the completion of quality surveys and mapping. As such, inferior quality of surveys and mapping (*e.g.*, completed at an inappropriate scale or using inappropriate methods) may make proper evaluation of impacts impossible, and may result in a recommendation from NMFS to re-survey and re-map project areas. Also, to account for fluctuations in eelgrass habitat due to environmental variations, a reference site(s) should be incorporated into the survey (See section V.B.4 below for more details).

#### 1. Survey Parameters

Because eelgrass growth conditions in California vary, eelgrass mapping techniques will also vary. Diver transects or boundary mapping may be suited to very small scale mapping efforts, while aerial and/or acoustic survey with ground-truthing may be more suited to larger survey areas. Aerial and above-water visual survey methods should be employed only where the lower limit of eelgrass is clearly visible or in combination with methods that adequately inventory eelgrass in deeper waters.

The survey area should be scaled as appropriate to the size of the potential action and the potential extent and distribution of eelgrass impacts, including both direct and indirect effects. The resolution of mapping should be adequate to address the scale of effects reasonably expected to occur. For small projects, such as individual boat docks, higher mapping resolution is appropriate in order to detect actual effects to eelgrass at a scale meaningful to the project size. At larger scales, the mapping resolution may be less refined over a larger area, assuming that

minor errors in mapping will balance out over the larger scale. Survey reports should provide a detailed description of the survey coverage (*e.g.*, number, location, and type of samples) and any interpolation methods used in the mapping.

While many parameters may be useful to describe eelgrass habitat condition (*e.g.*, plant biomass, leaf length, shoot:root ratios, epiphytic loading), many are labor intensive and may be impractical for resource management applications on a day-to-day basis. For this reason, four parameters have been identified for use in eelgrass habitat surveys and assessment of effects of an action on eelgrass. These parameters that should be articulated in eelgrass surveys are: 1) spatial distribution, 2) areal extent, 3) percentage of vegetated cover, and 4) the turion (shoot) density.

*a) Spatial Distribution*

The spatial distribution of eelgrass habitat should be delineated by a contiguous boundary around all areas of vegetated eelgrass cover extending outward a distance of 5 m, excluding gaps within the vegetated cover that have individual plants greater than 10 m from neighboring plants. Where such separations occur, either a separate area should be defined, or a gap in the area should be defined by extending a line around the void along a boundary defined by adjacent plants and including the 5 meter perimeter. The boundary of the eelgrass habitat should not extend into areas where depth, substrate, or existing structures are unsuited to supporting eelgrass habitat.

*b) Aerial Extent*

The eelgrass habitat aerial extent is the quantitative area (*e.g.*, square meters) of the spatial distribution boundary polygon of the eelgrass habitat. The total aerial extent should be broken down into extent of vegetated cover and extent of unvegetated habitat. Areal extent should be determined using commercially available geo-spatial analysis software. For small projects, coordinate data for polygon vertices could be entered into a spreadsheet format, and area could be calculated using simple geometry.

*c) Percent Vegetated Cover*

Eelgrass vegetated cover exists when one or more leaf shoots (turions) per square meter is present. The percent bottom cover within eelgrass habitat should be determined by totaling the area of vegetated eelgrass cover and dividing this by the total eelgrass habitat area. Where substantial differences in bottom cover occur across portions of the eelgrass habitat, the habitat could be subdivided into cover classes (*e.g.*, 20% cover, 50% cover, 75% cover).

*d) Turion (Shoot) Density*

Turion density is the mean number of eelgrass leaf shoots per square meter within mapped eelgrass vegetated cover. Turion density should be reported as a mean ± the standard deviation of replicate measurements. The number of replicate measurements (n) should be reported along with the mean and deviation. Turion densities are determined only within vegetated areas of

eelgrass habitat and therefore, it is not possible to measure a turion density equal to zero. If different cover classes are used, a turion density should be determined for each cover class.

2. Eelgrass Mapping

For all actions that may directly or indirectly affect eelgrass habitat, an eelgrass habitat distribution map should be prepared on an accurate bathymetric chart with contour intervals of not greater than 1 foot (local vertical datum of MLLW). Exceptions to the detailed bathymetry could be made for small projects or for projects where detailed bathymetry may be infeasible. Unless region-specific mapping format and protocols are developed by NMFS (in which case such region-specific mapping guidance should be used), the mapping should utilize the following format and protocols:

*a) Bounding Coordinates*

Horizontal datum - Universal Transverse Mercator (UTM), NAD 83 meters, Zone 11 (for southern California) or Zone 10 (for central, San Francisco Bay, and northern California) is the preferred projection and datum. Another projection or datum may be used; however, the map and spatial data should include metadata that accurately defines the projection and datum.

Vertical datum - Mean Lower Low Water (MLLW), depth in feet.

*b) Units*

Transects, grids, or scale bars should be expressed in meters. Area measurements should be in square meters.

*c) File Format*

A spatial data layer compatible with readily available commercial geographic information system software producing file formats compatible with ESRI® ArcGIS software should be sent to NMFS when the area mapped supports at least 10 square meters of eelgrass. For those areas supporting less than 10 square meters of eelgrass, a table may alternatively be provided giving the vertices bounding x, y coordinates of the eelgrass areas in a spreadsheet or an ASCII file format. In addition to a spatial layer and/or table, a hard-copy map should be included with the survey report. The projection and datum should be clearly defined in the metadata and/or an associated text file.

Eelgrass maps should, at a minimum, include the following:

- A graphic scale bar, north arrow, legend, horizontal datum and vertical datum;
- A boundary illustrating the limits of the area surveyed;
- Bathymetric contours for the survey area, including both the action area(s) and reference site(s) in increments of not more than 1 foot;
- An overlay of proposed action improvements and construction limits;
- The boundary of the defined eelgrass habitat including an identification of area exclusions based on physical unsuitability to support eelgrass habitat; and

- The existing eelgrass cover within the defined eelgrass habitat at the time of the survey.

3. Survey Period

All mapping efforts should be completed during the active growth period for eelgrass (typically March through October for southern California, April through October for central California, April through October for San Francisco Bay, and May through September for northern California) and should be considered valid for a period of 60 days to ensure significant changes in eelgrass distribution and density do not occur between survey date and the project start date. The 60 day period is particularly important for eelgrass habitat survey conducted at the very beginning of the growing season, if eelgrass habitat expansion occurs as the growing season progresses. A period other than 60 days could be warranted and should be evaluated on a case-by-case basis, particularly for surveys completed in the middle of the growing season. However, when the end of the 60-day validity period falls outside of the region-specific active growth period, the survey could be considered valid until the beginning of the next active growth period. For example, a survey completed in southern California in the August-October time frame would be valid until the resumption of the active growth phase (i.e., in most instances, March 1). In some cases, NMFS and the action agency may agree to surveys being completed outside of the active growth period. For surveys completed during or after unusual climatic events (*e.g.*, high fluvial discharge periods, El Niño conditions), NMFS staff should be contacted to determine if any modifications to the common survey period are warranted.

4. Reference Site Selection

Eelgrass habitat spatial extent, aerial extent, percent cover and turion density are expected to naturally fluctuate through time in response to natural environmental variables. As a result, it is necessary to correct for natural variability when conducting surveys for the purpose of evaluating action effects on eelgrass or performance of mitigation areas. This is generally accomplished through the use of a reference site(s), which is expected to respond similarly to the action area in response to natural environmental variability. It is beneficial to select and monitor multiple reference sites rather than a single site and to utilize the average reference site condition as a metric for environmental fluctuations. This is especially true when a mitigation site is located within an area of known environmental gradients, and reference sites may be selected on both sides of the mitigation site along the gradient. Environmental conditions (*e.g.*, sediment, currents, proximity to action area, shoot density, light availability, depth, onshore and watershed influences) at the reference site(s) should be representative of the environmental conditions at the impact area (Fonseca *et al*. 1998). Where practical, the reference site(s) should be at least the size of the anticipated impact and/or mitigation area to limit the potential for minor changes in a reference site (*e.g.*, propeller scarring or ray foraging damage) overly affecting mitigation needs. The logic for site(s) selection should be documented in the eelgrass mitigation planning documents.

## C. Avoiding and Minimizing Impacts to Eelgrass

This section describes measures to avoid and minimize impacts to eelgrass caused by turbidity, shading, nutrient loading, sedimentation and alteration of circulation patterns. Not all measures

are equally suited to a particular project or condition. Measures to avoid or minimize impacts should be focused on stressors where the source and control are within the purview of the permittee and action agency. Action agencies in coordination with NMFS should evaluate and establish impact avoidance and minimization measures on a case-by-case basis depending on the action and site-specific information, including prevailing current patterns, sediment source, characteristics, and quantity, as well as the nature and duration of work.

1. Turbidity

To avoid and minimize potential turbidity-related impacts to eelgrass:

- Where practical, actions should be located as far as possible from existing eelgrass; and
- In-water work should occur as quickly as possible such that the duration of impacts is minimized.

Where proposed turbidity generating activities must occur in proximity to eelgrass and increased turbidity will occur at a magnitude and duration that may affect eelgrass habitat, measures to control turbidity levels should be employed when practical considering physical and biological constraints and impacts. Measures may include:

- Use of turbidity curtains where appropriate and feasible;
- Use of low impact equipment and methods (*e.g.*, environmental buckets, or a hydraulic suction dredge instead of clamshell or hopper dredge, provided the discharge may be located away from the eelgrass habitat and appropriate turbidity controls can be provided at the discharge point);
- Limiting activities by tide or day-night windows to limit light degradation within eelgrass habitat;
- Utilizing 24-hour dredging to reduce the overall duration of work and to take advantage of dredging during dark periods when photosynthesis is not occurring; or
- Other measures that an action party may propose and be able to employ to minimize potential for adverse turbidity effects to eelgrass.

NMFS developed a flowchart for a stepwise decision making process as guidance for action agencies to determine when to implement best management practices (BMPs) for minimizing turbidity from dredging actions as part of a programmatic EFH consultation in San Francisco Bay. The parameters considered in the flow chart are relevant to all marine areas of California. This document is posted on the NMFS West Coast Region web page (http://www.westcoast.fisheries.noaa.gov/habitat/habitat_types/seagrass_info/california_eelgrass.html) and may be used to evaluate avoidance and minimization measures for any project that generates increased turbidity.

2. Shading

A number of potential design modifications may be used to minimize effects of shading on eelgrass. Boat docks, ramps, gangways, and similar structures should avoid eelgrass habitat to the maximum extent feasible. If avoidance of eelgrass or habitat is infeasible, impacts should be minimized by utilizing, to the maximum extent feasible, design modifications and construction materials that allow for greater light penetration. Action modifications should include, but are not limited to:

- Avoid siting over-water or landside structures in areas where shading of eelgrass habitat would occur;
- Maximizing the north-south orientation of the structure;
- Maximizing the height of the structure above the water;
- Minimizing the width and supporting structure mass to decrease shade effects;
- Relocating the structure in deeper water and limiting the placement of structures in shallow areas where eelgrass occurs to the extent feasible; and
- Utilizing light transmitting materials in structure design.

Construction materials used to increase light passage beneath the structures may include, but are not limited to, open grating or adequate spacing between deck boards to allow for effective illumination to support eelgrass habitat. The use of these shade reducing options may be appropriate where they do not conflict with safety, ADA compliance, or structure utility objectives.

NMFS developed a stepwise key as guidance for action agencies to determine which combination of modifications are best suited for minimizing shading effects from overwater structures on eelgrass as part of a programmatic EFH consultation in San Francisco Bay. The parameters considered in the flow chart are relevant to all marine areas of California. This document is posted on the West Coast Region web page (http://www.westcoast.fisheries.noaa.gov/habitat/habitat_types/seagrass_info/california_eelgrass.html) and may be used to evaluate avoidance and minimization measures for any project that results in shading.

3. Circulation patterns

Where appropriate to the scale and nature of potential eelgrass impacts, action parties should evaluate if and how the action may alter the hydrodynamics of the action area such that eelgrass habitat within or in proximity to the action area may be adversely affected. To maintain good water flow and low residence time of water within eelgrass habitat, action agencies should ensure actions:

- Minimize scouring velocities near or within eelgrass beds;
- Maintain wind and tidal circulation to the extent practical by considering orientation of piers and docks to maintain predominant wind effects;
- Incorporate setbacks on the order of 15 to 50 meters from eelgrass habitat where practical to allow for greater circulation and reduced impact from boat maneuvering, grounding, and propeller damage, and to address shading impacts; and
- Minimize the number of piles and maximize pile spacing to the extent practical, where piles are needed to support structures.

For large-scale actions in the proximity of eelgrass habitats, NMFS may request specific modeling and/or field hydrodynamic assessments of the potential effects of work on characteristics of circulation within eelgrass habitat.

4. Nutrient loading

Where appropriate to the scale and nature of potential eelgrass impacts, the following measures should be considered for implementation to reduce the potential for excessive nutrient loading to eelgrass habitat:

- diverting site runoff from landscaped areas away from discharges around eelgrass habitat;
- implementation of fertilizer reduction program;
- reduction of watershed nutrient loading;
- controlling local sources of nutrients such as animal wastes and leach fields; and
- maintaining good circulation and flushing conditions within the water body.

Reducing nutrient loading may also provide opportunities for establishing eelgrass as mitigation for project impacts.

5. Sediment loading

Watershed development and changes in land use may increase soil erosion and increase sedimentation to downstream embayments and lagoons.

- To the extent practicable, maintain riparian vegetation buffers along all streams in the watershed.
- Incorporate watershed analysis into agricultural, ranching, and residential/commercial development projects.
- Increase resistance to soil erosion and runoff. Sediment basins, contour farming, and grazing management are examples of key practices.
- Implement best management practices for sediment control during construction and maintenance operations (*e.g.*, Caltrans 2003).

Reducing sediment loading may also provide opportunities for establishing eelgrass as mitigation for project impacts in systems for which sedimentation is a demonstrable limiting factor to eelgrass.

## D. Assessing Impacts to Eelgrass Habitat

If appropriate to the statute under which the consultation occurs, NMFS should consider both direct and indirect effects of the project in order to assess whether a project may impact eelgrass. NMFS is aware that many of the statutes and regulations it administers may have more specific meanings for certain terms, including "direct effect" and "indirect effect", and will use the statutory or regulatory meaning of those terms when conducting consultations under those statutes.[2] Nevertheless, it is useful for NMFS to consider effects experienced

[2] In the EFH context, adverse effects include any impact that reduces quality and/or quantity of EFH, including direct or indirect physical, chemical, or biological alterations of the waters or substrate (50 CFR 600.910). The Council of Environmental Quality (CEQ) regulations regarding NEPA implementation (40 CFR 1508.8(a)) define direct and indirect impacts of an action for the purposes of NEPA. Other NMFS statutes provide their own definitions regarding effects.

contemporaneously with project actions (both at the project site and away from the project site) and which might occur later in time.

Generally, effects to eelgrass habitat should be assessed using pre- and post-project surveys of the impact area and appropriate reference site(s) conducted during the time period of maximum eelgrass growth (typically March through October for southern California, April through October for central California, April through October for San Francisco Bay, and May through September for northern California). NMFS should consider the likelihood that the effects would occur before recommending pre- and post-project eelgrass surveys. The pre-construction survey of the eelgrass habitat in the action area and an appropriate reference site(s) should be completed within 60 days before start of construction. After construction, a post-action survey of the eelgrass habitat in the action area and at an appropriate reference site(s) should be completed within 30 days of completion of construction, or within the first 30 days of the next active growth period following completion of construction that occurs outside of the active growth period. Copies of all surveys should be provided to the lead federal agency, NMFS, and other interested regulatory and/or resource agencies within 30 days of completing the survey. The recommended timing of surveys is intended to minimize changes in eelgrass habitat distribution and abundance during the period between survey completion and construction initiation and completion. For example, a post-action survey completed beyond 30 days following construction or outside of the active growing season may show declines in eelgrass habitat as a result of natural senescence rather than the action.

The lead federal agency and NMFS should consider reference area eelgrass performance, physical evidence of impact, turbidity and construction activities monitoring data, as well as other documentation in the determination of the impacts of the action undertaken. Impact analyses should document whether the impacts are anticipated to be complete at the time of the assessment, or whether there is an anticipation of continuing eelgrass impacts due to chronic or intermittent effects. Where eelgrass at the impact site declines coincident with and similarly to decline at the reference site(s), the percentage of decline at the reference site should be deducted from the decline at the impact site. However, if eelgrass expands within the reference site(s), the impact site should only be evaluated against the pre-construction condition of the reference site and not the expanded condition. If an action results in increased eelgrass habitat relative to the reference sites, this increase could potentially be considered (subject to the caveats identified herein) by NMFS and the action agency as potential compensation for impacts to eelgrass habitat that occur in the future (see Section II. E. 3). An assessment should also be made as to whether impacts or portions of the impact are anticipated to be temporary. Information supporting this determination may be derived from the permittee, NMFS, and other resource and regulatory agencies, as well as other eelgrass experts.

For some projects, environmental planning and permitting may take longer than 60 days. To accommodate longer planning schedules, it may also be necessary to do a preliminary eelgrass survey prior to the pre-construction survey. This preliminary survey can be used to anticipate potential impacts to eelgrass for the purposes of mitigation planning during the permitting process. In some cases, preliminary surveys may focus on spatial distribution of eelgrass habitat only or may be a qualitative reconnaissance to allow permittees to incorporate avoidance and minimization measures into their proposed action or to plan for future mitigation needs. The pre-

and post- project surveys should then verify whether impacts occur as anticipated, and if planned mitigation is adequate. In some cases, a preliminary survey could be completed a year or more in advance of the project action.

1. Direct Effects

Biologists should consider the potential for localized losses of eelgrass from dredging or filling, construction-associated damage, and similar spatially and temporally proximate impacts (these effects could be termed "direct"). The actual area of the impact should be determined from an analysis that compares the pre-action condition of eelgrass habitat with the post-action conditions from this survey, relative to eelgrass habitat change at the reference site(s).

2. Indirect Effects

Biologists should also consider effects caused by the action which occur away from the project site; furthermore, effects occurring later in time (whether at or away from the project site) should also be considered. Biologists should consider the potential for project actions to alter conditions of the physical environment in a manner that, in turn, reduce eelgrass habitat distribution or density (*e.g.*, elevated turbidity from the initial implementation or later operations of an action, increased shading, changes to circulation patterns, changes to vessel traffic that lead to greater groundings or wake damage, increased rates of erosion or deposition).

For actions where the impact cannot be fully determined until a substantial period after an action is taken, an estimate of likely impacts should be made prior to implementation of the proposed action based on the best available information (*e.g.*, shading analyses, wave and current modeling). A monitoring program consisting of a pre-construction eelgrass survey and three post-construction eelgrass surveys at the impact site and appropriate reference site(s) should be performed. The action party should complete the first post-construction eelgrass survey within 30 days following completion of construction to evaluate any immediate effects to eelgrass habitat. The second post-construction survey should be performed approximately one year after the first post-construction survey during the appropriate growing season. The third post-construction survey should be performed approximately two years after the first post-construction survey during the appropriate growing season. The second and third post-construction surveys will be used to evaluate if indirect effects resulted later in time due to altered physical conditions; the time frames identified above are aligned with growing season (attempting a survey outside of the growing season would show inaccurate results).

A final determination regarding the actual impact and amount of mitigation needed, if any, to offset impacts should be made based upon the results of two annual post-construction surveys, which document the changes in the eelgrass habitat (areal extent, bottom coverage, and shoot density within eelgrass) in the vicinity of the action, compared to eelgrass habitat change at the reference site(s). Any impacts determined by these monitoring surveys should be mitigated. In the event that monitoring demonstrates the action to have resulted in greater eelgrass habitat impacts than initially estimated, additional mitigation should be implemented in a manner consistent with these guidelines. In some cases, adaptive management may allow for increased success in eelgrass mitigation without the need for additional mitigation.

## E. Mitigation Options

The term mitigation is defined differently by various federal and State laws, regulations and policies. In a broad sense, mitigation may include a range of measures from complete avoidance of adverse effects to compensation for adverse effects by preserving, restoring or creating similar resources at onsite or offsite locations. The Corps and EPA issued regulations governing compensatory mitigation to offset unavoidable adverse effects to waters of the United States authorized by Clean Water Act section 404 permits and other permits issued by the Corps (73 FR 19594; April 10, 2008). For those regulations (33 CFR 332.2 and 40 CFR 230.92, respectively), the Corps and EPA, define "compensatory mitigation" as "the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse effects which remain after all appropriate and practicable avoidance and minimization has been achieved."

When impacts to eelgrass would occur, the action agency should develop a mitigation plan to achieve no net loss in eelgrass function following the recommended steps in this policy. If NMFS determines a mitigation plan is needed, and it was not included with the EFH Assessment for the proposed action, NMFS may recommend, either as comments on the EFH Assessment or as an EFH Conservation Recommendation, that one be provided. Potential mitigation options are described below. The action agency should consider site specific conditions when determining the most appropriate mitigation option for an action.

### 1. Comprehensive management plans

NMFS supports the development of comprehensive management plans (CMPs) that protect eelgrass resources within the context of broader ecosystem needs and management objectives. Recommendations different from specific elements described below for in-kind mitigation may be appropriate where a CMP (*e.g.*, an enforceable programmatic permit, Special Area Management Plan, harbor plan, or ecosystem-based management plan) exists that is considered to provide adequate population-level and local resource distribution protections to eelgrass. One such CMP under development at the time these guidelines were developed is *City of Newport Beach Eelgrass Protection Mitigation Plan for Shallow Water in Lower Newport Bay: An Ecosystem Based Management Plan.* If satisfactorily completed and adopted, it is anticipated the protection measures for eelgrass within this area would be adequate to meet the objectives of this policy.

In general, it is anticipated that CMPs may be most appropriate in situations where a project or collection of similar projects will result in incremental but recurrent impacts to a small portion of local eelgrass populations through time (*e.g.*, lagoon mouth maintenance dredging, maintenance dredging of channels and slips within established marinas, navigational hazard removal of recurrent shoals, shellfish farming, and restoration or enhancement actions). In order to ensure that these alternatives provide adequate population-level and local resource distribution protections to eelgrass and that the plan is consistent with the overall conservation objectives of this policy, NMFS should be involved early in the plan's development.

2. In-kind mitigation

In-kind compensatory mitigation is the creation, restoration, or enhancement of habitat to mitigate for adverse impacts to the same type of habitat. In most cases in-kind mitigation is the preferred option to compensate for impacts to eelgrass. Generally, in-kind mitigation should achieve a final mitigation ratio of 1.2:1 across all areas of the state, independent of starting mitigation ratios. A starting mitigation ratio is the ratio of mitigation area to impact area when mitigation is initiated. The final mitigation ratio is the ratio of mitigation area to impact area once mitigation is complete. The 1.2:1 ratio assumes: (1) there is no eelgrass function at the mitigation site prior to mitigation efforts, (2) eelgrass function at the mitigation site is achieved within three years, (3) mitigation efforts are successful, and (4) there are no landscape differences (*e.g.*, degree of urban influence, proximity to freshwater source), between the impact site and the mitigation site. Variations from these assumptions may warrant higher or lower mitigation ratios. For example, a higher ratio would be appropriate for an enhancement project where the mitigation site has some level of eelgrass function prior to the mitigation action.

Typically, in-kind eelgrass mitigation involves transplanting or seeding of eelgrass into unvegetated habitat. Successful in-kind mitigation may also warrant modification of physical conditions at the mitigation site to prepare for transplants (*e.g.*, alter sediment composition, depth, etc.). In some areas, other in-kind mitigation options such as removing artificial structures that preclude eelgrass growth may be feasible. If in-kind mitigation that does not include transplants or seeding is proposed, post-mitigation monitoring as described below should be implemented to verify that mitigation is successful.

Information provided below in Section II.F includes specific recommendations for in-kind mitigation, including site selection, reference sites, starting mitigation ratios, mitigation methods, mitigation monitoring and performance criteria. Many of the recommendations provided in these guidelines for eelgrass assessments, surveys, and mitigation may apply throughout the state even if a non-transplant mitigation option is proposed.

3. Mitigation banks and in-lieu-fee programs

In 2006 and 2011, the NMFS Southwest Region (merged with the Northwest Region in 2013 to form the West Coast Region) signed interagency Memorandum of Understandings that established and refined a framework for developing and using combined or coordinated approaches to mitigation and conservation banking and in-lieu-fee programs in California. Other signatory agencies include: the California Resources Agency, California Department of Fish and Wildlife, the Corps, the US Fish &Wildlife Service, the EPA, the Natural Resource Conservation Service, and the State Water Resources Control Board.

Under this eelgrass policy, NMFS supports the use of mitigation bank and in-lieu fee programs to compensate for impacts to eelgrass habitat, where such instruments are available and where such programs are appropriate to the statutory structure under which mitigation is recommended. Mitigation banks and in-lieu fee conservation programs are highly encouraged by NMFS in heavily urbanized waters. Credits should be used at a ratio of 1:1 if those credits have been established for a full three-year period prior to use. If the bank credits have been in place for a

period less than three years, credits should be used at a ratio determined through application of the wetland mitigation calculator (King and Price 2004).

At the request of the action party, and only with approval of NMFS and other appropriate resource agencies and subject to the caveats below, surplus eelgrass area that, after 60-months, exceeds the mitigation needs, as defined in section II.F.6 Mitigation Monitoring and Performance Milestones, has the potential to be considered for future mitigation needs. Additionally, only with the approval of NMFS and other appropriate resource agencies and subject to the caveats below, eelgrass habitat expansion resulting from project activities, and that otherwise would not have occurred, has the potential to be considered for future mitigation needs. Exceeding mitigation needs does not guarantee or entitle the action party or action agency to credit such mitigation to future projects, since every future project must be considered on a case-by-case basis (including the location and type of impact) and viewed in light of the relevant statutory authorities.

4. Out-of-kind mitigation

Out-of-kind compensatory mitigation means the adverse impacts to one habitat type are mitigated through the creation, restoration, or enhancement of another habitat type. In most cases, out-of-kind mitigation is discouraged, because eelgrass is a rare, special-status habitat in California. There may be some scenarios, however, where out-of-kind mitigation for eelgrass impacts is ecologically desirable or when in-kind mitigation is not feasible. This determination should be made based on an established ecosystem plan that considers ecosystem function and services relevant to the geographic area and specific habitat being impacted. Any proposal for out-of-kind mitigation should demonstrate that the proposed mitigation will compensate for the loss of eelgrass habitat function within the ecosystem. Out-of-kind mitigation that generates services similar to eelgrass habitat or improves conditions for establishment of eelgrass should be considered first. NMFS and the federal action agency should be consulted early when out-of-kind mitigation is being proposed in order to determine if out-of-kind mitigation is appropriate, in coordination with other relevant resource agencies (e.g., California Department of Fish and Wildlife, California Coastal Commission, U.S. Fish and Wildlife Service)

## F. In-kind Mitigation for Impacts to Eelgrass

As all mitigation project specifics will be determined on a case-by-case basis, circumstances may exist where NMFS staff will need to modify or deviate from the recommended measures described below before providing their recommendation to action agencies.

1. Mitigation Site Selection

Eelgrass habitat mitigation sites should be similar to the impact site. Site selection should consider distance from action, depth, sediment type, distance from ocean connection, water quality, and currents. Where eelgrass that is impacted occurs in marginally suitable environments, it may be necessary to conduct mitigation in a preferable location and/or modify the site to be better suited to support eelgrass habitat creation. Mitigation site modification should be fully coordinated with NMFS staff and other appropriate resource and regulatory agencies. To the extent feasible, mitigation should occur within the same hydrologic system

(*e.g.*, bay, estuary, lagoon) as the impacts and should be appropriately distributed within the same ecological subdivision of larger systems (*e.g.*, San Pablo Bay or Richardson Bay in San Francisco Bay), unless NMFS and the action agency concur that good justification exists for altering the distribution based on valued ecosystem functions and services.

In identifying potentially suitable mitigation sites, it is advisable to consider the current habitat functions of the mitigation site prior to mitigation use. In general, conversion of unvegetated subtidal areas or disturbed uplands to eelgrass habitats may be considered appropriate means to mitigate eelgrass losses, while conversion of other special aquatic sites (*e.g.*, salt marsh, intertidal mudflats, and reefs) is unlikely to be considered suitable. It may be necessary to develop suitable environmental conditions at a site prior to being able to effectively transplant eelgrass into a mitigation area. Mitigation sites may need physical modification, including increasing or lowering elevation, changing substrate, removing shading or debris, adding wave protection or removing impediments to circulation.

### 2. Mitigation Area Needs

In-kind mitigation plans should address the components described below to ensure mitigation actions achieve no net loss of eelgrass habitat function. Alternative contingent mitigation should be specified and included in the mitigation plan to address situations where performance milestones are not met.

#### *a) Impacts to Areal Extent of Eelgrass Habitat*

Generally, mitigation of eelgrass habitat should be based on replacing eelgrass habitat extent at a 1.2 (mitigation) to 1 (impact) mitigation ratio for eelgrass throughout all regions of California. However, given variable degrees of success across regions and potential for delays and mitigation failure, NMFS calculated *starting* mitigation ratios using "The Five-Step Wetland Mitigation Ratio Calculator" (King and Price 2004) developed for NMFS Office of Habitat Conservation. The calculator utilizes methodology similar to Habitat Equivalency Analysis (HEA), which is an accepted method to determine the amount of compensatory restoration needed to provide natural resource services that are equivalent to loss of natural resource services following an injury (http://www.darrp.noaa.gov/economics/pdf/heaoverv.pdf). HEA is commonly used by NOAA during damage assessment cases, including those involving seagrass. Similar to HEA, the mitigation calculator is based on the "net present value" approach to asset valuation, an economics concept used to compare values of all types of investments, and then modified to incorporate natural resource services. Using the calculator allows for consistency in methodology for all areas within California, avoids arbitrary identification of size of the mitigation area, and avoids cumulative loss to eelgrass habitat that would likely occur with a standard 1:1 ratio (because of the complexity of eelgrass mitigation and the time for created eelgrass to achieve full habitat function).

The calculator includes a number of metrics to determine appropriate ratios that focus on comparisons of quality and quantity of function of the mitigation relative to the site of impact to ensure full compensation of lost function. (see Attachment 4). Among other metrics, the calculator employs a metric of likelihood of failure within the mitigation site based on regional mitigation failure history. As such, the mitigation calculator identifies a recommended starting

mitigation ratio (the mitigation area to eelgrass impact area) based on regional history of success in eelgrass mitigation. Increased initial mitigation site size should be considered to provide greater assurance that the performance milestones, as specified in Section II.F.6, will be met. This is a common practice in the eelgrass mitigation field to reduce risk of falling short of mitigation needs (Thom 1990). Independent of starting mitigation ratio utilized for a given mitigation action, mitigation success should generally be evaluated against a ratio of 1.2:1.

The elevated starting mitigation ratio should be applied to the area of impact to vegetated eelgrass cover only. For unvegetated eelgrass habitat, a starting mitigation ratio of 1.2:1 is appropriate.

To determine the recommended starting mitigation ratio for each region, the percentage of transplant successes and failures was examined over the history of transplanting in the region. NMFS staff examined transplants projects over the past 25 years in all mitigation regions (see Attachment 6). Eelgrass mitigation in Southern California has a 35-year history with 66 transplants performed over that period. In the past 25 years, a total of 47 eelgrass transplants for mitigation purposes have been conducted in Southern California. Forty-three of these were established long enough to evaluate success for these transplants. The overall failure rate, with failure defined as not meeting success criteria established for the project, was 13 percent. Eelgrass mitigation within central California has a better history of successful completion than within southern California, San Francisco Bay, and northern California. However, the number of eelgrass mitigation actions conducted in this region is low and limited to areas within Morro Bay. While the success of eelgrass mitigation in central California has been high, the low number of attempts makes mitigation in this region uncertain. Eelgrass habitat creation/restoration in San Francisco Bay and in northern California has had varied success.

In all cases, best information available at the time of this policy's development was used to determine the parameter values entered into the calculator formula. As regional eelgrass mitigation success changes and the results of ongoing projects become available, the starting mitigation ratio may be updated. Updates in mitigation calculator inputs should not be made on an individual action basis, because the success or lack of success of an individual mitigation project may not reflect overall mitigation success for the region. Rather NMFS should re-evaluate the regional transplant history approximately every 5 years, increasing the record of transplant success in 5 year increments for new projects implemented after NMFS' adoption of these guidelines. If the 5-year review shows that new efforts are more successful than those from the beginning of the 25-year period, NMFS staff should consider removing early projects (*e.g.*, those completed 20 years prior) from the analysis.

On a case-by-case basis and in consultation with action agencies, NMFS may consider proposals with different starting mitigation ratios where sufficient justification is provided that indicates the mitigation site would achieve the no net loss goal. In addition, CMPs could consider different starting mitigation ratios, or other mitigation elements and techniques, as appropriate to the geographic area addressed by the CMP.

Regardless of starting mitigation ratio, eelgrass mitigation should be considered successful, if it meets eelgrass habitat coverage over an area that is 1.2 times the impact area with comparable

eelgrass density as impacted habitat. Please note, delayed implementation, supplemental transplant needs, or NMFS and action agency agreement may result in an altered mitigation area. In the EFH consultation context, NMFS may recommend an altered mitigation area during implementation of the federal agency's mitigation plan following EFH consultation or NEPA review, or as an EFH Conservation Recommendation if the federal agency re-initiates EFH consultation.

(1) Southern California (Mexico border to Pt. Conception)

For mitigation activities that occur concurrent to the action resulting in damage to existing eelgrass habitat, a starting ratio of 1.38 to 1 (transplant area to vegetated cover impact area) should be recommended to counter the regional failure risk. That is, for each square meter of vegetated eelgrass cover adversely impacted, 1.38 square meters of new habitat with suitable conditions to support eelgrass should be planted with a comparable bottom coverage and eelgrass density as impacted habitat.

(2) Central California (Point Conception to mouth of San Francisco Bay).

For mitigation activities that occur concurrent to the action resulting in damage to existing eelgrass habitat, a starting ratio of 1.20 to 1 (transplant area to vegetated cover impact area) should be recommended based on a 0 percent failure rate over the past 25 years (4 transplant actions). It should however be noted that all of these successful transplants included a greater area of planting than was necessary to achieve success such that the full mitigation area would be achieved, even with areas of minor transplant failure.

(3) San Francisco Bay (including south, central, San Pablo and Suisun Bays).

For mitigation activities that occur concurrent to the action resulting in damage to the existing eelgrass bed resource, a ratio of 3.01 to 1 (transplant area to vegetated cover impact area) should be recommended based on a 60 percent failure rate over the past 25 years (10 transplant actions). That is, for each square meter adversely impacted, 3.01 square meters of new habitat with suitable conditions to support eelgrass should be planted with a comparable bottom coverage and eelgrass density as impacted habitat.

(4) Northern California (mouth of San Francisco Bay to Oregon border).

For mitigation activities that occur concurrent to the action resulting in damage to the existing eelgrass habitat, a starting ratio of 4.82 to 1 (transplant area to vegetated cover impact area) should be recommended based on a 75 percent failure rate over the past 25 years (4 transplant actions). That is, for each square meter of eelgrass habitat adversely impacted, 4.82 square meters of new habitat with suitable conditions to support eelgrass should be planted with a comparable bottom coverage and eelgrass density as impacted habitat.

*b) Impacts to Density of Eelgrass Beds*

Degradation of existing eelgrass habitat that results in a permanent reduction of eelgrass turion density greater than 25 percent, and that is a statistically significant difference from pre-impact density, should be mitigated based on an equivalent area basis. The 25 percent and statistically significant threshold is believed reasonable based on supporting information (Fonseca *et al.* 1998, WDFW 2008), and professional practice under SCEMP. In these cases, eelgrass remains present at the action site, but density may be potentially affected by long-term chronic or intermittent effects of the action. Reduction of density should be determined to have occurred when the mean turion density of the impact site is found to be statistically different ($\alpha$=0.10 and $\beta$=0.10) from the density of a reference and at least 25 percent below the reference mean during two annual sampling events following implementation of an action. The number of samples taken to describe density at each site (*e.g.*, impact and reference) should be sufficient to provide for appropriate statistical power. For small impact areas that do not allow for a sample size that provides statistical power, alternative methods for pre- and post- density comparisons could be considered. Mitigation for reduction of turion density without change in eelgrass habitat area should be on a one-for-one basis either by augmenting eelgrass density at the impact site or by establishing new eelgrass habitat comparable to the change in density at the impact site. For example, a 25 percent reduction in density of 100-square meters (100 turions/square meter) of eelgrass habitat to 75 turions/square meter should be mitigated by the establishing 25 square meters of new eelgrass habitat with a density at or above the 100 turions/square meter pre-impact density.

3. Mitigation Technique

In-kind mitigation technique should be determined on a case-by-case basis. Techniques for eelgrass mitigation should be consistent with the best available technology at the time of mitigation implementation and should be tailored to the specific needs of the mitigation site. Eelgrass transplants have been highly successful in southern and central California, but have had mixed results in San Francisco Bay and northern California. Bare-root bundles and seed buoys have been utilized with some mixed success in northern portions of the state. Transplants using frames have also been used with some limited success. For transplants in southern California, plantings consisting of bare-root bundles consisting of 8-12 individual turions each have proven to be most successful (Merkel 1988).

Donor material should be taken from the area of direct impact whenever practical, unless the action resulted in reduced density of eelgrass at the area of impact. Site selections should consider the similarity of physical environments between the donor site and the transplant receiver site and should also consider the size, stability, and history of the donor site (*e.g.*, how long has it persisted and is it a transplant site). Plants harvested should be taken in a manner to thin an existing bed without leaving any noticeable bare areas. For all geographic areas, no more than 10 percent of an existing donor bed should be harvested for transplanting purposes. Ten percent is reasonable based on recommendations in Thom *et al.* (2008) and professional practice under SCEMP. Harvesting of flowering shoots for seed buoy techniques should occur only from widely separated plants.

It is important for action agencies to note that state laws and regulations affect the harvesting and transplantation of donor plants and permission from the state, where required, should be obtained; for example, California Department of Fish and Wildlife may need to provide written authorization for harvesting and transplanting donor plants and/or flowering shoots.

4. Mitigation Plan

NMFS should recommend that a mitigation plan be developed for in-kind mitigation efforts. During consultation, NMFS biologists should request that mitigation plans be provided at least 60 days prior to initiation of project activities to allow for NMFS review. When feasible, mitigation plans should be developed based on preliminary or pre-project eelgrass surveys. When there is uncertainty regarding whether impacts to eelgrass will occur, and the need for mitigation is based on comparison of pre- and post-project eelgrass surveys, NMFS biologists should request that the mitigation plan be provided no more than 60 days following the post-project survey to allow for NMFS review and minimize any delay in mitigation implementation.

At a minimum, the mitigation plan should include:

- Description of the project area
- Results of preliminary eelgrass survey and pre/post-project eelgrass surveys if available (see Section II.B.1 and II.B.2)
- Description of projected and/or documented eelgrass impacts
- Description of proposed mitigation site and reference site(s) (see Section II.B.4)
- Description of proposed mitigation methods (see Section II.F.3)
- Construction schedule, including specific starting and ending dates for all work including mitigation activities. (see Section II.F.5)
- Schedule and description of proposed post-project monitoring and when results will be provided to NMFS
- Schedule and description of process for continued coordination with NMFS through mitigation implementation
- Description of alternative contingent mitigation or adaptive management should proposed mitigation fail to achieve performance measures (see Section II.F.6)

5. Mitigation Timing

Mitigation should commence within 135 days following the initiation of the in-water construction resulting in impact to the eelgrass habitat, such that mitigation commences within the same eelgrass growing season as impacts occur. If possible, mitigation should be initiated prior to or concurrent with impacts. For impacts initiated within 90 days prior to, or during, the low-growth period for the region, mitigation may be delayed to within 30 days after the start of the following growing season, or 90 days following impacts, whichever is longer, without the need for additional mitigation as described below. This timing avoids survey completion during the low growth season, when results may misrepresent progress towards performance milestones.

Delays in eelgrass mitigation result in delays in ultimate reestablishment of eelgrass habitat functions, increasing the duration and magnitude of project impacts to eelgrass. To offset loss of eelgrass habitat function that accumulates through delay, an increase in successful eelgrass

mitigation is needed to achieve the same compensatory habitat function. Because habitat function is accumulated over time once the mitigation habitat is in place, the longer the delay in initiation of mitigation, the greater the additional habitat area needed (i.e., mitigation ratio increasingly greater than 1.2:1) to offset losses. Unless a specific delay is authorized or dictated by the initial schedule of work, federal action agencies should determine whether delays in mitigation initiation in excess of 135 days warrant an increased final mitigation ratio. If increased mitigation ratios are warranted, NMFS should recommend higher mitigation ratios (see Attachment 7). Where delayed implementation is authorized by the action agency, the increased mitigation ratio may be determined by utilizing the Wetlands Mitigation Calculator (King and Price 2004) with an appropriate value for parameter D (See Attachment 4). Examples of delay multipliers generated using the Wetlands Mitigation Calculator are provided in Attachment 5.

Conversely, implementing mitigation ahead of impacts can be used to reduce the mitigation needs by achieving replacement of eelgrass function and services ahead of eelgrass losses. If eelgrass is successfully transplanted three years ahead of impacts, the mitigation ratio would drop from 1.2:1 to 1:1. If mitigation is completed less than three years ahead of impacts, the mitigation calculator can be used to determine the appropriate intermediate mitigation ratio.

### 6. Mitigation Monitoring and Performance Milestones

In order to document progress and persistence of eelgrass habitat at the mitigation site through and beyond the initial establishment period, which generally is three years, monitoring should be completed for a period of five years at both the mitigation site and at an appropriate reference site(s) (Section II.B.4. Reference Site Selection). Monitoring at a reference site(s) may account for any natural changes or fluctuations in habitat area or density. Monitoring should determine the area of eelgrass and density of plants at 0, 12, 24, 36, 48, and 60 months after completing the mitigation. These intervals will provide yearly updates on the establishment and persistence of eelgrass during the growing season. These monitoring recommendations are consistent with findings of the National Research Council (NRC 2001), the Corps requirements for compensatory mitigation (33 CFR 332.6(b)), and other regional resource policies (Corps 2010, Evans and Leschen 2010, SFWMD 2007).

All monitoring work should be conducted during the active eelgrass growth period and should avoid the recognized low growth season for the region to the maximum extent practicable (typically November through February for southern California, November through March for central California, November through March for San Francisco Bay, and October through April for northern California). Sufficient flexibility in the scheduling of the 6 month surveys should be allowed in order to ensure the work is completed during this active growth period. Additional monitoring beyond the 60-month period may be warranted in those instances where the stability of the proposed mitigation site is questionable, where the performance of the habitat relative to reference sites is erratic, or where other factors may influence the long-term success of mitigation. Mitigation plans should include a monitoring schedule that indicates when each of the monitoring events will be completed.

The monitoring and performance milestones described below are included as eelgrass transplant success criteria in the SCEMP. These numbers represent milestones and associated timelines

typical of successful eelgrass habitat development based on NMFS' experience with: (1) conducting eelgrass surveys and monitoring and (2) reviewing mitigation monitoring results for projects implemented under SCEMP. Restored eelgrass habitat is expected to develop through an initial 3 year monitoring period such that, within 36 months following planting, it meets or exceeds the full coverage and not less than 85 percent of the density relative to the initial condition of affected eelgrass habitat. Restored eelgrass habitat is expected to sustain this condition for at least 2 additional years.

Monitoring events should evaluate the following performance milestones:

Month 0 – Monitoring should confirm the full coverage distribution of planting units over the initial mitigation site as appropriate to the geographic region.

Month 6 – Persistence and growth of eelgrass within the initial mitigation area should be confirmed, and there should be a survival of at least 50 percent of the initial planting units with well-distributed coverage over the initial mitigation site. For seed buoys, there should be demonstrated recruitment of seedlings at a density of not less than one seedling per four (4) square meters with a distribution over the extent of the initial planting area. The timing of this monitoring event should be flexible to ensure work is completed during the active growth period.

Month 12– The mitigation site should achieve a minimum of 40 percent coverage of eelgrass and 20 percent density of reference site(s) over not less than 1.2 times the area of the impact site.

Month 24– The mitigation site should achieve a minimum of 85 percent coverage of eelgrass and 70 percent density of reference site(s) over not less than 1.2 times the area of the impact site.

Month 36– The mitigation site should achieve a minimum of 100 percent coverage of eelgrass and 85 percent density of reference site(s) over not less than 1.2 times the area of the impact site.

Month 48– The mitigation site should achieve a minimum of 100 percent coverage of eelgrass and 85 percent density of reference site(s) over not less than 1.2 times the area of the impact site.

Month 60– The mitigation site should achieve a minimum of 100 percent coverage of eelgrass and 85 percent density of reference site(s) over not less than 1.2 times the area of the impact site.

Performance milestones may be re-evaluated or modified if declines at a mitigation site are also demonstrated at the reference site, and therefore, may be a result of natural environmental stressors that are unrelated to the intrinsic suitability of the mitigation site. In the EFH consultation context, NMFS should provide recommendations regarding modification of performance milestones as technical assistance during interagency coordination as described in

the mitigation plan or as EFH Conservation Recommendations if the federal action agency re-initiates EFH consultation.

7. Mitigation Reporting

NMFS biologists should request monitoring reports and spatial data for each monitoring event in both hard copy and electronic version, to be provided within 30 days after the completion of each monitoring period to allow timely review and feedback from NMFS. These reports should clearly identify the action, the action party, mitigation consultants, relevant points of contact, and any relevant permits. The size of permitted eelgrass impact estimates, actual eelgrass impacts, and eelgrass mitigation needs should be identified, as should appropriate information describing the location of activities. The report should include a detailed description of eelgrass habitat survey methods, donor harvest methods and transplant methods used. The reports should also document mitigation performance milestone progress (see II.F.6. Mitigation Monitoring and Performance Milestones). The first report (for the 0-month post-planting monitoring) should document any variances from the mitigation plan, document the sources of donor materials, and document the full area of planting. The final mitigation monitoring report should provide the action agency and NMFS with an overall assessment of the performance of the eelgrass mitigation site relative to natural variability of the reference site to evaluate if mitigation responsibilities were met. An example summary is provided in Attachment 3.

8. Supplemental Mitigation

Where development of the eelgrass habitat at the mitigation site falls short of achieving performance milestones during any interim survey, the monitoring period should be extended and supplemental mitigation may be recommended to ensure that adequate mitigation is achieved. In the EFH consultation context, NMFS should provide recommendations regarding extended monitoring as technical assistance during interagency coordination as described in the mitigation plan or as EFH Conservation Recommendations if the federal action agency re-initiates EFH consultation. In some instances, an adaptive management corrective action to the existing mitigation area may be appropriate. In the event of a mitigation failure, the action agency should convene a meeting with the action party, NMFS, and applicable regulatory and/or resource agencies to review the specific circumstances and develop a solution to achieve no net loss in eelgrass habitat function.

As indicated previously, while in-kind mitigation is preferred, the most appropriate form of compensatory mitigation should be determined on a case-by-case basis. In cases where it is demonstrated that in-kind replacement is infeasible, out-of-kind mitigation may be appropriate over completion of additional in-kind mitigation. The determination that an out-of-kind mitigation is appropriate will be made by NMFS, the action agency, and the applicable regulatory agencies, where a regulatory action is involved.

## G. Special Circumstances

Depending on the circumstances of each individual project, NMFS may make recommendations different from those described above on a case by case basis. For the scenarios described below,

for example, NMFS could recommend a mitigation ratio or 1:1 or for use of out-of-kind mitigation. Because NMFS needs a proper understanding of eelgrass habitat in the project area and potential impacts of the proposed project to evaluate the full effects of authorized activities, NMFS should not make recommendations that diverge from these guidelines if they would result in surveys, assessments or reports inferior to those which might be obtained through the guidance in Section II. The area thresholds described below are taken from the SCEMP and/or reflect recommendations NMFS staff have repeatedly made during individual EFH consultations. These thresholds minimize impacts to eelgrass habitat quality and quantity, based on NMFS' experience with: (1) conducting eelgrass surveys and monitoring and (2) reviewing project monitoring results for projects implemented under SCEMP. The special circumstance included for shellfish aquaculture longlines is supported by Rumrill and Poulton (2004) and the NMFS Office of Aquaculture.

1. Localized Temporary Impacts

NMFS may consider modified target mitigation ratios for localized temporary impacts wherein the damage results in impacts of less than 100 square meters and eelgrass habitat is fully restored within the damage footprint within one year of the initial impact (e.g., placement of temporary recreational facilities, shading by construction equipment, or damage sustained through vessel groundings or environmental clean-up operations). In such cases, the 1.2:1 mitigation ratio should not apply, and a 1:1 ratio of impact to recovery would apply. A monitoring program consisting of a pre-construction eelgrass survey and three post-construction eelgrass surveys at the impact site and appropriate reference site(s) should be completed in order to demonstrate the temporary nature of the impacts. NMFS should recommend that surveys be completed as follows: 1) the first post-construction eelgrass survey should be completed within 30 days following completion of construction to evaluate direct effects of construction, 2) the second and third post-construction surveys should be performed approximately one year after the first post-construction survey, and approximately two years after the first post-construction survey, respectively, during the appropriate growing season to confirm no indirect, or longer term effects resulted from construction. A compelling reason should be demonstrated before any reduced monitoring and reporting recommendations are made.

2. Localized Permanent Impacts

a) If both NMFS and the authorizing action agencies concur, the compensatory mitigation elements of this policy may not be necessary for the placement of a single pipeline, cable, or other similar utility line across existing eelgrass habitat with an impact corridor of no more than 1 meter wide. NMFS should recommend the completion of pre- and post-action surveys as described in section II.B. and II.D. The actual area of impact should be determined from the post-action survey. NMFS should recommend the completion of an additional survey (after 1 year) to ensure that the action or impacts attributable to the action have not exceeded the 1-meter corridor width. NMFS should recommend that, if the post-action or 1 year survey demonstrates a loss of eelgrass habitat greater than the 1-meter wide corridor, mitigation should be undertaken.

b) ) If both NMFS and the authorizing action agencies concur that the spacing of shellfish aquaculture longlines does not result in a measurable net loss of eelgrass habitat in the project

area, then mitigation associated with local losses under longlines may not be necessary. NMFS should recommend the completion of pre- and post-action surveys as described in section II.B. and II.D. NMFS should recommend the completion of additional post-action monitoring surveys (to be completed approximately 1 year and 2 years following implementation of the action) to ensure that the action or impacts attributable to the action have not resulted in net adverse impacts to eelgrass habitat. NMFS should recommend that, if the 1-year or 2-year survey demonstrates measurable impact to eelgrass habitat, mitigation should be undertaken. c) NMFS should consider mitigation on a 1:1 basis for impacts less than 10 square meters to eelgrass patches where impacts are limited to small portions of well-established eelgrass habitat or eelgrass habitat that, despite highly variable conditions, generally retain extensive eelgrass, even during poor years. A reduced mitigation ratio should not be considered where impacts would occur to isolated or small eelgrass habitat areas within which the impacted area constitutes more than 1% of the eelgrass habitat in the local area during poor years.

c) If NMFS concurs and suitable out-of-kind mitigation is proposed, compensatory mitigation may not be necessary for actions impacting less than 10 square meters of eelgrass.

## III. Glossary of Terms

Except where otherwise specified, the explanations of the following terms are provided for informational purposes only and are described solely for the purposes of this policy; where a NMFS statute, regulation, or agreement requires a different understanding of the relevant term, that understanding of the term will supplant these explanations provided below.

Compensatory mitigation – restoration, establishment, or enhancement of aquatic resources for the purposes of offsetting unavoidable authorized adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Ecosystem – a geographically specified system of organisms, the environment, and the processes that control its dynamics. Humans are an integral part of an ecosystem.

Ecosystem function – ecological role or process provided by a given ecosystem.

Ecosystem services – contributions that a biological community and its habitat provide to the physical and mental well-being of the human population (*e.g.*, recreational and commercial opportunities, aesthetic benefits, flood regulation).

Eelgrass habitat – areas of vegetated eelgrass cover (any eelgrass within 1 square meter quadrat and within 1 m of another shoot) bounded by a 5 m wide perimeter of unvegetated area

Essential fish habitat (EFH) – EFH is defined in the MSA as "...those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

EFH Assessment – An assessment as further explained in 50 C.F.R. § 600.920(e).

EFH Consultation – The process explained in 50 C.F.R. § 600.920

EFH Conservation Recommendation – provided by the National Marine Fisheries Service (NMFS) to a federal or state agency pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act regarding measures that can be taken by that agency to conserve EFH. As further explained in 50 C.F.R. § 600.925, EFH Conservation Recommendations may be provided as part of an EFH consultation with a federal agency, or may be provided by NMFS to any federal or state agency whose actions would adversely affect EFH .

Habitat – environment in which an organism(s) lives, including everything that surrounds and affects its life, including biological, chemical and physical processes.

Habitat function – ecological role or process provided by a given habitat (*e.g.*, primary production, cover, food, shoreline protection, oxygenates water and sediments, etc.).

In lieu fee program – a program involving the restoration, establishment, and/or enhancement of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation needs; an in lieu fee program works like a mitigation bank, however, fees to compensate for impacts to habitat function are collected prior to establishing an on-the-ground conservation/restoration project.

In-kind mitigation – mitigation where the adverse impacts to a habitat are mitigated through the creation, restoration, or enhancement of the same type of habitat.

Mitigation – action or project undertaken to offset impacts to an existing natural resource.

Mitigation bank – a parcel of land containing natural resource functions/values that are conserved, restored, created and managed in perpetuity and used to offset unavoidable impacts to comparable resource functions/values occurring elsewhere. The resource functions/values contained within the bank are translated into quantified credits that may be sold by the banker to parties that need to compensate for the adverse effects of their activities.

Out-of-kind mitigation – mitigation where the adverse impacts to one habitat type are mitigated through the creation, restoration, or enhancement of another habitat type

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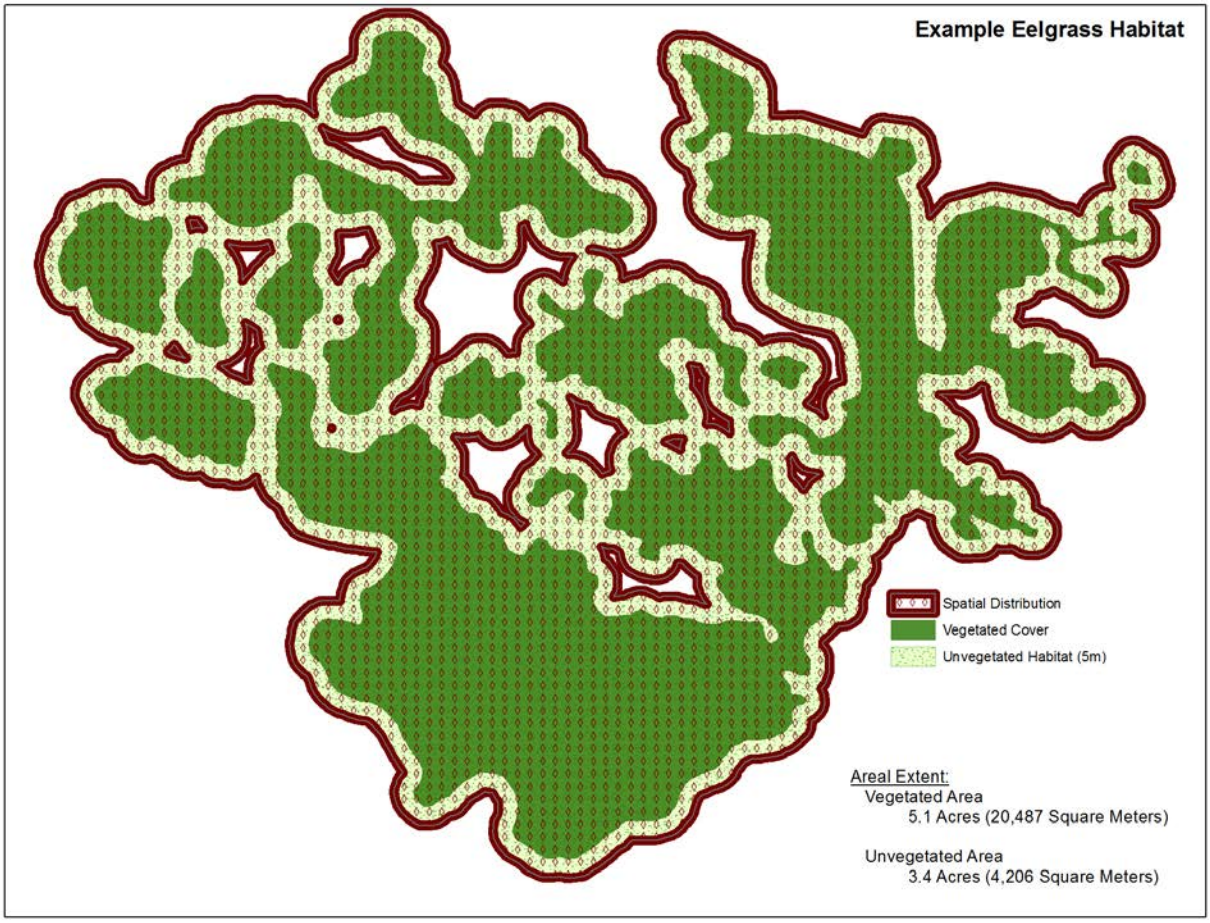
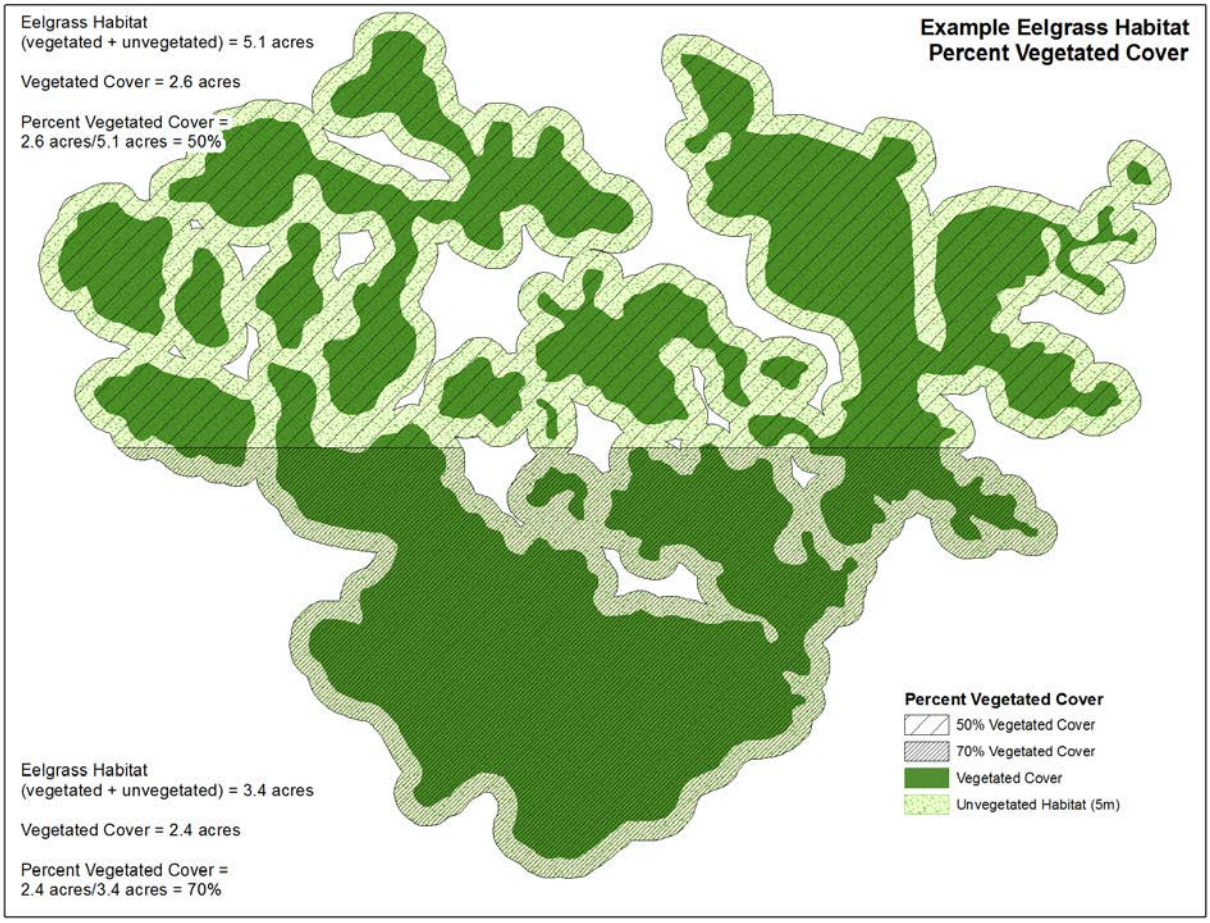
**ATTACHMENT 1. Graphic depiction of eelgrass habitat definition including spatial distribution and aerial coverage of vegetated cover and unvegetated eelgrass habitat.**

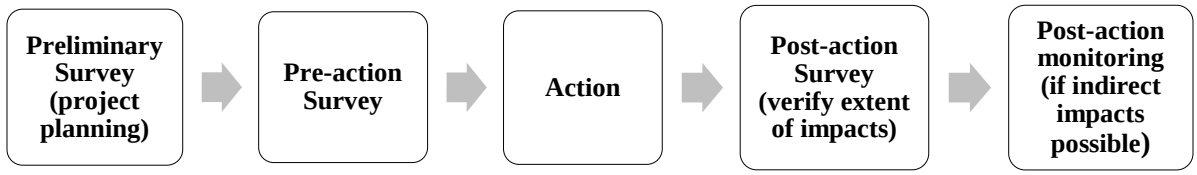


**ATTACHMENT 2. Example Eelgrass Habitat Percent Vegetated Cover.**



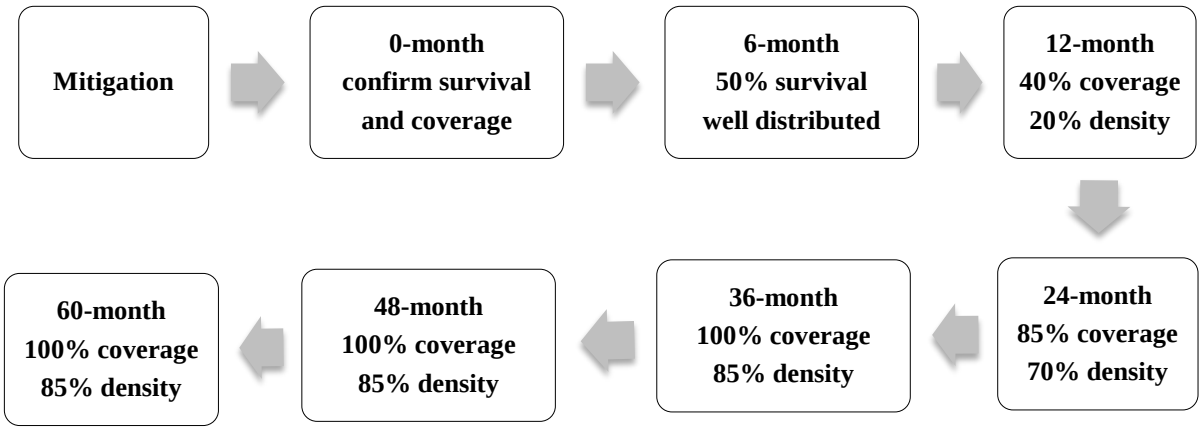
**ATTACHMENT 3. Flow chart depicting timing of surveys and monitoring.**

a) Eelgrass impact surveys




- All surveys should be completed during the growing season
- Surveys should be completed at the impact site and an appropriate reference site(s)
- A preliminary survey completed for planning purposes may be completed a year or more in advance of the action.
- Pre-action and post-action surveys should be completed within 60 days of the action.
- A survey is good for 60 days, or if that 60 day period extends beyond the end of growing season, until start of next growing season
- Two years of monitoring following the initial post-action monitoring event may be needed to verify lack or extent of indirect effects.
- Survey reports should be provided to NMFS and the federal action agency within 30 days of completion of each survey event

b) Eelgrass mitigation monitoring




- Mitigation should occur coincident or prior to the action
- All monitoring should be completed during the growing season
- Performance metrics for each monitoring event are compared to the 1.2:1 mitigation ratio
- Monitoring reports should be provided to NMFS and the federal action agency 30 days of completion of each monitoring event
- NMFS and action agency will evaluate if performance metrics met, and decide if supplemental mitigation or other adaptive management measures are needed

**ATTACHMENT 4. Eelgrass transplant monitoring report.**

In order to ensure that NMFS is aware of the status of eelgrass transplants, action agencies should provide or ensure that NMFS is provided a monitoring report summary with each monitoring report. For illustrative purposes only, an example of a monitoring report summary is provided below.

**ACTION PARTY CONTACT INFORMATION:**

| |
|---|
| Action Name (same as permit reference): |

*(a) Action party Information*

| | | | |
|---|---|---|---|
| Name | | Address | |
| Contact Name | | City, State, Zip | |
| Phone | | Fax | |
| Email | | | |

**MITIGATION CONSULTANT**

| | | | |
|---|---|---|---|
| Name | | Address | |
| Contact Name | | City, State, Zip | |
| Phone | | Fax | |
| Email | | | |

**PERMIT DATA:**

| Permit | Issuance Date | Expiration Date | Agency Contact |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

**EELGRASS IMPACT AND MITIGATION NEEDS SUMMARY:**

| | | | |
|---|---|---|---|
| Permitted Eelgrass Impact Estimate ($m^2$): | | | |
| Actual Eelgrass Impact ($m^2$): | | On (post-construction date): | |
| Eelgrass Mitigation Needs ($m^2$): | | Mitigation Plan Reference: | |
| Impact Site Location: | | | |
| Impact Site Center Coordinates (actionion & | | | |

| | |
|---|---|
| datum): | |
| Mitigation Site Location: | |
| Mitigation Site Center Coordinates (actionion & datum): | |

**ACTION ACTIVITY DATA:**

| Activity | Start Date | End Date | Reference Information |
|---|---|---|---|
| Eelgrass Impact | | | |
| Installation of Eelgrass Mitigation | | | |
| Initiation of Mitigation Monitoring | | | |

**MITIGATION STATUS DATA:**

| | Mitigation Milestone | Scheduled Survey | Survey Date | Eelgrass Habitat Area ($m^2$) | Bottom Coverage (Percent) | Eelgrass Density (turions/$m^2$) | Reference Information |
|---|---|---|---|---|---|---|---|
| **Month** | **0** | | | | | | |
| | **6** | | | | | | |
| | **12** | | | | | | |
| | **24** | | | | | | |
| | **36** | | | | | | |
| | **48** | | | | | | |
| | **60** | | | | | | |

**FINAL ASSESSMENT:**

| | |
|---|---|
| **Was mitigation met?** | |
| **Were mitigation and monitoring performed timely?** | |
| **Were mitigation delay increases needed or were supplemental mitigation programs necessary?** | |

**ATTACHMENT 5. Wetlands mitigation calculator formula and parameters.**

Starting mitigation ratios for each region within California were calculated using "The Five-Step Wetland Mitigation Ratio Calculator" (King and Price 2004) developed for NMFS Office of Habitat Conservation. The discrete time equation this method uses to solve for the appropriate mitigation ratio is as follows:

$$R = \frac{\sum_{t=0}^{T_{max}} (1+r)^{-t}}{(B(1-E)(1+L)-A)\left[\sum_{t=-D}^{C-D-1} \frac{(t+D)}{C(1+r)^t} + \sum_{C-D}^{T_{max}} (1+r)^{-t}\right] + \left[\sum_{t=-D}^{T_{max}} \frac{\left(1-(1-k)^{(t+D)}\right)}{(1+r)^{(t+D)}}\right](A(1+L))}$$

The calculator parameters in the above equation and values used to calculate starting mitigation ratios for CEMP are as follows:

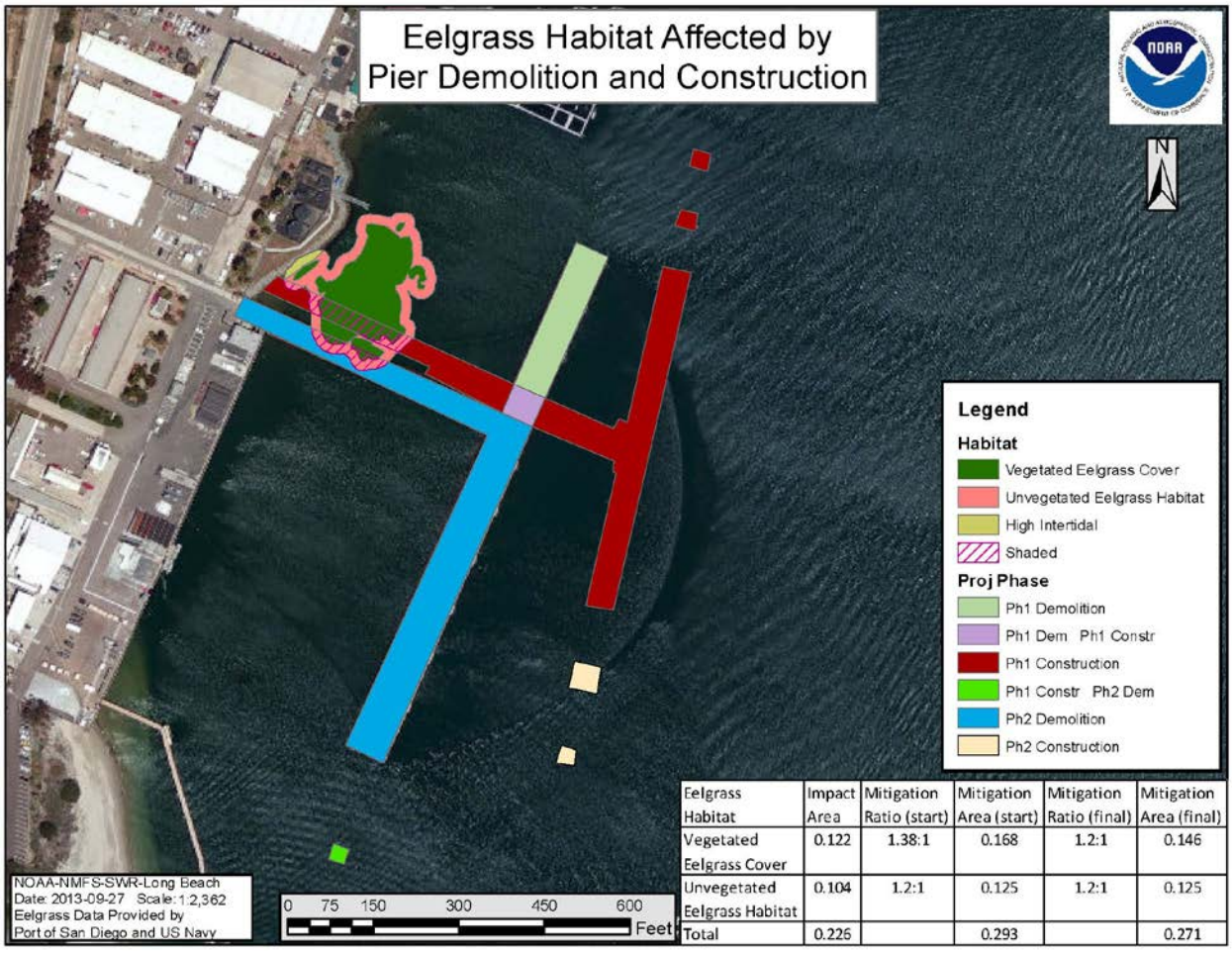
| Symbol | Calculator Parameter | Value |
|---|---|---|
| A | The level of habitat function provided at the mitigation site prior to the mitigation project | 0% |
| B | The maximum level of habitat function that mitigation is expected to attain, if it is successful | 100% |
| C | The number of years after construction that the mitigation project is expected to achieve maximum function | 3 yrs |
| D | The number of years before destruction of the impacted wetland that the mitigation project begins to generate habitat function | 0 yrs |
| E | The percent likelihood that the mitigation project will fail and provide none of the anticipated benefits | various* |
| L | The percent difference in expected habitat function based on differences in landscape context of the mitigation site when compared with the impacted wetland | 0% |
| k | The percent likelihood that the mitigation site, in the absence purchase or easement would be developed in any future year | 0% |
| r | The discount rate used for comparing gains and losses that accrue at different times in terms of their present value | 3%** |
| Tmax | The time horizon used in the analysis (chosen to maintain 1.2:1 ratio at E=100% and other parameter values listed above). | 13 yrs |

* The value for E was based on regional history of success in eelgrass mitigation and varied between regions (see Attachment X).

** NOAA suggests the use of a 3 percent real discount rate for discounting interim service losses and restoration gains, unless a different proxy for the social rate of time preference is more appropriate. (NOAA-DARP 1999) We use this value here, because it is based on best available information and is consistent with the NOAA Damage Assessment and Restoration Program.

**ATTACHMENT 6. Example calculations for application of starting and final mitigation ratios for impacts to eelgrass habitat in southern California.**

In this example, a pier demolition and construction would impact 0.122 acres of vegetated eelgrass habitat (dark green) and 0.104 acres of unvegetated habitat (pink). Area of impact is indicated by purple hatch mark. Application of recommended starting mitigation ratio for southern California (1.38:1) and final mitigation ratio (1.2:1) to compute starting and final mitigation area for this example are shown in the table.




| Eelgrass Habitat | Impact Area | Mitigation Ratio (start) | Mitigation Area (start) | Mitigation Ratio (final) | Mitigation Area (final) |
|---|---|---|---|---|---|
| Vegetated Eelgrass Cover | 0.122 | 1.38:1 | 0.168 | 1.2:1 | 0.146 |
| Unvegetated Eelgrass Habitat | 0.104 | 1.2:1 | 0.125 | 1.2:1 | 0.125 |
| Total | 0.226 | | 0.293 | | 0.271 |

**ATTACHMENT 7. Example mitigation area multipliers for delay in initiation of mitigation activities.**

Delays in eelgrass transplantation result in delays in ultimate reestablishment of eelgrass habitat values, increasing the duration and magnitude of project effects to eelgrass. The delay multipliers in the table below have been generated by altering the implementation start time within "The Five-Step Wetland Mitigation Ratio Calculator" (King and Price 2004).

| MONTHS POST-IMPACT | DELAY MULTIPLIER (Percent of Initial Mitigation Area Needed) |
|---|---|
| 0-3 mo | 100% |
| 4-6 mo | 107% |
| 7-12 mo | 117% |
| 13-18 mo | 127% |
| 19-24 mo. | 138% |
| 25-30 mo. | 150% |
| 31-36 mo | 163% |
| 37-42 mo. | 176% |
| 43-48 mo. | 190% |
| 49-54 mo. | 206% |
| 55-60 mo. | 222% |

NOAA FISHERIES

**ATTACHMENT 8. Summary of Eelgrass Transplant Actions in California**

*See table starting next page.*

## SUMMARY OF EELGRASS (*ZOSTERA MARINA*) TRANSPLANT PROJECTS IN CALIFORNIA

| No. | Region | System | Location | Year | Size* | Type** | Consistent with Permit Conditions | Success Status*** | Net Result**** |
|---|---|---|---|---|---|---|---|---|---|
| **Southern California Eelgrass Restoration History** | | | | | | | | | |
| | Southern | San Diego Bay | North Island | 1976 | <0.1 | SP | yes | no | - |
| | Southern | San Diego Bay | "Delta" Beach | 1977 | 1.6 | SP | yes | partial | - |
| | Southern | San Diego Bay | North Island | 1978 | <0.1 | SP | yes | yes | + |
| | Southern | Newport Bay | Carnation Cove | 1978 | <0.1 | SP | no | no | - |
| | Southern | Newport Bay | West Jetty | 1980 | <0.1 | SP | yes | partial | 0 |
| | Southern | Mission Bay | multiple beaches | 1982 | <0.1 | SP | no | partial | 0 |
| | Southern | LA/LB Harbor | Cabrillo Beach | 1985 | <0.1 | BR | yes | yes | + |
| | Southern | Alamitos Bay | Peninsula | 1985 | <0.1 | BR | yes | yes | + |
| | Southern | Huntington Hbr. | Main Channel | 1985 | <0.1 | BR | yes | no | 0 |
| | Southern | Newport Bay | Upper | 1985 | <0.1 | BR | yes | no | 0 |
| | Southern | Mission Bay | Sail Bay | 1986 | 2.7 | BR | yes | yes | + |
| | Southern | San Diego Bay | NEMS I | 1987 | 3.8 | BR | no | yes | + |
| | Southern | San Diego Bay | Chula Vista Wildlife Reserve | 1987 | <0.1 | BR | yes | no | +[1] |
| | Southern | San Diego Bay | Harbor Island | 1988 | 0.1 | BR | yes | yes | + |
| | Southern | Huntington Harbour | Entrance Channel | 1989 | 0.1 | BR | no | yes | + |
| | Southern | San Diego Bay | Le Meridien Hotel | 1990 | <0.1 | BR | yes | yes | + |
| | Southern | San Diego Bay | Embarcadero | 1991 | <0.1 | BR | yes | yes | +[2] |
| | Southern | Mission Bay | Sea World Lagoon | 1991 | <0.1 | BR | yes | yes | + |
| | Southern | San Diego Bay | Loew's Marina | 1991 | <0.1 | BR | yes | yes | + |
| | Southern | San Diego Bay | NEMS 2 | 1993 | <0.1 | BR | yes | yes | + |
| | Southern | San Diego Bay | Sea Grant Study | 1993 | <0.1 | BR | yes | yes | + |
| | Southern | Agua Hedionda Lagoon | Outer Lagoon | 1993 | <0.1 | BR | yes | yes | + |
| | Southern | San Diego Bay | NEMS 5 | 1994 | 0.4 | BR | yes | yes | + |
| | Southern | Mission Bay | South Shores Basin | 1994 | 2.9 | BR | yes | yes | + |
| | Southern | Talbert Marsh | Talbert Channel | 1995 | <0.1 | BR | na | yes | +[4] |
| | Southern | Mission Bay | various sites | 1995 | 4.8 | BR | yes | yes | + |
| | Southern | Mission Bay | Ventura Cove[5] | 1996 | 0.5 | BR | yes | yes | +[6] |
| | Southern | Mission Bay | Santa Clara Cove | 1996 | <0.1 | BR | yes | no | 0[10] |
| | Southern | Mission Bay | West Mission Bay Drive Bridge | 1996 | <0.1 | BR | no | yes | 0[10] |
| | Southern | Mission Bay | De Anza Cove | 1996 | <0.1 | BR | yes | yes | + |
| | Southern | Batiquitos Lagoon | all basins | 1997 | 21.6[7] | BR | yes | yes | +[4] |
| | Southern | San Diego Bay | NEMS 5 | 1997 | 7.1 | BR | yes | yes | + |
| | Southern | San Diego Bay | Convair Lagoon | 1998 | 2.5 | BR | yes | no | -[12] |
| | Southern | San Diego Bay | NEMS 6 | 1999 | 0.3 | BR | yes | yes | + |
| | Southern | Aqua Hedionda | Bristol Cove | 1999 | 0.3 | BR | yes | yes | + |
| | Southern | Aqua Hedionda | Middle Lagoon and Inner Lagoon | 1999 | 4 | BR | yes | yes | + |
| | Southern | Newport Bay | Balboa Is.Grand Cana | 1999 | <0.1 | BR | yes | yes | + |
| | Southern | Mission Bay | West Ski Island | 2001 | 0.2 | BR | yes | yes | + |

| No. | Region | System | Location | Year | Size* | Type** | Consistent with Permit Conditions | Success Status*** | Net Result**** |
|---|---|---|---|---|---|---|---|---|---|
| | Southern | San Diego Bay | Expanded NEMS 6 | 2001 | 0.6 | BR | yes | yes | + |
| | Southern | Newport Bay | USCG Corona del Mar | 2002 | <0.1 | BR | yes | yes | + |
| | Southern | Huntington Harbour | Sunset Bay | 2002 | <0.1 | BR | yes | yes | + |
| | Southern | San Diego Bay | Navy Enhancement Is. | 2002 | 1 | BR | yes | yes | + |
| | Southern | San Diego Bay | Coronado Bay Bridge | 2003 | 0.3 | BR | no | no | 0 |
| | Southern | LA Harbor | P300 Expansion Area | 2003 | 5.9 | BR | yes | partial | -[9] |
| | Southern | Newport Bay | Newport Bay Channel Dredging | 2004 | 0.4 | BR | yes | no | - |
| | Southern | San Diego Bay | South Bay Borrow Pit | 2004 | 4.2 | BR | yes | yes | pending[8] |
| | Southern | San Diego Bay | USCG ATC Pier | 2004 | 0.1 | BR | yes | yes | + |
| | Southern | San Diego Bay | South Bay Borrow Pit Sup. | 2006 | 4.2 | BR | yes | yes | pending[8] |
| | Southern | San Diego Bay | D Street Marsh | 2006 | 0.3 | BR | yes | pending | pending |
| | Southern | LA Harbor | P300 Supplement | 2007 | 0.8 | BR | yes | yes | pending |
| | Southern | San Diego Bay | Glorietta Bay Shoreline Park | 2007 | 0.2 | BR | yes | yes | pending |
| | Southern | Bolsa Chica | Pilot Eelgrass Restoration | 2007 | 0.5 | BR | yes | yes | +[4] |
| | Southern | San Diego Bay | Borrow Pit Supplement | 2007 | 4.2 | BR | yes | yes | pending[8] |
| | Southern | San Diego Bay | Sweetwater Silvergate Frac-out | 2008 | <0.1 | BR | yes | yes | 0[11] |
| | Southern | San Diego Bay | Harbor Drive Bridge/NTC Channel | 2009 | <0.1 | BR | yes | pending | pending |
| **Southern California Eelgrass Success Rate (1989-2009, Last 20 Years)** | | | | | | | | **87%** | **n=43** |
| **Central California Eelgrass Restoration History** | | | | | | | | | |
| | Central | Morro Bay | Anchorage Area | 1985 | <0.1 | BR | no | yes | + |
| | Central | Morro Bay | Target Rock | 1997 | <0.1 | BR | no | yes | + |
| | Central | Morro Bay | Morro Bay Launch Ramp | 2000 | <0.1 | BR | yes | yes | + |
| | Central | Morro Bay | Mooring Area A1 | 2002 | 0.3 | BR | yes | yes | + |
| | Central | Morro Bay | Western Shoal | 2010 | 0.8 | BR | yes | pending | pending |
| **Central California Eelgrass Success Rate (1985-2009, Inadequate History to Exclude Older Projects)** | | | | | | | | **100%** | **n=4** |
| **San Francisco Bay Eelgrass Restoration History** | | | | | | | | | |
| | San Francisco Bay | San Francisco Bay | Richmond Training Wall | 1985 | <0.1 | BR | NA | no | NA[4] |
| | San Francisco Bay | San Francisco Bay | Keil Cove and Paradise Cove | 1989 | 0.1 | Plugs | NA | partial | NA[4] |
| | San Francisco Bay | San Francisco Bay | Bayfarm Island/Middle Harbor Shoal | 1998 | 0.1 | BR and Plugs | NA | partial | NA[4] |
| | San Francisco Bay | San Francisco Bay | Bayfarm Island | 1999 | 0.1 | BR | NA | partial | NA[4] |
| | San Francisco Bay | San Francisco Bay | Brickyard Cove, Berkeley | 2002 | 0.2 | BR | yes | yes | +[13] |
| | San Francisco Bay | San Francisco Bay | Emeryville Shoals | 2002 | 0.1 | Mixed Test | NA | no | NA[4] |
| | San Francisco Bay | San Francisco Bay | Marin CDay, R&GC, Audubon | 2006 | 0.6 | Seed Bouy | NA | partial | pending[4] |
| | San Francisco Bay | San Francisco Bay | Marin CDay, R&GC, Audubon | 2006 | <0.1 | mod. TERFS | NA | partial | pending[4] |
| | San Francisco Bay | San Francisco Bay | Marin CDay, R&GC, Audubon | 2006 | <0.1 | Seeding | NA | no | NA[4] |
| | San Francisco Bay | San Francisco Bay | Clipper Yacht Harbor, Sausalito | 2007 | <0.1 | Frames | yes | pending | pending |
| | San Francisco Bay | San Francisco Bay | Albany, Emeryville, San Rafael | 2007 | <0.1 | BR | NA | partial | pending[4] |
| | San Francisco Bay | San Francisco Bay | Belvedere | 2008 | <0.1 | Frames | yes | pending | pending |
| **San Francisco Bay Eelgrass Success Rate (1985-2009, Inadequate History to Exclude Older Projects)** | | | | | | | | **40%** | **n=10** |

| No. | Region | System | Location | Year | Size* | Type** | Consistent with Permit Conditions | Success Status*** | Net Result**** |
|---|---|---|---|---|---|---|---|---|---|
| **Northern California Eelgrass Restoration History** | | | | | | | | | |
| | Northern | Humboldt Bay | Indian Island | 1982 | unknown | BR | unknown | no | - |
| | Northern | Bodega Harbor | Spud Point Marina | 1984 | 1.3 | BR | yes | no | - |
| | Northern | Humboldt Bay | Indian Island | 1986 | <0.1 | BR | yes | no | - |
| | Northern | Humboldt Bay | | 1986 | 0.2 | unknown | unknown | no | - |
| | Northern | Humboldt Bay | SR255 Bridge | 2004 | <0.1 | BR | yes | no | - |
| | Northern | Humboldt Bay | Maintenance Dredging Project | 2005 | <0.1 | BR | yes | yes | + |
| **Northern California Eelgrass Success Rate (1982-2009, Inadequate History to Exclude Older Projects)** | | | | | | | | **25%** | **n=4** |

* size in hectares
SP = sediment laden plug

** BR = bare root

*** success status is measured as yes, no, partial, pending, or unknown. Success rate is reported as percentage of sucessful over total completed within the past 25 years.
yes = 1, partial = 0.5, no = 0, and pending or unknown are not counted in either the numerator or denominator in determining success percentage.

**** + = net increase in eelgrass coverage, 0 = no change in eelgrass coverage, - = net decrease in eelgrass coverage

1 Transplant was initially adversely impacted by an unknown source of sediment and was deemed unsuitable.

2 The transplant declined initially and later recovered from what was determined to be a one time sedimentation event.

3 Transplant was experimental due to dense beds of the exotic muscle *Musculista senhousia*
which inhibited the growth of the transplant. Replacement transplant done elsewhere.
Transplant was completed in an area deemed unsuitable. Insufficient coverage required the construction of a remedial site.
Monitoring continues at both the initial and remedial sites.

4 Transplant was experimental.

5 Multiple sites.

6 Mitigation for marina at Princess Resort, project not built

7 Amount of eelgrass present within all basins as of 2000 mapping.

8 Regional eelgrass decline has resulted in die-offs both within restoration and reference areas equally full recovery had not occurred at the time of evaluation, yet project exceeds control-corrected requ

9 Original site was constructed as a plateau that was underfilled and anticipated to fall short of objectives. A supplemental
transplant was therefore completed when development began to exhibit shortfalls in area.

10 Shortfall mitigated by withdraw from established eelgrass mitigation bank.

11 Exception conditions from SCEMP requiring only replacement in place for unanticipated damage

12 Mitigated out-of-kind with non-eelgrass to satisfy permit requirements after shortfall in eelgrass mitigation.

City of Imperial Beach, California
COMMUNITY DEVELOPMENT DEPARTMENT
825 Imperial Beach Blvd., Imperial Beach, CA 91932 Tel: (619) 628-1356 Fax: (619) 424-4093

March 27, 2025

Port of San Diego
3165 Pacific Highway
San Diego, CA 92101

Subject: Port of San Diego Revised Draft Trust Lands Use Plan February 2025

Dear Mr. Campbell:

The City of Imperial Beach appreciates the opportunity to review and provide comment on the Port of San Diego Revised Draft Trust Lands Use Plan and Mitigated Negative Declaration. This letter is to provide comment and support for the planning policies that the Port of San Diego has proposed for the South Bay Planning District (Planning District 14). The policies have been drafted in a manner that aligns with the City of Imperial Beach's vision and goals to enhance recreational and coastal access opportunities along the San Diego Bayfront in a sustainable manner that will protect and enhance the coastal wetland area.

We look forward to continuing collaborating with the Port of San Diego on future project and planning efforts for the south end of San Diego Bay that will enhance recreational uses, transportation corridors for coastal access, and environmental habitat areas.

If you have any questions or comments, please contact me at (619) 628-2381 or mopenshaw@imperialbeachca.gov.

Sincerely,

Meagan Openshaw
Community Development Department Director

**CALIFORNIA COASTAL COMMISSION**
SAN DIEGO DISTRICT OFFICE
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4402
VOICE (619) 767-2370
FAX (619) 767-2384

March 27, 2025

San Diego Unified Port District
Attn: Dennis Campbell
Planning Department
TLUP@portofsandiego.org
(Sent by email)

Subject: Coastal Commission Staff Comments on Revised Draft Trust Land Use Plan and Mitigated Negative Declaration February 2025

Dear Dennis Campbell:

California Coastal Commission (Commission) staff appreciate the opportunity to review and provide preliminary comments on the Revised Draft Trust Land Use Plan (TLUP) and Mitigated Negative Declaration dated February 2025 for the San Diego Unified Port District (District). Notice of availability of the PMPU PEIR was received by email on February 21, 2025. The TLUP, which will be an amendment to the Port of San Diego Port Master Plan (PMP), establishes specific goals, objectives, policies, and standards to addresses the approximately 8,000 acres of submerged lands throughout the San Diego Bay and 99 acres of land area in the South Bay planning district granted to the Port through Senate Bill 507.

## PORT MASTER PLAN AMENDMENT REQUIREMENTS

California Code of Regulations Title 14, Section 13636 requires that port master plan amendments be certified in the same manner as port master plans. Section 30711 of the Coastal Act requires a port master plan to contain information in sufficient detail to allow the Commission to determine its adequacy and conformity with the Coastal Act and outlines key components for port master plans, including the following:

(1) the proposed uses of land and water areas, where known;

(2) the projected design and location of port land areas, water areas, berthing, and navigation ways and systems intended to serve commercial traffic within the area of jurisdiction of the port governing body;

(3) an estimate of the effect of development on habitat areas and the marine environment, a review of existing water quality, habitat areas, and quantitative and qualitative biological inventories, and proposals to minimize and mitigate any substantial adverse impact;

(4) proposed projects listed as appealable in Section 30715 in sufficient detail to be able to determine their consistency with the policies of Chapter 3 (commencing with Section 30200) of the Coastal Act; and

(5) provisions for adequate public hearings and public participation in port planning and development decisions.

The San Diego Unified Port District is subject to the policies in Chapter 8 of the Coastal Act, except for areas mapped as wetland, estuary, or recreation areas in the Coastal Plan and appealable projects listed in Section 30710 which are governed by Chapter 3 policies. The entire water area under the jurisdiction of the Port of San Diego is mapped as an estuary and wetland and is therefore governed by Chapter 3 policies.

Amendments to port master plans must also meet these standards. Importantly, unlike local coastal programs, the Commission cannot suggest modifications to port master plans; they must be approved or denied as submitted. Therefore, close coordination is necessary to ensure consistency with the Coastal Act during the TLUP process.

**RELATIONSHIP TO Port Master Plan Update**

The Port is currently undergoing a full update and replacement of the certified Port Master Plan (excluding the National City Bayfront and Chula Vista Bayfront planning districts), Port Master Plan Update (PMPU) PMP-6-PSD-24-0001-1, which has been submitted for Commission review. The format of the TLUP is largely the same as the PMPU, with various elements including water and land use, mobility, ecology, safety and resiliency, environmental justice, economics, as well as development standards and a glossary. It is unclear if two separate Port Master Plans would be maintained, or whether the TLUP will be integrated into the PMPU. Given the overlapping goals, policies, and procedures, and designations, we recommend that only the new TLUP planning districts be added to the pending PMPU and the rest of the standards and elements, etc. be contained in a single document. Commission staff have been collaborating with Port staff to recommend various changes be integrated into the PMPU for consistency with the Coastal Act, and these recommendations apply equally to the TLUP. If not consolidated as a single document, Commission staff's comments on the policies contained in the PMPU should be incorporated into future revisions of the TLUP. Similarly, any modifications to the PMPU that are certified by the Commission should be incorporated into the TLUP as appropriate.

**LACK OF SPECIFICITY TO PROTECT COASTAL RESOURCES**

As stated above, Section 30711 requires a port master plan amendment to contain information in sufficient detail to allow the Commission to determine its adequacy and conformity with the Coastal Act. However, the TLUP lacks sufficient specificity to adequately protect coastal resources. As discussed in our communications regarding the PMPU, the currently certified PMP describes existing conditions and future development envisioned for each planning district in far more detail; however, the TLUP does not carry forward a similar level of detail. For example, and as discussed below, the vision for each of the planning districts indicate that future coastal flooding adaptation strategies are envisioned; however, it is not clear what the existing conditions are regarding shoreline protection and flooding or what types of strategies may be proposed, and there isn't policy language to address scope and scale of future projects. Another example is regarding the

land area in the South Bay Planning District; as written, it is unclear the current use of the subject area or if any changes are proposed to the current conditions.

## AQUACULTURE

The TLUP promotes a large expansion of aquaculture uses within the bay and would allow aquaculture as a primary use in 6,279.97 acres of the 8,003 acres of coastal waters to be incorporated into the PMP and as a secondary use in 81.03 acres of coastal waters. This area is in addition to the draft PMPU allowances which include aquaculture as a primary use in 1,1017 acres of coastal waters and as a secondary use in 539 acres of 1,930 acres of coastal waters incorporated into that planning document. The Port's Shellfish and Seaweed Aquaculture Program, which is not part of the TLUP or PMPU, further identifies three specific in-water locations for aquaculture to occur which total 1,295 acres including 270 acres of open ocean area west of Imperial Beach and included in the PMPU, 80 acres west of National City known as the former A-8 Anchorage and included in the TLUP, and 945 acres of nearshore open ocean area at Zuniga Shoals which is outside of the Port's jurisdiction. The expansion of aquaculture proposed by the Port in these three documents would be on a scale that is significantly larger than the operational footprint of aquaculture activities in all of California combined which was estimated to be less than 500 acres in 2020[1]. As such, it is important that the TLUP and PMPU include policies to ensure that aquaculture is expanded in a way that is consistent with the Coastal Act in order to protect coastal resources.

Three sections of the Coastal Act specifically address aquaculture. Coastal Act Section 30222.5 states that "oceanfront land that is suitable for coastal dependent aquaculture shall be protected for that use." Section 30411 provides that "[t]he Legislature finds and declares that salt water or brackish water aquaculture is a coastal-dependent use which should be encouraged to augment food supplies and to further the policies set forth in Chapter 4 (commencing with Section 825) of Division 1 [of the California Public Resources Code]." Additionally, aquaculture is included as one of the limited allowable uses for placement of fill in coastal waters and estuaries under Section 30233.

Regarding the placement of fill under Section 30233, aquaculture projects shall be permitted in coastal waters so long as there are no less environmentally damaging feasible alternatives and feasible mitigation measures have been provided to minimize any substantial environmental impacts. To ensure compliance with Section 30233, additional policy language must be added to (1) require the study of alternatives and (2) require feasible mitigation measures be implemented. To protect coastal resources, we recommend that feasible mitigation measures require, at minimum, that eelgrass be avoided, cultivated species be limited to those approved by CDFW for use in San Diego Bay, and that monitoring requirements include third party, independent monitoring to assess impacts to habitat and native species that may occur as a result of increased aquaculture, as monitoring and self-reporting carried out by applicants or project

[1] According to the California Department of Fish and Wildlife's May 2020 Aquaculture Information Report

proponents can raise questions about bias, transparency, and the defensibility of the results.

Please also provide reasoning for the selection of a fixed 15-ft ecological buffer from sensitive habitat areas described in ECO Policy 1.1.8.

Finally, if PD 13.2 is intended to allow an aquaculture project to move forward at the A-8 anchorage without a future PMPA, additional information will be needed to determine the project's consistency with the Coastal Act including site location and size, amount of fill, and species to be cultivated. As indicated above, projects identified in the PMP must contain information in sufficient detail to allow the Commission to determine its adequacy and conformity with the Coastal Act. Given that the proposed TLUP only provides a high-level description of future plans for aquaculture operations, we suggest the inclusion of policy language that states a future PMP amendment will be necessary once project design is more developed and prior to the implementation of a project at this site.

## CONSERVATION/INTERTIDAL ALLOWABLE USES

As indicated in our PMPU comment letters**,** the Wetland and Estuary water use designations of the certified PMP are proposed to be replaced with a water use designation of Conservation/Intertidal in the TLUP and PMPU. However, the Conservation/Intertidal water use description is vague and lacks the protections provided for in the existing Wetland and Estuary water use designations, which limit allowable uses in wetlands to restoration, nature study, or similar resource dependent activities, and allowable uses in estuaries to boating facilities, intake and outfall lines, restoration work, nature study, aquaculture, or resource-dependent activities. This provides protection for wetlands or estuaries and, as such, these water uses should be included in the PMPU as described in the certified PMP. Alternatively, the Conservation/Intertidal water use designation description should be modified to be consistent with the "Wetland" water use designation, which is the most protective of the currently certified water use designations.

## CHAPTER 3.1 - WATER AND LAND USE ELEMENT

- Revise WLU Policy 1.1.3 to allow secondary uses only if primary uses are determined to be not in demand.

- Revise WLU Policy 2.4.1 to also identify no net loss of conservation open space, consistent with the PMPU.

## CHAPTER 3.3 - ECOLOGY ELEMENT

- Revise ECO Policy 1.1.3(2) to clarify that the mitigation bank would be an "approved, certified mitigation bank in San Diego Bay". Other banks outside of San Diego Bay should rank similarly as #5 and have a clear nexus with the project.

- Revise ECO Policy 1.1.5 to:
    - Identify that ecological buffers are required to be provided around "wetland and other sensitive habitats" and not only "saltmarsh wetland" since buffers are required around all sensitive habitats or special-status wildlife.
    - Remove the “quality of habitat” as a factor in the width of the buffer as the quality of habitat is not a factor in receiving protection under the Coastal Act.
    - Delete section “a” which allows a site-specific analysis to reduce the buffer to 50 feet with an evaluation of current habitat that is degraded, non-functioning, poor quality, or located adjacent to development since a 100-foot buffer can provide valuable water quality and protections in these instances. Instead, any reduction of buffer size should be based on features, use, and protective measures included in the planned development and include an explanation why a reduced buffer will not impact the nearby wetland.
    - Revise “b” to add that an adequate buffer shall be accommodated as redevelopment or intensification occurs.
- Revise ECO Policy 1.1.5 to identify that development shall be implemented to protect the health and survival of threatened or endangered “individuals” and not “species.”
- Revise ECO Policy 1.1.9 to prohibit the planting invasive species throughout the Port District and not only in landscaped areas.
- Revise ECO Policy 1.1.10 to extend the lighting protections to areas adjacent to water and require it to be the minimum necessary.
- Revise ECO Policy 1.1.19 regarding nature-based solutions to add "and where they do not interfere with or replace nearshore, coastal, or marine habitat or function" after "where feasible and applicable."

**COASTAL FLOODING ADAPTATION STRATEGIES**

Each of the four planning districts indicate in the vision that “future efforts to enhance coastal resiliency through coastal flooding adaptation strategies are also envisioned.” However, as describe it is unclear what the Port envisions, and more information is needed to describe what these strategies may entail before staff can comment on consistency with the Coastal Act.

**PD 11: NORTH BAY**

- Please describe what is meant by “vendor operations supporting fishing industries in (PD11.1). Note that new uses in water should be coastal dependent.

**PD 12: NORTH CENTRAL BAY**

- Describe what is meant by routine maintenance activities referenced in PD12.1 and PD 12.2.

**PD 13: SOUTH CENTRAL BAY**

- Why is PD 13.2 shown under coastal access improvements?

  "PD13.2 Support the development of shellfish and seaweed aquaculture operations at the former A-8 anchorage."

- Provide a map showing the location of the former A-8 anchorage since it is referenced in two policies.

**PD 14: SOUTH BAY**

- Please indicate what the existing use of the land area is in this subdistrict and describe if that use would it change upon implementation of the TLUP.

Thank you for your consideration of the comments included above. Please note that these comments are preliminary and Commission staff will provide additional, more detailed comments as time allows for a more comprehensive review. Also, please note that these comments have been submitted on the part of staff and the Commission itself would be the ultimate decision-making body. We look forward to continuing our coordination with District staff. If you have any questions, please do not hesitate to contact me at the above office.

Sincerely,

Melody Lasiter
Coastal Planner

# Trust Lands Use Plan
# Revised Draft and Mitigated Negative Declaration Comments

***Comments received during the public review period:***

## February 21, 2025 – March 27, 2025

## Comments from Organizations

# San Diego County Archaeological Society, Inc.

Environmental Review Committee

February 24, 2025

To: Mr. Dennis Campbell, Program Manager
Planning Department
Port of San Diego
3165 Pacific Highway
San Diego, California 92101

Subject: Mitigated Negative Declaration
Trust Lands Use Plan

Dear Mr. Campbell:

I have reviewed the subject DMND on behalf of this committee of the San Diego County Archaeological Society.

Based on the DMND posted on the Port District's website, the mitigation measures as proposed are comprehensive except that they do not address treatment of any potential subsurface objects or features. Certainly, most of the underwater portions of the bay have been subjected to various impacts, although much of that occurred more than 50 years ago and is thus potentially historic. Which areas potentially hold any of those objects or features? How will they be located and evaluated? Magnetometer or acoustic surveys? Divers?

One area of possible concern is around Ballast Point, the site of the Spanish Fort Guijarros (site SDI-12000), whaling stations, a lighthouse complex, and Fort Rosecrans. While the area closest to the shore is outside the TLUP, the possibility of resources outside the navigation channel but in the TLUP area may need to be addressed at some point in time. Note that the Navy recently had out for public review a proposal to possibly plant eelgrass in that area.

Thank you for the opportunity to submit our comments on this DMND.

Sincerely,

James W. Royle, Jr., Chairperson
Environmental Review Committee

cc: SDCAS President
File

P.O. Box 81106 San Diego, CA 92138-1106 (858) 538-0935

March 26, 2025

Dennis Campbell
San Diego Unified Port District
Planning Department
P.O. Box 120488
San Diego, CA 92112-0488
TLUP@portofsandiego.org

**RE: UPD #MND-2025-016**

Dear Mr. Campbell:

The San Diego Bird Alliance (SDBA), formerly called San Diego Audubon Society, is a 3,000+ member non-profit organization with a mission to foster the protection and appreciation of birds, other wildlife, and their habitats through education and study, and to advocate for a cleaner, healthier environment. We have been involved in conserving, restoring, managing, and advocating for wildlife and their habitats in the San Diego region since 1948.

We appreciate the opportunity to comment on the Mitigated Negative Declaration for the Trust Land Use Plan (TLUP). We are submitting these comments in collaboration with Southwest Wetlands Interpretive Association and ECOSanDiego. We fully support the WLU Policy 2.4.1 statement in favor of “no net loss of wetlands,” as well as the ECO Policy 1.1.15 stated intent to strive for a net increase of wetlands since wetland habitat is critical for the survival of so many species with whom we share these precious resources.

In our specific policy comments and recommendations below, we are seeking clarification and closer adherence to the Port’s stated “no net loss” of wetlands position. Additionally, we seek a commitment to preserving habitat for threatened species through data-based policies and clearly delineated restrictions against known threats to continued existence of these species. Please note that previous comments to the draft TLUP were provided to the Port District on Aug 8, 2023.

The following comments and recommendations refer to these Draft MND TLUP February 2025 sections:

MM-BIO-1 Items 2.b and 2.c (pgs. 43-44)
MM-BIO-3.1.B (pg. 45)

MM-BIO-4 (pgs. 46-47)
MM-BIO-5 (pgs. 47-48)

**Regarding MM-BIO-1 Item 2.b and 2.c (pgs. 43-44):**

**Comment:** Item 2.b states that mitigation may be "Restore or create an amount of wetland or eelgrass habitat within San Diego Bay equivalent to the project's net increase in overwater coverage….." However, restoring existing wetlands or eelgrass still results in a net loss. The wording should be changed to state a requirement for creating a net increase in the amount of wetlands or eelgrass habitat.

Item 2.c states that if a suitable wetlands mitigation bank within the coastal zone is not available, the project will purchase salt marsh wetlands or overwater coverage mitigation. Presumably, the suitable wetland bank refers to the proposed Pond 20 bank. However, this statement does not limit acquisition to only San Diego Bay. Historically, there have been huge losses of wetlands in San Diego Bay; therefore, no offsite mitigation should be allowed. There may be Ecological Opportunity Areas within the bay where the Port could allow restoration/enhancement that would qualify as a mitigation measure.

**Recommendation:** Projects that develop within the District's public trust lands must be fully mitigated within its trust lands. Therefore, MM-BIO-1.2.C should be revised to state that "all mitigation must occur within San Diego Bay."

**Regarding MM-BIO-3.1.B (pg. 45):**

**Comment:** This item states that translocation of special status plant species may be necessary. However, while that phrasing may assume that the translocation will be sufficient to be accounted as "mitigation," the current text is not adequate. It should state that the translocation for any special status plant species must be a net benefit, not merely replacement.

**Recommendation:** This mitigation measure must be revised to state, "Mitigation that involves relocation, enhancement, or transplanting sensitive plants may be conducted in combination with other habitat mitigation (e.g., wetlands HMMP) to provide a net benefit for the species, and shall include the following…."

**Regarding MM-BIO-4 (pg. 46-47):**

**Comment:** This section addresses the potential disturbance to nesting marine dependent avian species and is intended to avoid modifying nesting behavior and avoid noise disturbances that would affect these species. This section allows for "mitigation" during breeding season if construction during that time "cannot be avoided." However,

there is no explanation regarding what type of “unavoidable” scenarios would allow construction to occur during the known breeding seasons of these species of birds. Clearly stated guidance is needed to truly mitigate negative consequences, and any special circumstances for allowing construction near these species needs to be clearly defined. It is the San Diego Bird Alliance’s and our collaborators’ position that the only legitimate special circumstances for allowing human-caused harm to at-risk and protected species would be mitigation of (potential) damage to critical infrastructure or human life due to national security interests or weather-related natural disasters.

Biologist Qualifications: The qualifications for the biologist performing the surveys and providing ongoing oversight during any construction projects should be more specifically stated to include expertise regarding the sensitive species in this area, which include California Least Tern (CLTE), Ridgway’s Rail (RIRA), Western Snowy Plover (SNPL), Elegant Tern (ELTE), and Black Skimmer (BLSK).

At-risk Elegant Terns (ELTE) and Black Skimmers (BLSK): ELTE and BLSK should be included, as they nest in such large aggregates and are especially sensitive to disturbances such that any disruption to these breeding colonies at the wrong time can have disastrous consequences to the existing population. Disturbance early on in the breeding cycle may cause abandonment of active nests and the deaths of chicks and eggs. The May 2021 drone incident at Bolsa Chica when thousands of ELTE abandoned their colony due to a one-time disruption is an example of potential effects of construction near a colony. The at-risk birds subsequently nested on barges where a large number of chicks trying to fledge fell off the barges and drowned despite the efforts of volunteers and International Bird Rescue staff. This type of incident must be avoided.

Federally Threatened Western Snowy Plover: Special instructions are given for endangered CLTE and RIRA, but there is no mention of Federally Threatened Western Snowy Plovers (WSP), which are also known to nest in the area covered by the TLUP, in particular, the Saltworks. WSP numbers in this area are small but very important, and any loss will be intolerable. This oversight needs to be corrected.

Nesting Season Disturbance Buffer Zones: The measures to be implemented during nesting season should include all of these species and would need to cover the time period of March 31 to October 15, according to the timing from local species records. Per MM-BIO-4, surveys for these species are to occur seven days prior to start of construction, and if they are present, a 500 foot buffer is to be established with a qualified biologist remaining onsite to monitor the birds. However, a compilation of research data assembled by Kathi Borgmann, Ph.D., supports a larger buffer than the 500 foot buffer proposed. Research demonstrates that Snowy Plovers and CLTEs will flush at 500 feet to foot traffic, and their response to construction noise and activity would logically be greater, so a larger buffer would be warranted. The agreed recommendation based on copious ornithological research is 820 feet (250m) to accommodate the most sensitive species. Flexibility regarding these bird species will be important to prevent any unnecessary losses. The pre-construction surveys by a

well-qualified biologist will determine if a 500 foot buffer will suffice to protect nesting birds in certain circumstances, or if 820 feet is required.

**Recommendation:** This mitigation measure must be revised to clearly outline what situations would require and allow construction and noise disturbance to nesting birds that are dependent on the marine and coastal environment to successfully reproduce during the nesting season period of March 31 to October 15. These situations should be restricted to only emergency scenarios of national security interests or weather-related disasters. Western Snowy Plovers must be included in the list of special instructions. The recommended buffer zone should be increased to 820 feet to accommodate the most sensitive species. Surveys performed by a biologist with species-relevant expertise should be made public and include all information regarding the nesting species, including what stage of breeding is observed.

**Regarding MM-BIO-5 (pgs. 47-48):**

**Comment:** This section addresses “no net loss.” One of the stated means to achieve that goal is “preservation.” However, merely preserving (presumably another area of the same sensitive wetlands that is being impacted) is not sufficient. And the mitigation is not specifically restricted to occurring within SD Bay. Preservation by itself is not sufficient to qualify as mitigation, as the Port’s commitment is no net loss, and preservation does not uphold this commitment. The following item needs to be clarified: MM-BIO-5 commits to “…Provide No-Net Loss of Wetlands and Compensate for Permanent Loss. Implement: (1) habitat creation, restoration, enhancement, and preservation (only appropriate if the site is currently unprotected per the Port District’s public trust obligations) through an approved Habitat Mitigation and Monitoring Plan (HMMP): or (2) acquisition of approved mitigation credits at approved mitigation banks or in-lieu fee programs, including any Port of San Diego Environmental Mitigation Property, within the appropriate portion of the Coastal Overlay Zone, as applicable. Both mitigation options (1) and (2) outlined below are equally suitable as compensatory mitigation methods.”

**Recommendation:** This measure must be revised to state that preservation by itself is not sufficient to qualify as mitigation per the Port’s commitment to no net loss, which preservation does not provide, and that all mitigation shall occur within San Diego Bay. Because the Bay has sustained large historical losses in acreage, offsite/out-of-bay compensation is not appropriate or acceptable.

As environmental and wildlife advocates, we appreciate the opportunity to provide the above recommendations for clarifying and strengthening the language of the Port of San Diego’s Draft MND to the TLUP. The Port’s mandate to manage the extraordinary natural resources of San Diego Bay, while balancing the needs and desires of many competing constituencies, is certainly challenging. Now more than ever, with continually changing environmental conditions and potential regulatory changes, in addition to the existing threats to already endangered species who cannot protect themselves, local

agencies like the Port of San Diego, along with allied groups of environmental advocates, must do everything in our power to sustain and protect all species who call San Diego's waters and wetlands home.

Sincerely,

Muriel Spooner, Conservation Committee Co-chair, San Diego Bird Alliance

James A. Peugh, Conservation Committee Co-chair, San Diego Bird Alliance

William E. Tippets, Board Member, Southwest Wetlands Interpretive Association

Michael McCoy, President, Southwest Wetlands Interpretive Association

Pamela Heatherington, ECO San Diego

# Trust Lands Use Plan
# Revised Draft and Mitigated Negative Declaration
# Comments

***Comments received during the public review period:***

## February 21, 2025 – March 27, 2025

## Comments from Businesses and Tenants

Brownstein

**Brownstein Hyatt Farber Schreck, LLP**
619.702.6100 main
225 Broadway, Suite 1670
San Diego, California 92101-5000

March 27, 2025

Ryan R. Waterman
Attorney at Law
619.702.7569 direct

**VIA ELECTRONIC MAIL**
(tlup@portofsandiego.org)

San Diego Unified Port District
Attn: Dennis Campbell
Planning Department
P.O. Box 120488
San Diego, CA 92112-0488

RE: Everingham Bros. Bait Company, Inc.'s Comments on the Revised Draft Trust Lands Use Plan and Mitigated Negative Declaration, UPD #MND-2025-016

To Whom It May Concern:

I write on behalf of Everingham Bros. Bait Company, Inc. ("Everingham"), owner and operator of the bait barges located in the proposed North Bay Planning District of San Diego Bay, in response to the San Diego Unified Port District's ("Port") Revised Draft Trust Lands Use Plan ("TLUP") and Mitigated Negative Declaration ("MND").

Since 1951, Everingham has been a fixture in the North Bay area, providing live bait to San Diego's commercial and private sportfishing fleets 24 hours per day, 7 days per week, 364 days of the year.[1] The operation includes three bait barge locations: San Diego Bay, Mission Bay and Dana Point Wharf, which leak live fish into the surrounding waters as the bait boxes are designed to let the tide move through them. Everingham maintains a fleet of four commercial fishing vessels that catch and deliver live bait, such as sardines, anchovies, and mackerel, often daily to its bait barges in the Bay. Everingham is clearly visible in Fig. PD11.1 of the TLUP, and Fig. 2-3 of the MND.

In 2017, NOAA Fisheries calculated that the economic value of the California sportfishing industry alone represented $794.7 million in sales from fishing trips with a $2.48 billion total sales impact. (Attachment 1, NOAA Fisheries, West Coast Recreational Fisheries, at p. 2.) While the local economic impact of San Diego's commercial and recreational fishing industry is not readily available, it is certain that Everingham is a critical part of this important economic driver for the region.

[1] Annually, Everingham is only closed from 4 pm Christmas Eve until 4 am the day after Christmas.

Everingham's most recent lease with the State Lands Commission ("SLC"), which was entered into prior to the SLC's grant of this area of the Bay to the Port, expired on February 20, 2024. Everingham has been operating as a holdover tenant since that date and has requested a new lease be entered with the Port. To Everingham's understanding, negotiations on a new lease have been put on hold until the TLUP process is finalized.

In light of Everingham's long history and desire for continued partnership, it submits these comments with an interest in maintaining its cooperative, long-term presence in the Bay.

## I. THE USE DESIGNATION FOR THE BAIT BARGE SHOULD RECOGNIZE AND PROTECT ITS HISTORIC, COMMERCIAL, AND RECREATIONAL VALUE

Special use designations are often implemented where a unique use arises that warrants special attention. Here, the TLUP explains that "special allowances" identified in the TLUP provide "specific details on allowable uses, conditions, or operations in specific locations on Tidelands," and they are "intended to address unique situations." (MND, p. 316 of the PDF.)[2]

The MND carries forward the TLUP's decision to use the "Open Bay / Water" as the "water use designation" for the area where the Everingham bait barge is located. (MND, p. 29, Figure 2-4.) Bait barges are permitted in this water use designation area as "special allowance PD11.1," which allows "[u]ses related to operation and maintenance of the baitfish storage, bait barges and vendor operations supporting the fishing industries . . . within existing lease boundaries." (*Id*. at p. 31.)

The characterization of the bait barge as a "special" allowance does not accurately reflect Everingham's historic presence in the North Bay, and which is arguably not "unique" as the Port is expressly required to protect the "economic, commercial, and recreational importance of fishing activities." (Pub. Res. Code, § 30234.5; see also TLUP, WLU Objective 5.3.) In fact, the bait barge has been the only use to occupy this area of the North Bay since at least 1935.

In addition, a special allowance designation fails to acknowledge the environmental benefits the bait barge provides, including foraging for fish, birds, marine mammals, and other sea creatures that congregate around the bait boxes, which—over Everingham's 70+ year history—has created a vibrant ecosystem that supports both the sportfishing industry and marine life in the Bay.

The Port should instead identify the Everingham bait barges on the Planning District 11 map (see MND, Fig. 2-4, and TLUP, Fig. 11.2) and create a "Live Bait" use category in the North Bay that corresponds to the existing leasehold boundaries defined in Exhibit A of Everingham's most recent lease with the SLC, which is attached hereto as Attachment 2.

[2] All further page references to the MND are to the page numbers of the PDF.

## II. THE MND FAILS TO ADEQUATELY ESTABLISH THE ENVIRONMENTAL SETTING WITH RESPECT TO THE BAIT BARGE

Under the California Environmental Quality Act ("CEQA"), the MND must describe the existing environmental setting, including the existing physical conditions in the area that will be affected by the proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. (14 Cal. Code Regs. ("CEQA Guidelines"), §§ 15063(d)(2), 15360; *Lighthouse Field Beach Rescue v. City of Santa Cruz* (2005) 131 Cal.App.4th 1170, 1192-94 [environmental setting in initial study sufficient where it described existing site conditions, existing facilities, and existing recreational uses].)

Yet the MND describes the environmental setting of the North Bay (Planning District 11) as follows:

> The North Bay Planning District is located in the northern portion of San Diego Bay beginning east of the Pacific Ocean, residing between Shelter Island and Harbor Island to the north and North Island Naval Air Station to the south. Planning District 11 is bisected by the Federal Navigation Channel that runs west to east through the planning district. Figure 2-3 provides the North Bay Planning District location and context.

(MND, p. 26.) In addition, the Everingham bait barge is shown in the overhead picture of the North Bay Planning District in Figure 2-3, but is removed from the Water Uses map in Figure 2-4. (*Id*. at pp. 27, 29.) These descriptions and figures fail to clearly identify where the Everingham bait barge is located, how it is utilized, how long it has been there, and how important it is to the fishing industry and local economy. Thus, it is unclear whether the existing bait barge and its historic use were considered in developing the environmental setting.

For example, the bait boxes provide a significant foraging resource for fish, birds, marine mammals, and other sea creatures, and have thereby created a meaningful and beneficial aquatic habitat around the bait barge. In addition, Everingham has allowed commercial and sportfishing industries to thrive in San Diego for decades by operating as one of the only sources of live bait available 24/7, nearly every day of the year. According to the Port's own data, the tourism and commercial industry of the Port, which includes commercial and sport fishing, added $5.6 billion to San Diego County's economy in fiscal year 2023.[3]

These descriptions and figures fail to comply with CEQA because—without a full and fair statement of the environmental setting—it is not possible for the MND to accurately evaluate the environmental impacts associated with implementing the TLUP in the North Bay, particularly as it relates to the

[3] https://www.portofsandiego.org/about-port-san-diego/economic-impact

existing bait barge. The MND should be revised to reflect the benefits offered by Everingham in the environmental baseline and to ensure their protection when future projects arise under the TLUP.

## III. THE MND CONTAINS INFEASIBLE OR INEFFECTIVE MITIGATION MEASURES THAT SHOULD BE REVISED

Under CEQA, a MND must include mitigation measures ("MMs") to avoid any potentially significant effects. (CEQA Guidelines, § 15071(e).) Here, the MND lists a number of MMs intended to be applied to TLUP areas going forward. The particular MMs discussed below, however, should be removed or modified because they are infeasible or otherwise ineffective.

### A. Air Quality Mitigation

MM-AQ-4 requires, in part, for "short-term construction projects . . . and longer-term operations, such as marine vessels used in aquaculture operations," (1) the use of Tier 4 equipment or better where commercially available within 200 miles of the project site, beginning in 2026; and (2) the use of renewable diesel fuel for certain equipment. (MND, pp. 52-53.) Similarly, MM-AQ-2 requires the use of Tier 4 equipment and renewable diesel fuel for construction of future projects. (*Id*. at p. 51.)

By requiring such equipment and fuel, these MMs improperly conclude that all future "TLUP-consistent projects" will cause significant air quality impacts. The Port does not have enough information on specific projects at this point to reach such a conclusion, and is instead speculating as to hypothetical future impacts.

The MND states: "Taken individually, these types of activities typically result in minimal emissions that are far below relevant thresholds. However, there is a possibility that multiple projects could overlap on a single day, and it is possible that the sum of these overlapping activities could result in emissions that exceed SDAPCD thresholds. Therefore, mitigation is proposed to ensure that emissions are mitigated to a level below thresholds. (MND, p. 97.)

CEQA does not require mitigation for speculative impacts. (CEQA Guidelines, § 15145.) Thus, these MMs should be modified to allow individual projects the opportunity to present evidence to the Port—at the time specific project approval is sought—that they will not cause significant air quality impacts, and thus, no mitigation would be required.

Nevertheless, Everingham is in the process of upgrading its bait barge generators from Tier 3 to Tier 4 engines (two of three barges have already transitioned), and re-powering all of its commercial fishing vessels to have Tier 3 engines in accordance with California Air Resources Board ("CARB") and San Diego Air Pollution Control District ("SDAPCD") regulations. CARB and SDAPCD regulations are the exclusive standard for marine vessels and, therefore, the Port lacks authority to impose different standards. (Health & Saf. Code, § 39002.) Thus, the air quality MMs should be modified to remove any

requirements that are preempted by CARB or SDAPCD regulations, such as the reference to "longer-term operations" in MM-AQ-4.

In addition, despite its decades of operational experience, Everingham is not presently aware of any commercially available source of renewable diesel. Moreover, the requirement to search as far as 200 miles from its operations for diesel fuel would impose an unreasonable and significant cost upon Everingham.

Even if such diesel fuel was available, there is no nexus between these MMs and avoiding significant impacts from the proposed TLUP. The broad language of these MMs suggests that they would apply to Everingham's existing equipment and operations, which are already part of the existing baseline. (See e.g., MND, MM-AQ-4, p. 52 ["Prior to commencement of waterside construction or activities within the TLUP Area that require the use of marine vessels . . . any harbor craft . . . for use during any in-water work shall meet the following criteria . . ."].) CEQA only authorizes the lead agency to require changes to, and avoid impacts from, activities involved in a project it approves; this does not include the existing environmental baseline. (See CEQA Guidelines, § 15041(a).) Thus, CEQA does not authorize the Port to impose these MMs on Everingham's existing equipment and operations and the MMs should be modified to clarify their application to only proposed TLUP projects that seek Port approval in the future.

### B. Biological Resources Mitigation

MM-BIO-1 requires that any loss of open water habitat from a future project must be mitigated. (MND, p. 53.) Should Everingham seek to expand its operations in the future, as contemplated by the MND (e.g., *id*. at p. 113), this requirement would not give Everingham the opportunity to demonstrate that the bait barges actually provide co-benefits to fish and other marine flora and fauna, and do not damage open water habitat. All of the bait boxes at Everingham's barges leak live fish as the boxes are designed to let the tide move through them. For at least 90 years, this circumstance has created an aquatic habitat around the bait barges.

MM-BIO-1 risks eliminating these benefits by requiring a future project undertaken by Everingham to reduce any occupation of open water habitat, despite the co-benefits associated with the live bait operation. MM-BIO-1 should be modified to allow an individual project the opportunity to present evidence to the Port—at the time specific project approval is sought—that it will not cause significant impacts to open water habitat, and thus no mitigation would be required. Alternatively, this MM could be modified to clarify that the bait boxes associated with the barge presents a unique water scenario which adds significant benefit to the open water habitat and therefore should be maintained.

### C. Water Quality Mitigation

As defined in the TLUP (and incorporated by the MND):

> "Aquaculture" means that form of agriculture devoted to the propagation, cultivation, maintenance, and harvesting of aquatic plants and animals in marine, brackish, and fresh water. "Aquaculture" does not include species of ornamental marine or freshwater plants and animals not utilized for human consumption or bait purposes that are maintained in closed systems for personal, pet industry, or hobby purposes, however, these species continue to be regulated under . . . the Fish and Game Code.

(MND, p. 474.)

In general, the MND appears to speak to "aquaculture" in the context of future shellfish and seaweed aquaculture. (See e.g., MND, pp. 38, 54.) However, the above definition of "aquaculture" leaves the MND unclear as to whether MM-WQ-1, and other requirements relating to "aquaculture," would apply to Everingham's operations.

First, Everingham seeks clarification as to whether use of the word "aquaculture" in the context of the MND is intended to apply to its operations.

Second, if so, as noted above, CEQA only authorizes the lead agency to require changes to, and avoid impacts from, activities involved in a project it approves. (See CEQA Guidelines, § 15041(a).) As part of the environmental setting, Everingham's operations cannot be required to mitigate for existing operations.

Third, MM-WQ-1 speaks to application of site-specific best management practices ("BMPs") to lessen or eliminate potential water quality impacts. Everingham already employs BMPs and operates under the SLC lease agreement. If the Port confirms an intent to include Everingham's live bait activities within the TLUP's definition of "aquaculture," then MM-WQ-1 should be amended to allow the project applicant to demonstrate its existing compliance.

## IV. THE MND FAILS TO ESTABLISH CONSISTENCY WITH THE COASTAL ACT

Under the California Coastal Act of 1976 ("Coastal Act"), public agencies are required to assist the state in protecting, maintaining, and enhancing the overall quality of the coastal zone environment, and maximizing public recreational opportunities in the coastal zone. (Pub. Res. Code, §§ 30001.5, 30003.) In particular, the Coastal Act requires that public agencies "recognize[] and protect[]" "[t]he economic, commercial, and recreational importance of fishing activities." (*Id*. at § 30234.5.)

The MND states it is consistent with Section 30234.5 of the Coastal Act because the Port "intends to support commercial and recreational fishing. The economic, commercial, and recreational importance of fishing activities is described in ECON Policy 2.3.11 through ECON Policy 2.3.17 of the Economics Element." (MND, p. 196.)

Despite these statements and policies, there is hardly any mention of bait barges, and no mention of Everingham in the MND, upon which the entire San Diego fishing industry has relied since 1951. The MND must be modified to expressly recognize the bait barge, identify its historic presence in the North Bay and the significant benefits it provides to the ecological habitat and commercial industry of the Bay, and create a "Live Bait" use designation for that area of the North Bay. Such modifications would improve the ability to evaluate the project's consistency with the Coastal Act by more thoroughly and accurately identifying the economic, commercial, and recreational fishing activities that presently exist and that the Port is responsible for protecting.

## V. CONCLUSION

Everingham appreciates the opportunity to provide these focused comments on the TLUP and MND. For the reasons discussed above, Everingham respectfully requests that the Port modify the TLUP and MND to ensure that Everingham can continue to operate in the Bay, in a cost-effective and environmentally beneficial manner, as it has done for the past 74 years.

If the Port is interested in learning more about Everingham and its significance to the community, please do not hesitate to contact me at rwaterman@bhfs.com or 619-702-7569.

Sincerely,

Ryan Waterman /SC

Ryan Waterman

Attachments

cc: Roy R. Everingham Jr., President, Everingham Bros Bait Co. (via electronic mail)

**ATTACHMENT 1**

**NOAA Fisheries, West Coast Recreational Fisheries (2017)**

NOAA FISHERIES

# West Coast Recreational Fisheries

**CALIFORNIA • OREGON • WASHINGTON**

The West Coast offers diverse fishing opportunities for saltwater recreational anglers. Out on the water, anglers aboard private and for-hire vessels can wet their lines in pursuit of tuna, salmon, and many groundfish such as rockfish and lingcod. Along the shore and on piers, anglers can try their hand at state-managed species like surfperches, kelp bass, bonito, and barracuda. Most West Coast fishing trips take place at beaches, banks, and jetties along the shore, where anglers catch a variety of inshore and coastal pelagic species. Fishing trips targeting tuna and other offshore species play an important role in supporting coastal economies across the West Coast. NOAA Fisheries works closely with the Pacific Fishery Management Council and the Pacific States Marine Fisheries Commission and their member states to provide diverse and sustainable recreational fishing opportunities now and into the future.

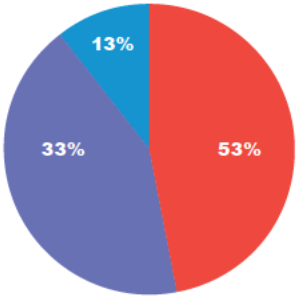
Angler with albacore tuna

## POPULAR RECREATIONAL SPECIES

| State | 2017 Species | HARVESTED RELEASED | Total Catch (number of fish) |
|---|---|---|---|
| CALIFORNIA | Vermilion rockfish | | 605,000 |
| | Lingcod | | 554,000 |
| | Chinook salmon | | 67,000 |
| | Yellowfin tuna | | 14,000 |
| | Bluefin tuna | | 11,000 |
| OREGON | Black rockfish | | 445,000 |
| | Coho salmon | | 40,000 |
| | Albacore | | 16,000 |
| | Pacific Halibut | | 14,000 |
| | Chinook salmon | | 6,000 |
| WASHINGTON | Black rockfish | | 212,000 |
| | Coho salmon | | 84,000 |
| | Chinook salmon | | 38,000 |
| | Albacore | | 30,000 |
| | Pacific Halibut | | 12,000 |

Source: FEUS 2017

## FISHING TRIPS BY MODE ON THE WEST COAST



## Economic Impacts of Recreational Fishing

| CALIFORNIA | OREGON | WASHINGTON |
|---|---|---|
| Fishing Trip and Durable Goods Expenditures: **$1.77B** | Fishing Trip and Durable Goods Expenditures: **$343.4M** | Fishing Trip and Durable Goods Expenditures: **$1.02B** |
| Total Sales Impacts: **$2.48B** | Total Sales Impacts: **$364.17M** | Total Sales Impacts: **$1.20B** |
| Total Jobs: **19,750** | Total Jobs: **3,548** | Total Jobs: **9,533** |
| Impacts From Fishing Trips Sales: **794.7M** Jobs: **6,311** | Impacts From Fishing Trips Sales: **$138.21M** Jobs: **1,390** | Impacts From Fishing Trips Sales: **$434.65M** Jobs: **3,219** |
| Durable Good Impacts: **$1.69B** | Durable Good Impacts: **$225.96M** | Durable Good Impacts: **$763.66M** |
| Durable Good Jobs: **13,439** | Durable Good Jobs: **2,158** | Durable Good Jobs: **6,314** |

Source: FEUS, 2017


Angler with vermilion rockfish

## Diving Deeper

### PACIFIC ROCKFISH: OUT OF THE DEPTHS

In recent decades, recreational anglers targeting Pacific rockfish have been constrained by depth-based closures, reduced bag limits, seasonal closures, and other limitations due to severely low rockfish populations. Long life histories and late maturity meant that rockfish species required longer times to rebuild. As these species rebuilt, new methods were pioneered by recreational anglers to target healthy stocks while avoiding rebuilding stocks (e.g., long-leader gear) and to increase the use of descending devices to increase survivability of released rockfish. These joint efforts between the recreational fishing community and managers have helped rockfish populations rebuild faster than previously projected, and anglers are now reaping the rewards. Depth-based closures have been reduced or eliminated, seasons are longer, and bag limits have been increased. With continued science-based management, and collaboration and cooperation among the angling community, the future of these rockfish populations and opportunities for angling are bright. Learn more about catch and release best practices by visiting https://www.fisheries.noaa.gov/national/resources-fishing/catch-and-release-best-practices.

### LEARN MORE

For more information visit: www.fisheries.noaa.gov/west-coast

Daniel Studt: West Coast Region, Recreational Fisheries Coordinator, NOAA Fisheries West Coast Regional Office, daniel.studt@noaa.gov, (562) 980-4073

Dr. Leif Anderson: Northwest Fisheries Science Center, Recreational Fisheries Coordinator, leif.anderson@noaa.gov, (206) 302-2403

Dr. James Hilger: Southwest Fisheries Science Center, Recreational Fisheries Coordinator, james.hilger@noaa.gov, (858) 546-7140

**ATTACHMENT 2**

**State Lands Commission Lease – Legal Description Of Property**

EXHIBIT A

W 26622

LAND DESCRIPTION

Two parcels of submerged land lying in the bed of San Diego Bay, County of San Diego, State of California, described as follows:

LEASE PARCEL A

A parcel of submerged land lying in the bed of San Diego Bay, County of San Diego, State of California, described as follows:

BEGINNING at a point lying N 9°57'22" E 5,080.39 feet from NGS monument Road 2 (PID DC1690); thence the following four (4) courses:

1) N 75°54'49" W 435.36 feet;
2) N 5°27'02" E 986.49 feet;
3) S 49°54'54" E 535.37 feet;
4) S 6°13'21" W 747.66 feet to the POINT OF BEGINNING.

Excepting therefrom any portion lying within the grant to the United States pursuant to Chapter 81, Statutes of 1897.

LEASE PARCEL B

A 280 foot wide strip of submerged land lying in the bed of San Diego Bay, County of San Diego, State of California, lying 50 feet northerly of and 230 feet southerly of the following described line:

BEGINNING at 32.721726° North Latitude 117.194753° West Longitude; thence along a line to 32.721619° North Latitude 117.192334° West Longitude and being the terminus of said line.

The sidelines of said strip shall be prolonged or shortened so as to terminate at a line perpendicular to the beginning and terminus of said line.

The BASIS OF BEARINGS of this description is the North American Datum of 1983.

END OF DESCRIPTION

Prepared 10/22/2013 by the California State Lands Commission Boundary Unit.