BLUE ECONOMY INCUBATOR

HIGHLIGHTS

SECOND EDITION

PORT of SAN DIEGO

January, 2021

BACKGROUND

In 2015, the Port of San Diego (Port) established its Aquaculture & Blue Technology Program (AQ&BT), recognizing the growth opportunities of the Blue Economy sector and its strategic position within one of the world's leading Blue Technology clusters. The AQ&BT program has been conducting planning and pre-development work to support and inform aquaculture and blue technology opportunities in and around San Diego Bay. The planning work includes using marine spatial planning tools to conduct a constraints and opportunities analysis for aquaculture with a focus on shellfish and seaweed; a land-based infrastructure feasibility analysis to identify locations to support aquaculture businesses on land; as well as baseline research related to aquaculture development.

In 2016, the Port established its Blue Economy Incubator (BEI) to assist in the creation, early development, and initial scaling of sustainable aquaculture and Port-related blue technology ventures. Through its BEI, the Port is seeking innovative aquaculture and blue technology proposals to address Port environmental challenges and inform future Blue Economy opportunities. The BEI is acting as a launch pad by removing barriers to early-stage entrepreneurs and providing key assets and support services focused on pilot project facilitation. To date, the BEI has received over 150 inquiries and 45 proposals have been submitted. Of these, the Port has approved the launch of nine (9) pilot projects including shellfish nursery operations; copper remediation technology; a drive-in Boatwash; a smart marina application; a marine debris removal vessel; seaweed aquaculture; bio-enhancing shoreline armoring alternative; a new approach to sediment remediation in marine environments, and a real-time field-testing sensor device for stormwater monitoring (as shown on Figure 1 below).

As the state-legislated trustee of tidelands and submerged waters in and around San Diego Bay, developing sustainable domestic aquaculture and supporting Port-related blue technology assists in fulfilling the Port's public trust responsibility to promote fisheries and commerce, as well as aligning with its mission to enhance and protect the environment. A Port-led BEI is a unique approach to harness and advance innovations to help drive the Blue Economy at ports. Through its BEI, the Port has committed $1.6 million in funding, provided use of Port-owned property, assisted with obtaining all necessary regulatory and operational permits, coordinated the installation of pilot projects, and helped with community and media relations.

Blue Economy Incubator Portfolio

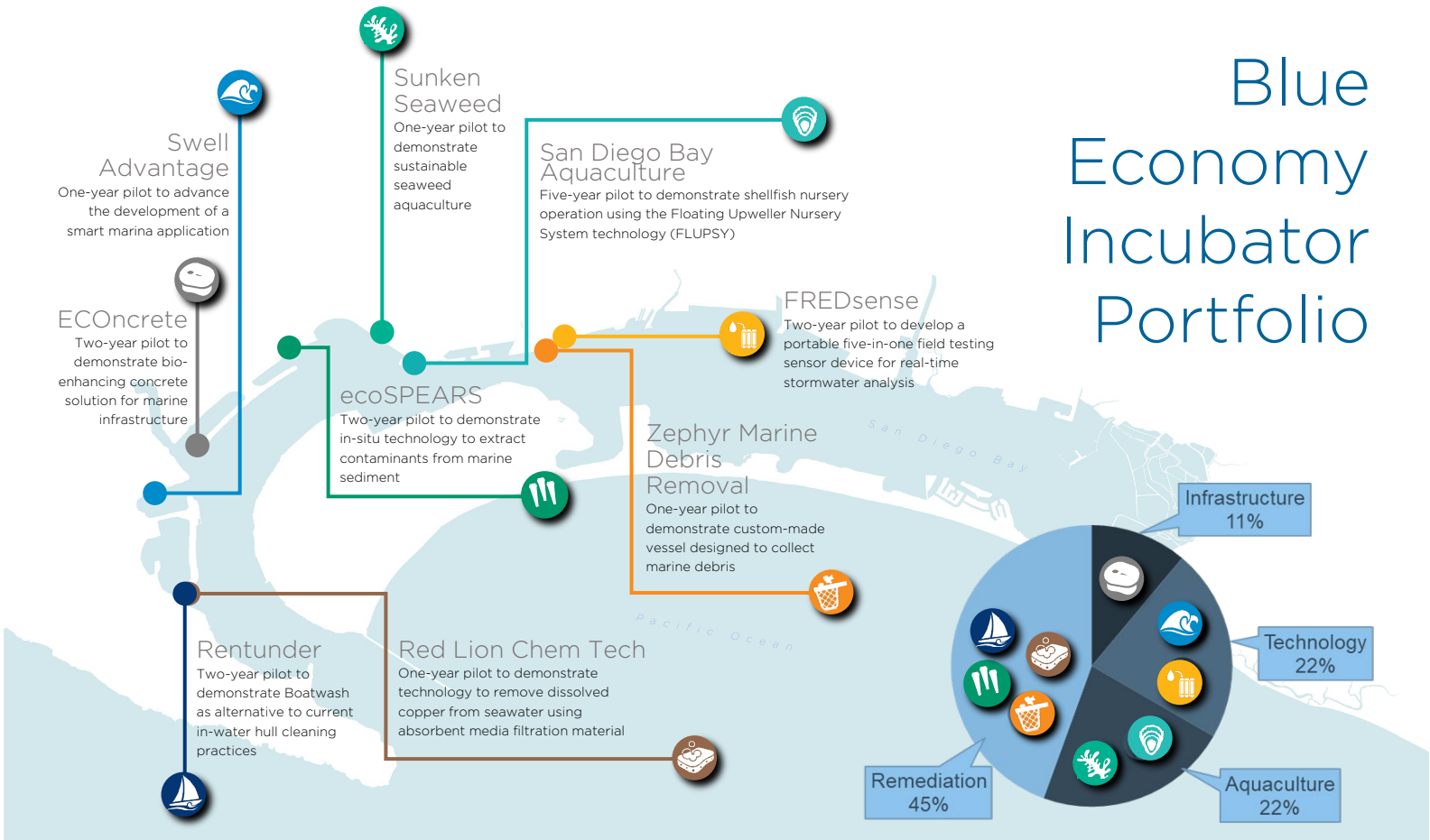


Figure 1. *Blue Economy Incubator Portfolio of companies and pilot projects*

HIGHLIGHTS REPORT

The vision for the BEI is to build a Blue Economy Portfolio (Portfolio) of new businesses and partnerships that deliver multiple social, environmental, and economic co-benefits to the Port and the region. This report outlines the Portfolio performance based on measurable environmental, social, and financial benefits delivered by the Portfolio companies, from pilot project to commercial success. With this report, the Port also seeks to demonstrate a new model to promote Blue Economy innovation at ports.

Since 2016, the Port has invited early-stage companies that align with the BEI objectives to submit business and pilot project proposals. The BEI proposals are reviewed by Port staff during a four-step cross-departmental due diligence process that culminates in a staff recommendation to the Board of Port Commissioners (Board). The selection process balances each proposal's potential social and environmental benefit, alignment with the Port's core mission and Public Trust obligation, as well as the potential financial return on investment. To date, the Board has approved nine (9) Blue Economy agreements with early-stage companies to launch innovative pilot projects.

In exchange for funding or in-kind support provided to launch pilot projects, the Port receives a royalty position from the business' operations and/or technology. For example, if the technology being piloted is adopted in ports, harbors, and other locations, the Port has an opportunity to share in the business' success and the Port's share of revenue may be reinvested into new innovative projects. Through pilot project facilitation, the BEI is also creating synergies with and is informing other environmental programs from sea-level rise adaptation, to copper remediation, marine debris removal management, and evaluating shellfish and seaweed aquaculture as a tool for bioremediation and restoration.

This report provides Scorecards developed for each of the Portfolio companies based on Key Performance Indicators (KPIs) established for the approved pilot projects. The KPIs are the metrics used by the Port to track the progress and performance of each of the BEI Portfolio companies, based on measurable environmental, social, and financial benefits. The KPIs are tracked using data submitted quarterly by the BEI companies.

HIGHLIGHTS

Since its launch in 2016, the Port's BEI has achieved key objectives as set forth in its Operating Plan:

- Established a unique Port-led Blue Economy Incubator to support entrepreneurship, foster sustainable aquaculture, and help drive Port-related blue technology innovation.
- Launched nine (9) innovative pilot projects through a community and Port-wide collaboration process.
- Launched the first commercial shellfish and seaweed aquaculture projects in San Diego Bay and is measuring the associated environmental benefits.
- Launched the first drive-in Boatwash along the US West coast to test technology effectiveness to reduce copper inputs into the Bay from hull cleaning operations.
- Removed over 33,000 pounds of marine debris and supported the development of a database for key variables influencing marine debris accumulation in San Diego Bay through the marine debris removal pilot project.
- Accelerated smart marina management technology that benefits the marina industry and received a buy-out payment of $150,000 to allow the start-up company to scale-up.
- Launched a pilot project to test a unique cleanup solution to extract toxic contaminants from impacted marine sediment.
- Launched a pilot project, the first worldwide installation, of an innovative and scalable bio-enhancing shoreline stabilization technology.
- Approved funding for a pilot project to develop a portable five-in-one field-testing sensor to provide real-time metals analysis during stormwater monitoring.
- Received multiple awards recognizing its unique approach to Port-based Blue Economy innovation through pilot project facilitation.
- Recognized by state and federal agencies, industry, and academia for providing pathways for the sustainable development of aquaculture in the region.
- Established collaborative partnerships with numerous local, state and federal governmental agencies, academia, NGO's, industry and the local community.

PILOT PROJECT OVERVIEW

Tracking benefits from pilot project to commercial success

San Diego Bay Aquaculture

San Diego Bay Aquaculture is specializing in growing marine shellfish to support sustainable aquaculture businesses in San Diego Bay

PORT of SAN DIEGO

PILOT PROJECT

In 2017, San Diego Bay Aquaculture (SDBA) partnered with the Port of San Diego to demonstrate an accelerated, year-round shellfish aquaculture nursery operation in San Diego Bay, using the Floating Upweller System (FLUPSY) technology. SDBA's principals have over twelve years of experience in shellfish and seaweed farming, FLUPSY operations and aquafarm ownership.

A FLUPSY is a floating barge that serves as a shellfish nursery, growing oysters from seed (size of red pepper flakes) to juvenile stage (size of quarters). During the five-year pilot project SDBA will be importing and growing oysters and other shellfish to the juvenile stage, establishing health and growth baselines, and measuring the associated environmental benefits. The juvenile shellfish will be exported to grow-out locations outside of San Diego Bay. The goal of the pilot is to demonstrate that shellfish nursery operations in San Diego Bay are feasible.

HIGHLIGHTS

- First commercial shellfish aquaculture operation in San Diego Bay
- During scaled operations, the FLUPSY's annual capacity is expected to be up to 20 million oyster seed per year
- Port supporting long-term planning effort to establish health baseline and measuring the associated environmental benefits.

CURRENT STATUS

In support of the pilot, the Port provided funding, permitting, and environmental review as well as access to Port-controlled land in San Diego Bay to establish the FLUPSY. SDBA is rearing experimental batches of shellfish to verify growth performance, explore market diversification and further establish the health baseline record with a goal to obtain necessary export permits and regulatory approvals.

Scorecard: SDBA / Q1 FY21

PILOT TIMELINE: Board Approval: 6/20/2017 Start Date: 9/10/2018 End Date: 9/10/2023

PILOT OVERVIEW

Tracking benefits from pilot project to commercial success

Portfolio Company	Product/Services	Outcome	Outlook
SDBA	Oyster Nursery	Import permit obtained / Oyster growth rate achieved	Obtain export permit / Explore market diversification → Scale oyster nursery operations in San Diego Bay

Achieved

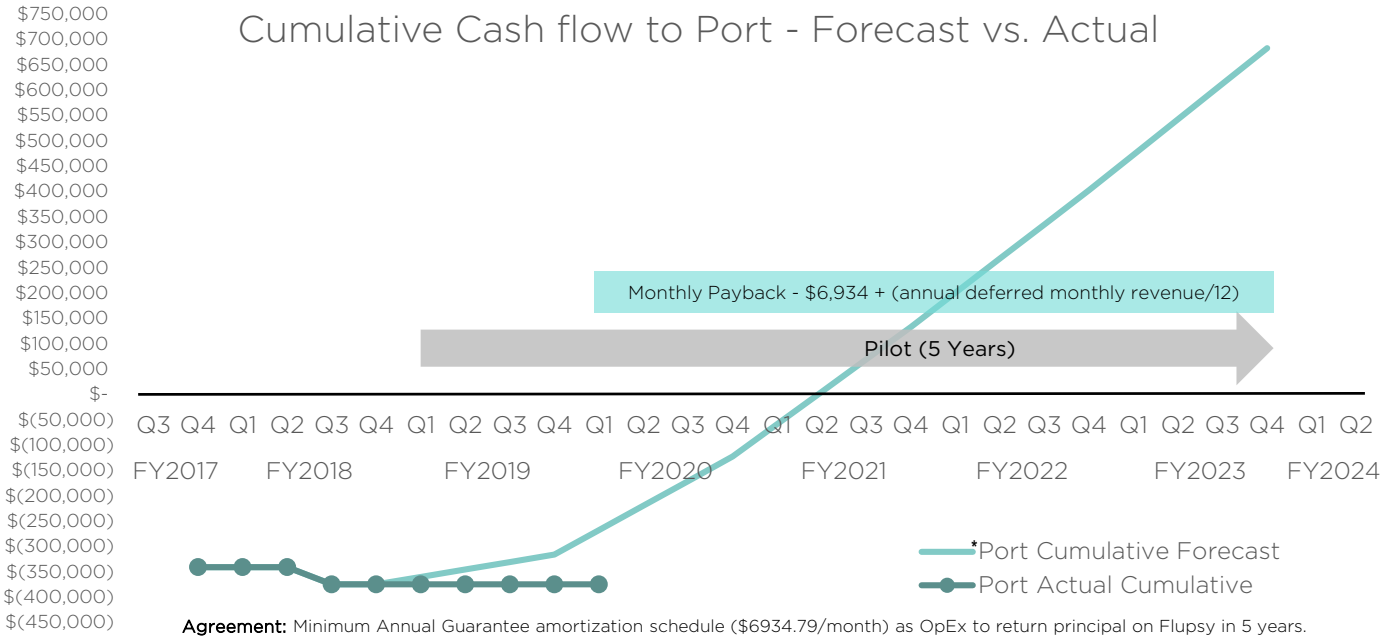
ENVIRONMENTAL & SOCIAL BENEFITS

Pilot Key Performance Indicators

OVERALL KPI (Port Fiscal Year)	Shellfish growth rate (length/day/individual)			Rate of customer acquisition	FLUPSY energy efficiency	Effectiveness of operations
	Diploid Pacific Oyster	Manila Clam	Triploid Pacific Oyster			
Q2 FY20–Q2 FY21	*Pilot continues to track growth performance of experimental batches of shellfish to further develop the health baseline required to secure export markets through FY 2021. Market diversification opportunities underway that include abalone grow out, research on barnacles for culinary uses, as well as shellfish production for restoration projects.*					
Q2 FY19	0.64 mm/day	0.13 mm/day	0.3 mm/day	N/A	N/A	**Growth rate 3X faster than anticipated**

Per pilot project statement of work

FINANCIAL FORECAST



Agreement: Minimum Annual Guarantee amortization schedule ($6934.79/month) as OpEx to return principal on Flupsy in 5 years. Non-OpEx reserve schedule for shortfall. 10% of gross sales kicker contribution triggered with annual profit

**Revenue forecast based on sales projections submitted to Port*

Rentunder

Rentunder invented the Drive-in Boatwash technology to offer a quicker and environmentally friendly alternative to in-water hull cleaning

PILOT PROJECT

In 2017, Rentunder partnered with the Port of San Diego to demonstrate whether the Boatwash technology is a feasible alternative to current in-water hull cleaning practices in San Diego Bay. Rentunder is the manufacturer, seller and distributor of the Drive-in Boatwash technology. Rentunder is led by a team of hydraulic experts and engineers from Sweden.

The Drive-in Boatwash consists of driving a boat (sailboat or motor-boat up to 53 feet) into an enclosed basin, then mechanically brushing the boat hull. The entire cleaning process is conducted within the enclosed basin of the Boatwash, which is designed to retain residual debris and particulate matter to assist in reducing copper released into bays and harbors. During the two-year pilot project, a water quality study was developed to assess water quality during cleaning events and to determine potential operation adjustments.

HIGHLIGHTS

This pilot project represents the first installation of the drive-in Boatwash technology along the US West coast. The pilot is allowing for testing of the Boatwash effectiveness to reduce copper inputs into the Bay from hull cleaning operations.

CURRENT STATUS

In support of the pilot, the Port provided funding, permitting, and environmental review as well as access to Port-controlled land in San Diego Bay to establish the Boatwash. To date, the pilot included the installation of the Boatwash, the establishment of a water quality monitoring study in collaboration with key stakeholders, and the coordination of four controlled cleaning events.

Scorecard: Rentunder / Q1 FY21

PILOT TIMELINE: Board Approval: 06/20/2017 Start Date: 07/17/2018 End Date: 03/18/2022

PILOT OVERVIEW

Tracking benefits from pilot project to commercial success

Portfolio Company	Product/Services	Outcome		Outlook
Rentunder	Boatwash	Phase 1 Testing Completed / Water Quality Study for in-water hull cleaning	Phase 2 Testing initiated / Seeking operational permits	Roll out of Boatwash across Western USA

Achieved *Testing Ongoing*

ENVIRONMENTAL & SOCIAL BENEFITS

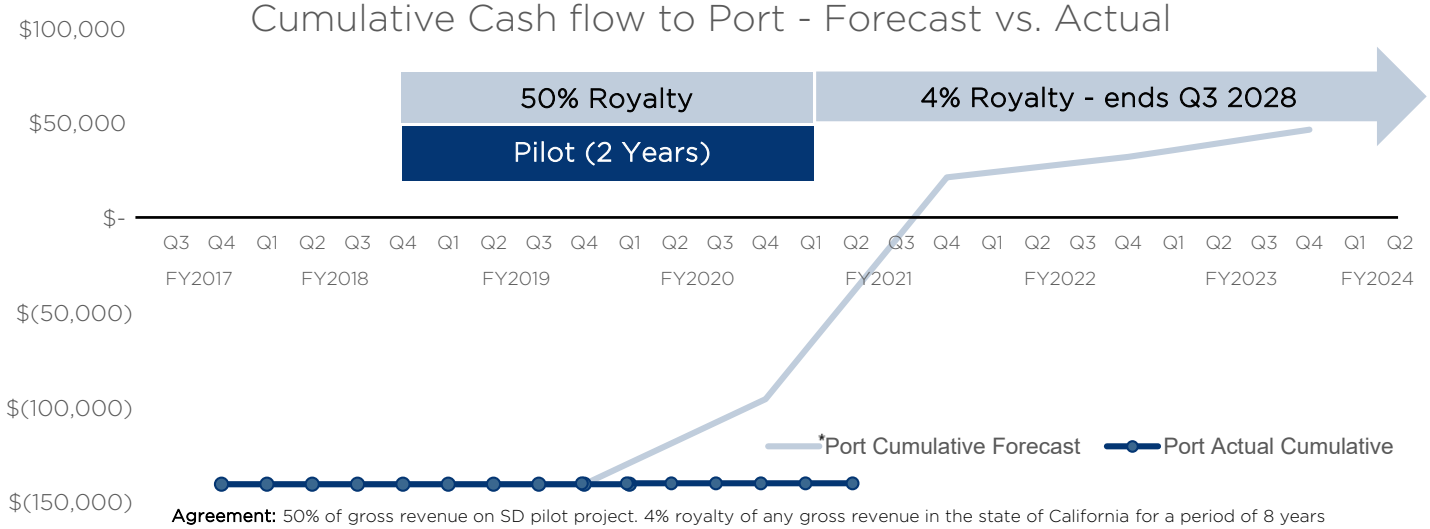
Pilot Key Performance Indicators

OVERALL KPI (Port Fiscal Year)	Rate of customer acquisition & total #	# boaters that stop painting their boats using copper	# of boats washed monthly	Amount of dissolved copper collected from basin	Water quality in and around basin	Effectiveness of cleaning operations
Q1-Q4 FY21	*PHASE 2 / Results from Phase 1 were used to prepared recommendations for Phase 2 to continue evaluating the use of the Boatwash as a potential alternative to in-water hull cleaning practices. There are 5 main recommendations for Boatwash operations during Phase 2 which includes; only non-copper antifouling paints (NC-AFP) will be considered allowable paint type for vessels to be cleaned by mechanical brushes inside the Boatwash basin.*					
Q1-Q4 FY19	*PHASE 1 Completed and Report Finalized / During Phase 1, Rentunder installed the Boatwash (May 2018), coordinated three controlled cleaning events and concurrent water quality sampling (July 2018 – March 2019), as well as a 'Dome Study' to evaluate in-situ release of copper from boat hulls under different cleaning scenarios (Dec 2018-Jan 2019). The Boatwash was not open to the public during this initial phase of testing.*					

Per pilot project statement of work

FINANCIAL FORECAST

Cumulative Cash flow to Port - Forecast vs. Actual



Agreement: 50% of gross revenue on SD pilot project. 4% royalty of any gross revenue in the state of California for a period of 8 years

**Revenue forecast based on sales projections submitted to Port*

Swell Advantage

Swell Advantage is offering a cloud-based, mobile-enabled enterprise management software for marinas, waterfronts, and yacht clubs

PORT of SAN DIEGO

PILOT PROJECT

In 2017, Swell Advantage partnered with the Port of San Diego to advance the development of its smart marina application. Swell Advantage is a technology start-up, developing operation support tools to assist marina professionals to automate and optimize their operations and enhance customer experiences.

Swell's smart marina application provides decision making support to assist marina managers in slip allocation resulting in increased revenue. The application also manages boater communication with the goal of building stronger and safer marina communities. The application assists managers to understand how individual boaters use their facility, how efficiently operations are running, and if the marina is maximizing slip revenues. The one-year pilot project was completed in collaboration with a local marina in San Diego Bay.

HIGHLIGHTS

SWELL ADVANTAGE

Square

In 2019, Swell Advantage teamed up with payments and Point of Sale (POS) Company Square to better service marinas and waterfronts across the US and Canada and meet boaters' customer service expectations in a digital world.

CURRENT STATUS

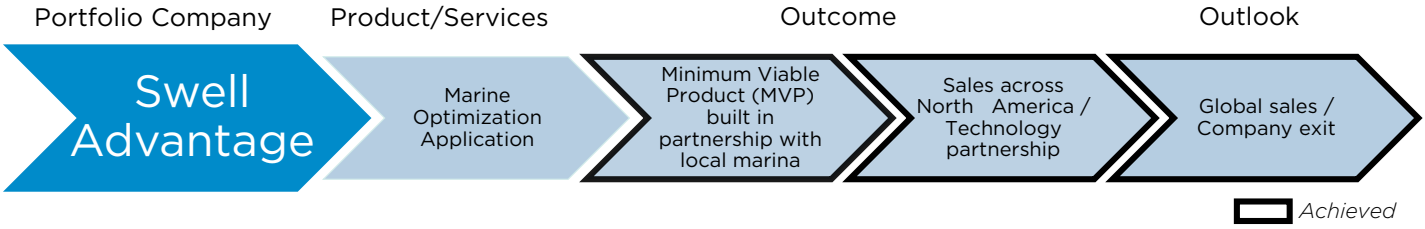
Since the completion of the pilot project Swell Advantage have finalized the development of their smart marina app in partnership with a local marina in San Diego Bay, generated sales across North America, and established strategic technology partnerships. On November 10, 2020, the Port received a buy-out payment of $150,000 to allow the start-up company to scale-up.

Scorecard: Swell Advantage / Q1 FY21

PILOT TIMELINE: Board Approval: 06/20/2017 Start Date: 07/1/2017 End Date: 09/1/2018

PILOT OVERVIEW

Tracking benefits from pilot project to commercial success



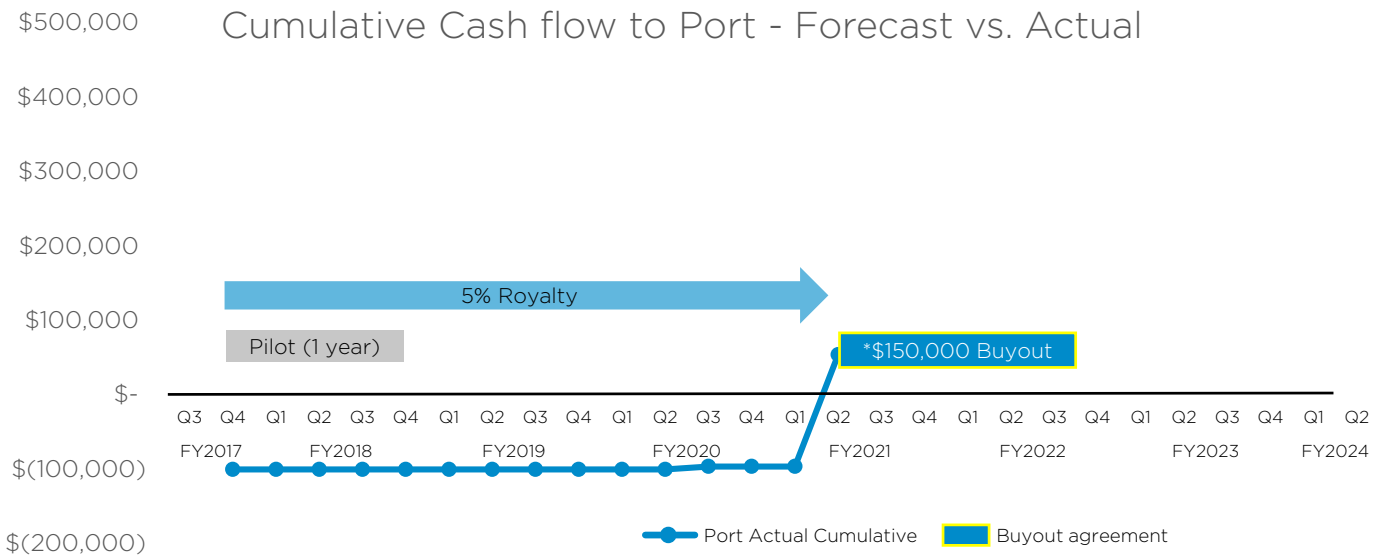
ENVIRONMENTAL & SOCIAL BENEFITS

Pilot Key Performance Indicators

OVERALL KPI (Port Fiscal Year)	Benchmark maximum potential revenue	Identify highest value boater who fits the marina opening	Streamline customer communications through community management platform (CRM)	Deliver clean modern user interface (UI/UX)
Post Pilot Project	Pilot Project completed. Major milestone completed; **Square integration** - On May 30th, 2019 Swell teamed up with payment and point of sale company Square to enhance their customer experience and compliment their current product. 1% to the plant – Swell's first donation was to the Great Ocean Cleanup. **Expansion** – Since the completion of the pilot project Swell Advantage has obtained contracts with some of the major waterfronts and marinas in North America and is now looking to expand into Australia.			
Q1-Q4 FY18	Revenue per foot and revenue per boater developed	Achieved with additional identified internal changes to maximize revenues	Successful CRM platform developed with system including email, text and phone	Built in Google infrastructure and latest in UI/UX best practices implemented

Per pilot project statement of work

FINANCIAL FORECAST



Agreement: 5% Royalty of any gross revenue on sales worldwide for a period of 15 years, payments beginning January 30, 2020.
*On November 10, 2020, the Board of Port Commissioners approved a buy-out of Swell's agreement for $150,000

Red Lion

Red Lion is developing environmental solutions to alleviate the impacts of oil spills, flooding or water contaminated by chemical pollutants

PORT of SAN DIEGO

PILOT PROJECT

In 2017, Red Lion Chem Tech (Red Lion) partnered with the Port of San Diego to demonstrate their adsorbent media filtration technology designed to remove dissolved copper in seawater. Red Lion is a remediation company specializing in developing environmental solutions to alleviate the impacts of oil spills, flooding or water contaminated by chemical pollutants. The company principals have over 30 years of experience assisting in the development and growth of technology start-ups.

The goal of the one-year pilot project is to demonstrate the efficiency of the media filtration technology under both a passive (Ballast Flow Through) and active (Pump and Treat Flow Through) filtration systems. The pilot project is expected to determine the cost-effectiveness and potential Baywide scalability of the technology in harbor environments.

HIGHLIGHTS

In 2015 Red Lion conducted laboratory demonstrations of their technology using San Diego Bay water with test results showing up to 85% efficiency in removing copper.

CURRENT STATUS

In support of the pilot, the Port provided funding, and permitting, and environmental review as well as access to Port-controlled land in San Diego Bay to test Red Lion's technology. The pilot is scheduled to take place during Phase 2 of the Boatwash pilot project.

Scorecard: Red Lion / Q1 FY21

PILOT TIMELINE: Board Approval: 06/20/2017 Start Date: TBD End Date: TBD

PILOT OVERVIEW

Tracking benefits from pilot project to commercial success

Portfolio Company	Product/Services	Outcome	Outlook
Red Lion Chem Tech	Copper Remediation Technology	Demonstrate effectiveness of active and passive filtration systems	Scale technology application in California → Develop new applications of core remediation technology

Approved 06/07/2017

Testing Ongoing

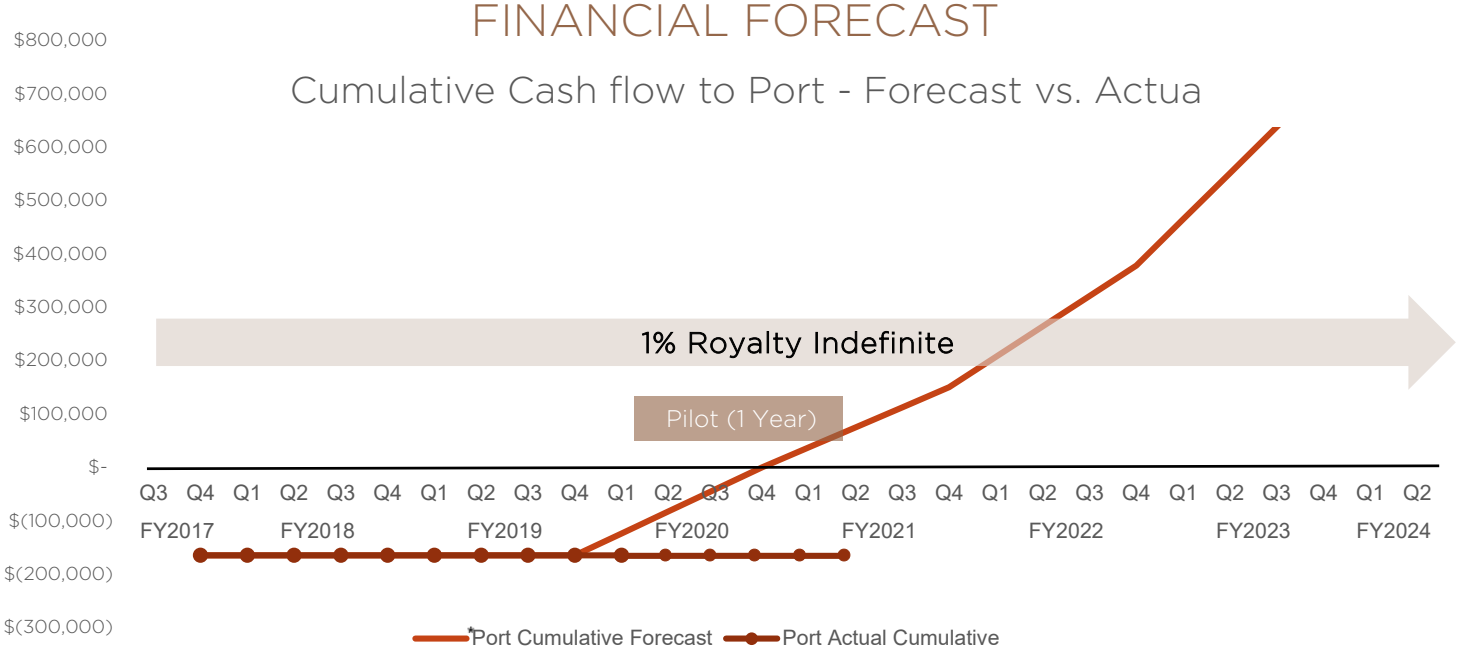
ENVIRONMENTAL & SOCIAL BENEFITS

Pilot Key Performance Indicators

OVERALL KPI (Port Fiscal Year)	Amount of total and dissolved copper removed	Effect on bay water quality and load removal	Amount of resin used, and cost associated with production and analysis
TBD	*This pilot project is scheduled to take place during Phase 2 of the Boatwash pilot project, where advanced filtration systems and emerging copper remediation technologies will be tested for their potential to collect dissolved copper released during hull cleaning. Red Lion copper remediation technology will be tested by filtering water in an active Pump and Treat Flow-Through (P&T) system and a Passive Flow-Through (PASS) system.*		

As per pilot project statement of work

FINANCIAL FORECAST



Agreement: 1% royalty of worldwide gross revenues from Copper Mitigation Water Technology (core tech) in perpetuity.

**Revenue forecast based on sales projections submitted to Port*

Zephyr Debris Removal

Zephyr is offering an innovative vessel design and service model for marine debris removal in bay and harbor environments to reduce marine debris pollution

PORT of SAN DIEGO

PILOT PROJECT

In 2018, Zephyr partnered with the Port of San Diego to demonstrate an innovative new design for a marine debris skimming vessel, and for the development of a database of key variables influencing marine debris accumulation in San Diego Bay. Zephyr is a start-up company whose founder has over 20 years of experience in the maritime industry as a small business owner and commercial fishing captain.

During the one-year pilot, over 33,000 pounds of trash were collected from San Diego Bay, as well as data on location, volume and content of debris. The data collected is assisting and informing management decisions to address marine debris sources and hotspots around San Diego Bay. Moving forward, Zephyr is actively working on a new innovative approach to prevent and reduce debris accumulation in Bay environments to improve and expand his marine debris removal services.

HIGHLIGHTS

Winner!

2018 AAPA Environmental Improvement Awards

Category: Mitigation
Marine Debris Removal Project

In 2018 the Port won an award from the American Association of Port Authorities (AAPA) for its support of Zephyr innovative debris removal system through pilot project facilitation.

CURRENT STATUS

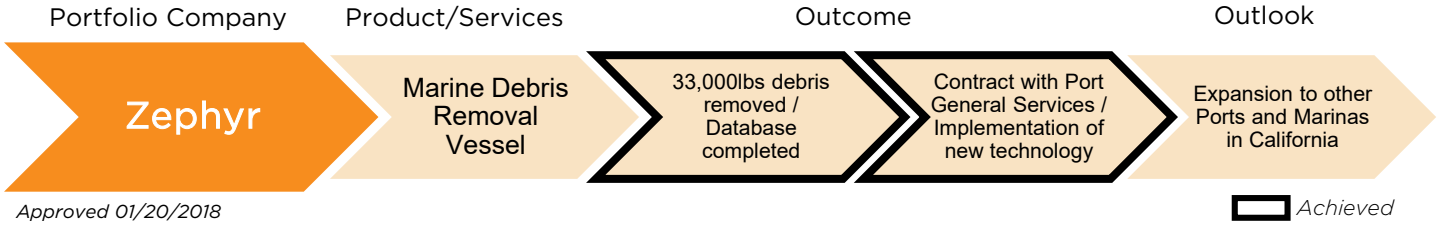
In March 2020 Zephyr completed a one-year contract with the Port's General Services Department to provide marine debris removal services. As the vessel continues to demonstrate its efficient skimming operation and technology the goal is to commercialize the solution across California and beyond to help remove debris from other Ports and Harbors.

Scorecard: Zephyr / Q1 FY21

PILOT TIMELINE: Board Approval: 1/9/2018 Start Date: 2/5/2018 End Date: 2/5/2019

PILOT OVERVIEW

Tracking benefits from pilot project to commercial success



Approved 01/20/2018

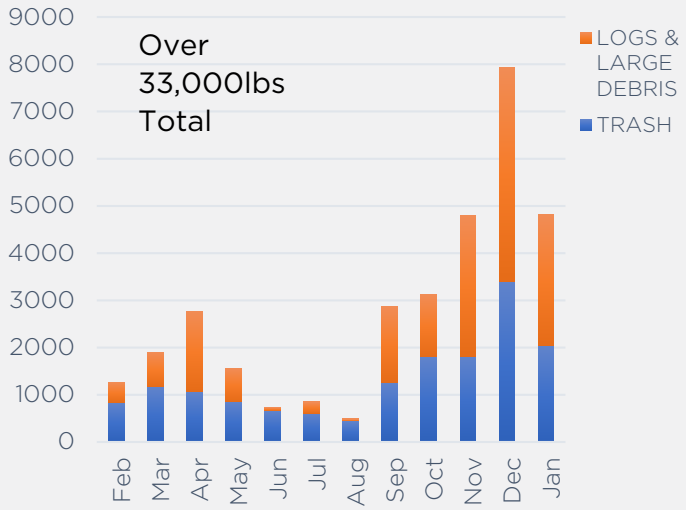
ENVIRONMENTAL & SOCIAL BENEFITS

Pilot Key Performance Indicators

OVERALL KPI	Track amount of debris collected	Track effectiveness of skimming operations
Q1 FY19	4,809 LBS	Seasonality pattern developed
Q2 FY19	15,872 LBS	Designed Technology improvements
Q1 FY19	4,216 LBS	Hot spot, trash accumulation locations identified
Q4 FY18	5,065 LBS	Pattern and predictability developed based on variables and data collected
Q3 FY18	3,172 LBS	Baseline variables established and recorded

Per pilot project statement of work

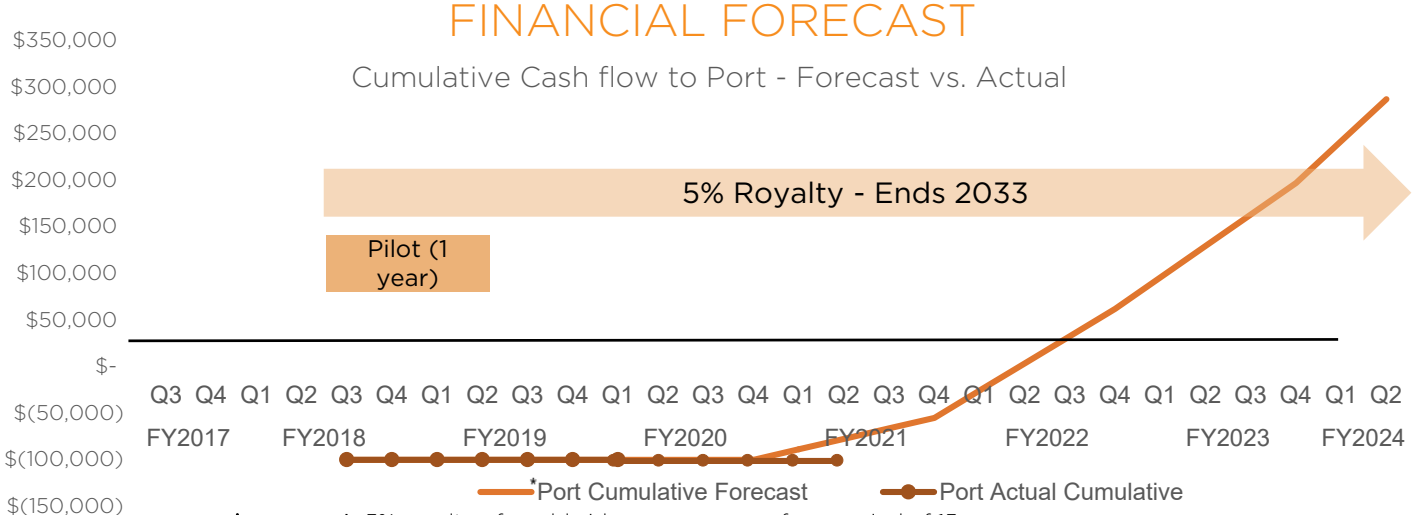
2018 Total Trash (lbs/month)



Monthly Marine Debris removed during pilot

FINANCIAL FORECAST

Cumulative Cash flow to Port - Forecast vs. Actual



Agreement: 5% royalty of worldwide gross revenue for a period of 15 years

**Revenue forecast based on sales projections submitted to Port*

Sunken Seaweed

Sunken Seaweed is farming multiple seaweed species and developing a diversity of products from culinary seaweed to fertilizer

PORT of SAN DIEGO

PILOT PROJECT

In 2018, Sunken Seaweed partnered with the Port of San Diego to demonstrate the feasibility of seaweed aquaculture in San Diego Bay. Sunken Seaweed is an aquaculture start-up company led by two marine ecologists committed to pioneering sustainable seaweed aquaculture in and around San Diego Bay.

Sunken Seaweed established their seaweed hatchery at San Diego State University Marine Lab and installed their submerged pilot farm using assets managed by the Port in San Diego Bay. Since the start of the one-year pilot project, the company has been cultivating, outplanting, growing, monitoring, and harvesting several species of seaweed native to Southern California. Beyond commercialization, results from the pilot project are helping assess seaweed aquaculture's multiple co-benefits, from carbon sequestration and bioremediation to improving water quality and ecosystem productivity.

HIGHLIGHTS

In 2020, Sunken Seaweed obtained grant funding from the US. Department of Energy ARPA-e program and Pacific States Marine Fisheries Commission to measure the ecosystem benefits and services provided by seaweed aquaculture and continue their pilot farm operation.

CURRENT STATUS

In support of the pilot, the Port provided funding, permitting, and environmental review as well as access to Port-controlled land in San Diego Bay to establish the pilot farm. Sunken Seaweed has leveraged the assets and results from the pilot to obtain additional grant funding and permits to continue operations and measuring the ecosystem benefits and services that both seaweed and shellfish provide.

Scorecard: Sunken Seaweed / Q1 FY21

PILOT TIMELINE: Board Approval: 07/17/2018 Start Date: 11/1/2018 End Date:11/1/2023

PILOT OVERVIEW

Tracking benefits from pilot project to commercial success

Portfolio Company	Product/Services	Outcome		Outlook
Sunken Seaweed	Seaweed Farming	Hatchery and pilot farm established / Macroalage growth rates achieved	Scale operations / Expand commercialization / Measure bioremediation	Continued R&D and expansion

Approved 07/17/2018

Achieved

ENVIRONMENTAL & SOCIAL BENEFITS

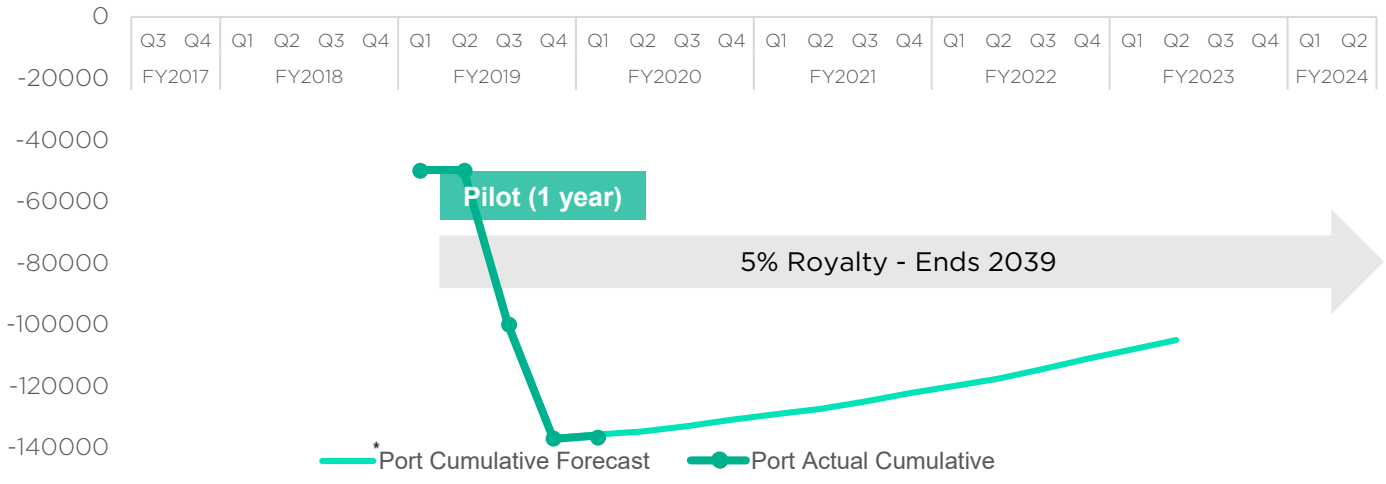
Pilot Key Performance Indicators

OVERALL KPI (Port Fiscal Year)	Macroalgae growth rates	Innovation and Proof of Concept	Customer acquisition
Q4 FY 20 – Q3 FY21	**Ulva:** 50 lbs/week (land-based) **Gracilaria (Ogo):** no production due to Covid-19	Initiated a process with Humboldt Bay Harbor District to develop a land-based commercial farm in Humboldt County, CA Exploring using seaweed as a tool for bioremediation in urban waterways through Arpa-E Grant and San Diego State University	No new customers
Q3 FY 20 – Q4 FY 20	**Gracilaria (Ogo):** 100 lbs/week (land-based)	Built a macroalgae tumble culture facility at Hubbs SeaWorld Research Institute through a Pacific States Marine Fisheries Commission Grant Acquired permits to add shellfish to pilot farm at Grape Street pier to test 3D Ocean Farming model	ANIMAE, Wrench & Rodent, The Plot, and The Berry Good Food Foundation, Monterey Bay Seaweed, Superior Seafoods, Catalina Offshore Products

As per pilot project statement of work

FINANCIAL FORECAST

Cumulative Cash flow to Port - Forecast vs. Actual



Agreement: 5% royalty of worldwide gross revenue for 20 years

**Revenue forecast based on sales projections submitted to Port*

ecoSPEARS

ecoSPEARS is developing cost-effective cleanup solutions to extract and destroy toxic contaminants from impacted sediment, soil and groundwater

PORT of SAN DIEGO

PILOT PROJECT

In 2019, ecoSPEARS partnered with the Port of San Diego to demonstrate its innovative in-situ technology to extract contaminants from impacted marine sediment. ecoSPEARS is a start-up company comprised of a fast-growing team of innovators, engineers, and scientists developing cleanup solutions for contaminated sediment.

SPEARS stands for Sorbent Polymer Extraction and Remediation System. Shaped like spikes, SPEARS filled with a proprietary solution are deployed into contaminated sediment or around challenging facilities like wharves/pier or sensitive wetland areas where dredging may not be feasible. Once settled into the sediment, the SPEARS act like sponges, passively absorbing chlorinated toxic contaminants such as polychlorinated biphenyls (PCBs) and dioxins. Once the remedial site goals are met, the SPEARS are safely removed and retrieved, and then the SPEARS enter a green chemical process to destroy the PCB's absorbed.

HIGHLIGHTS

In December 2020, ecoSPEARS deployed the SPEARS technology at Harbor Island and America's Cup Harbor in San Diego Bay. After 6 months, ecoSPEARS will remove the SPEARS and safely destroy the absorbed PCB's through a lab-based chemical process.

CURRENT STATUS

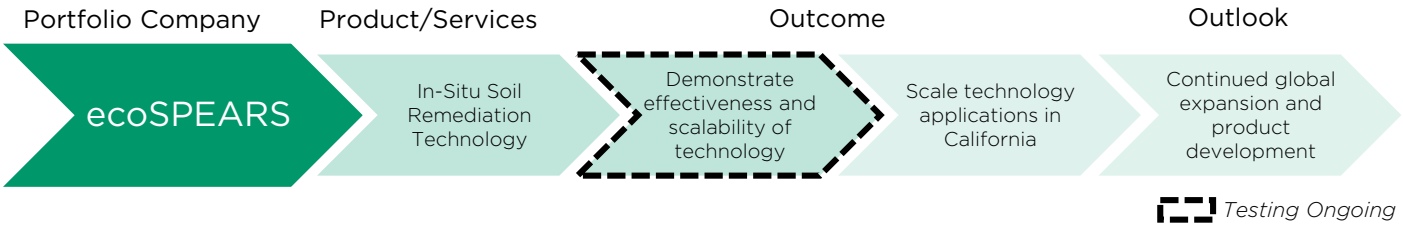
In support of the pilot, the Port is providing funding, permitting, and environmental review as well as access to Port-controlled land in San Diego Bay to test the SPEARS technology. The permits for the pilot were obtained, two baseline sampling events were conducted, and the 6-month SPEARS deployment took place on December 14, 2020.

Scorecard: ecoSPEARS / Q1 FY21

PILOT TIMELINE: Board Approval: 6/8/2019 Start Date: 10/15/2019 End Date: 9/10/2021

PILOT OVERVIEW

Tracking benefits from pilot project to commercial success



ENVIRONMENTAL & SOCIAL BENEFITS

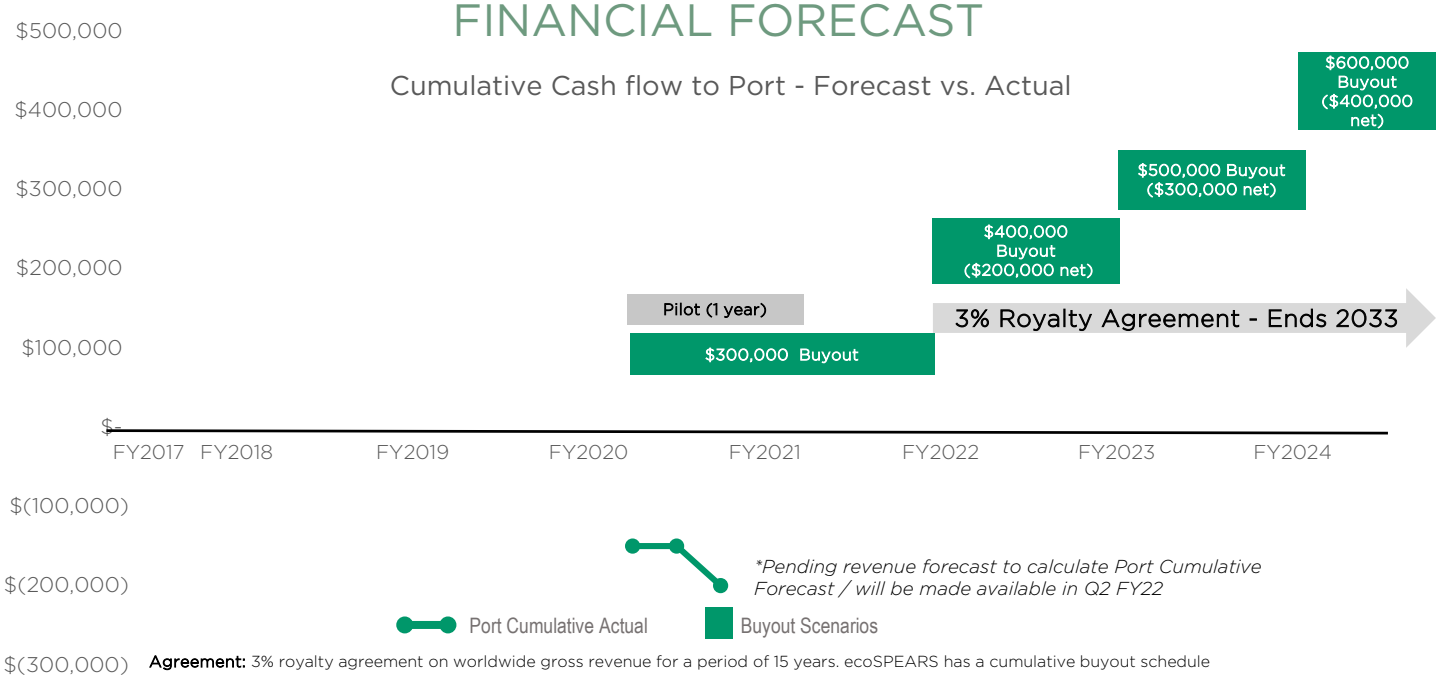
Pilot Key Performance Indicators

OVERALL KPI (Port Fiscal Year)	Effectiveness in reducing PCB concentrations in sediments	No solvent/water exchange across spike	Destruction of extracted PCBs	Assess effectiveness in treating PCB-impacted sediment using solvent-rinse extraction process
FY21-22	*SPEARS technology performance will be evaluated after 6 months of deployment at two locations in San Diego Bay*			
FY20-21	*ecoSPEARS deployed SPEARS technology at two locations in San Diego Bay. The primary goal will be to determine how much PCB mass the SPEARS technology will remove over a predetermined period compared to baseline concentrations.*			

Per pilot project statement of work

FINANCIAL FORECAST

Cumulative Cash flow to Port - Forecast vs. Actual



Agreement: 3% royalty agreement on worldwide gross revenue for a period of 15 years. ecoSPEARS has a cumulative buyout schedule

ECOncrete

ECOncrete is offering concrete technology to enhance the biological and ecological value of coastal infrastructure while preserving functional and structural properties

PILOT PROJECT

In 2019, ECOncrete partnered with the Port of San Diego to demonstrate a new design of its tide pool armor unit product. ECOncrete is an early-stage company comprised of a multidisciplinary team of renowned marine ecologists, biologists, geologists, concrete experts, engineers, and designers.

During the three-year pilot project, ECOncrete will demonstrate their new and innovative tide pool design, the COASTALOCK interlocking tide pool. The COASTALOCK tide pool is designed to interlock with other COASTALOCK tide pools to create a tide pool system, potentially serving as a replacement for traditional riprap to provide ecological armoring and shoreline stabilization while also creating well-defined local ecosystems that mimic natural rock pools. The tide pool system is designed to create water retaining elements which are absent in most urban waterfronts. During the pilot project, ECOncrete will install 72 Coastal Star tide pools across two sites along the San Diego Bay shoreline.

HIGHLIGHTS

In January 2021, ECOncrete will install these COASTALOCK interlocking tide pools at two locations on Harbor Island. The tide pools are made with an environmentally sensitive, low carbon concrete mixture tailored to the San Diego Bay marine environment.

CURRENT STATUS

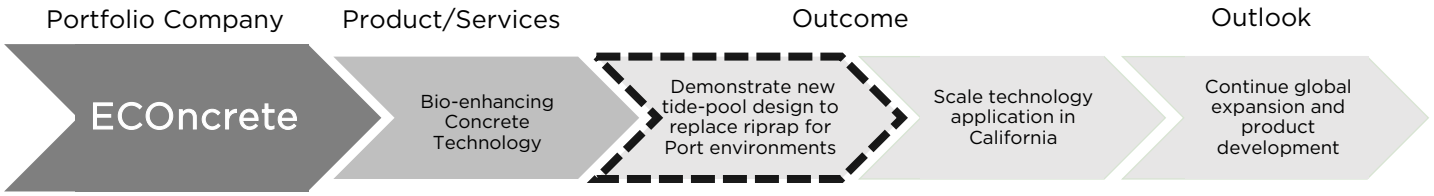
In support of the pilot, the Port is providing funding, permitting, and environmental review as well as access to Port-controlled land in San Diego Bay to test the ECOncrete technology. The casting of the tide pools is completed, and the installation is planned for early 2021.

Scorecard: ECOncrete / Q1 FY21

PILOT TIMELINE: Board Approval: 07/24/2019 Start Date: Dec 2020 End Date: Jan 2022

PILOT OVERVIEW

Tracking benefits from pilot project to commercial success



Approved 07/24/2019

Testing Ongoing

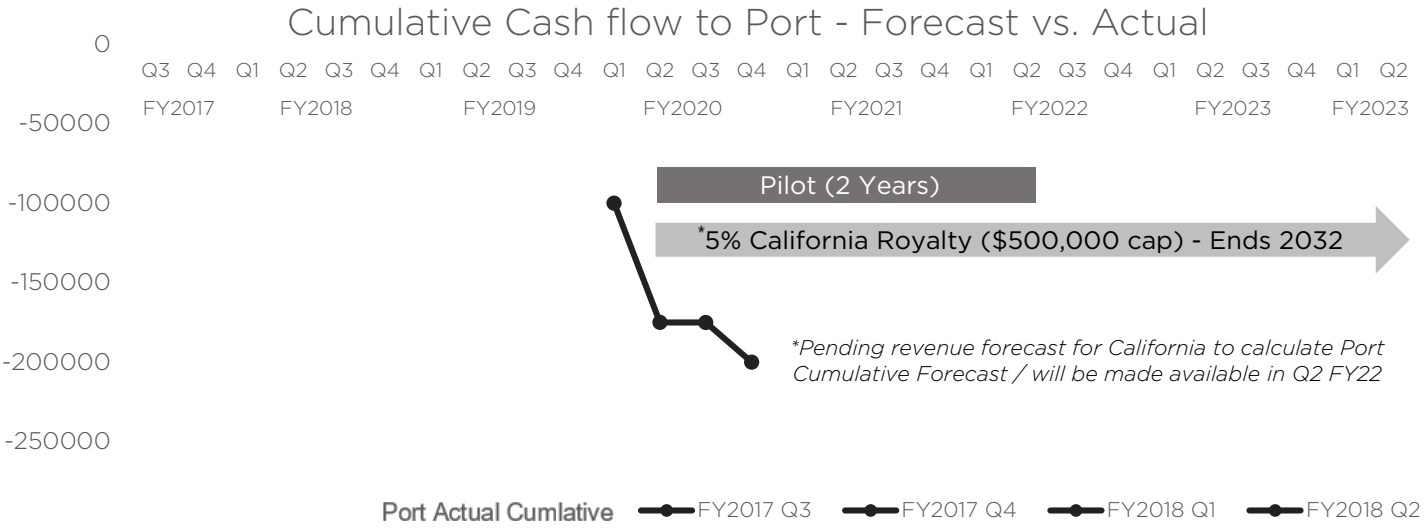
ENVIRONMENTAL & SOCIAL BENEFITS

Pilot Key Performance Indicators

OVERALL KPI (Port Fiscal Year)	Biodiversity	Species Abundance	Species Richness	Community Structure	Percent Live Cover	Accumulation of Biogenic Build-Up (calcium carbonate)
FY21-23	*Every six months after installation, ECOncrete will evaluate the viability of the tide pool units as an ecological armoring replacement to traditional riprap. Biological monitoring will be comprised of in-situ surveys. Ecological success criteria will be evaluated according to biological parameters when compared to the existing shoreline.* *Structural success criteria will be evaluated according to the Level 1 & 2 visual inspection of the tide pools at the conclusion of the 3-year pilot project for determining the overall condition (cracking, chipping, etc.), as well as structural stability - per the standards established by the American Society of Civil Engineers "ASCE Manual 101, Underwater Investigations".*					

Per pilot project statement of work

FINANCIAL FORECAST



Agreement: 5% royalty for 12 years in California for two products (COASTALOCK interlocking tidal pool + pile encapsulation products) and $500k cap

FREDsense Technologies

FREDsense technologies is developing custom field-enabled technologies for rapid detection of chemical compounds in water

PORT of SAN DIEGO

PILOT PROJECT

In 2020, FREDsense partnered with the Port of San Diego to develop a portable five-in-one field-testing sensor device to provide real-time metals analysis for stormwater monitoring. FREDsense is an early-stage company comprised of a multidisciplinary team of water scientists, biologists, and engineers specializing in custom development of unique water quality solutions.

During the two-year pilot project, FREDsense is proposing to develop, optimize and commercialize a real-time five-in-one automated sensor device for metals in water samples. The proposed metals include aluminum, copper, lead, zinc and nickel, all of which are monitored in the Port's stormwater programs. The project's approach will help stormwater programs by providing real-time data in the field, enabling adjustments to Best Management Practices (BMPs) quicker than with laboratory data that can take several weeks for results.

HIGHLIGHTS

FREDsense®

FREDsense has validated its core technology through pilot projects for various applications within the mining remediation and water industries. FREDsense is currently focused on marketing and sales, while continuing research and development aimed at diversifying the company's line of products applications and reducing production costs.

CURRENT STATUS

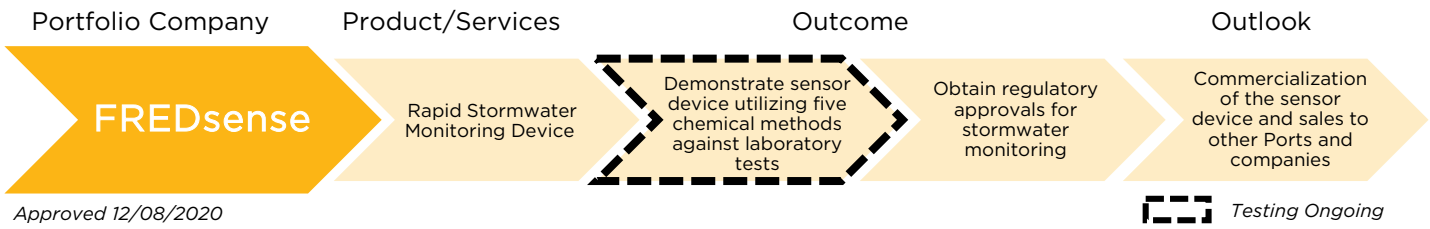
In support of the pilot, the Port is providing funding, and expert consultation with Port staff regarding use cases and other information based on Port stormwater experience. FREDsense will create a prototype and test the sensor device to monitor stormwater. Results from the pilot will allow for case study development in preparation for full commercialization and regulatory approvals.

Scorecard: FREDsense / Q1 FY21

PILOT TIMELINE: Board Approval: 12/08/2020 Start Date: 01/01/2021 End Date:01/01/2023

PILOT OVERVIEW

Tracking benefits from pilot project to commercial success



ENVIRONMENTAL & SOCIAL BENEFITS

Pilot Key Performance Indicators

OVERALL KPI (Port Fiscal Year)	Demonstration of Hardware System	Proof of Concept / Case Study Development	Customer acquisition
FY 21-23	During the two-year pilot project, FREDsense will develop a portable field-testing sensor device to monitor stormwater. The company will utilize their pre-existing titration platform optimized for the environmental remediation industry to produce an automated testing system for stormwater analysis. FREDsense will utilize the Port's current stormwater sampling program to compare and validate against known laboratory samples. Upon successful customization of the five-in-one sensor device, FREDsense will produce a case study that demonstrates its effectiveness and potential application to stormwater monitoring. The case study will be presented to regulatory agencies to achieve certification of their rapid testing methodology for regulatory and permit compliance monitoring.		

As per pilot project statement of work

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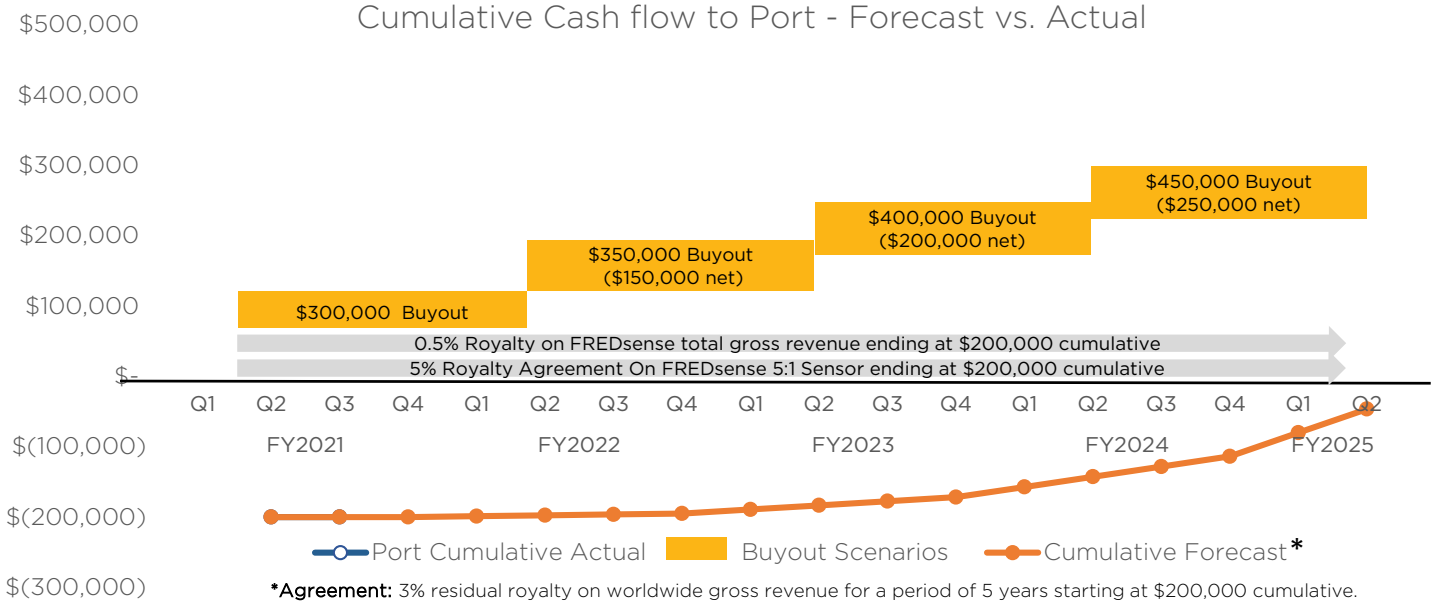
Cumulative Cash flow to Port - Forecast vs. Actual



***Agreement:** 3% residual royalty on worldwide gross revenue for a period of 5 years starting at $200,000 cumulative.

Blue Economy Incubator

Business Proposal Application Process

PORT of SAN DIEGO Waterfront Development

Objective

Inherent to The Port of San Diego's mission is to utilize its various assets in leading and accelerating the Blue Economy in our region. Water dependent business is a long and proud tradition at The Port and its sustainable future is critical to our region's long term success of water dependent fisheries and technologies. To this end, The Port will accept proposals for new business plans from potential partners whose core purpose is to share in this mission. Specifically, The Port has established a business incubator and investment program to assist in the creation, early development, and initial scaling of new business ventures targeted at key specific segment of the Blue Economy: Aquaculture & Blue Tech.

In order to be considered as a partner in The Port's Blue Economy Incubator, we have established the following application process and business plan submission requirements. We encourage any new or early stage venture that aligns with our objective to submit an application to our incubator.

APPLICATION PROCESS

Four stages to potential approval

1. Submit a cover letter/email with attached "Pitch Deck" to incubator@portofsandiego.org.
   - Requirements for the "Pitch Deck" can be found on page 3 of this pdf.
   - Applicant will receive notification of receipt via email within ten business days and a Non-Disclosure Agreement (NDA) from The Port.
   - If all information in the deck is complete, accurate and there is interest from the Port, the applicant will be notified to set up a conference call with the Incubator's Business Director and Subject Matter Expert(SME) to initially review proposal.
   - If there is no interest, the applicant will be notified by email.

2. If the Business Plan is considered consistent with the core objective of the Incubator, has attractive financials, and a reasonable partnership proposal, the Plan will move to the second stage which will entail a face to face meeting with the Incubator Committee (Executive Management and Subject Matter Expert Staff) for a deep dive review of the business plan, questions, and follow-up requirements as appropriate.

3. Business Plans which have been reviewed by the Incubator Committee and are deemed "highly considered proposals" relative to all other proposals and current portfolio partners in the Incubator will then be reviewed internally, with the CEO of The Port, for further consideration. Potential partners will not be required at this meeting.

4. Finally, proposals for partnership in The Port's Incubator that are approved to proceed by the CEO of the Port will then be taken by Staff as a recommendation to the Port's Board of Commissioners for final review, potential approval, and funding. This will be a public presentation by Staff in conjunction with potential business partner, at one of the monthly Port Board meetings. If the Board approves, there will likely be a few more logistical requirements prior to actual funding.

Proposal, or "Pitch Deck", requirements

An initial proposal "Pitch Deck" will be presented in PowerPoint format and will be no more than 20 slides in length. Additional, relevant details may be included in an appendix, with no more than 20 additional slides. Key content must include:

Company Info

- Company name & address
- Entrepreneur name
- Email address, phone number
- Company website
- Industry/sector (defined area of Aquaculture or Blue Tech)
- How did you hear about Port Aquaculture & Blue Tech
- Date company founded

Employees

- Number of employees
- Names/title/Linked IN profile
- Resumes of owners
- % ownership by employee

Business Plan Presentation

- Executive summary
- Market sizing & source of business
  - Competitive landscape
- Product/strategy
  - Customer description (how many/ who/stage of development)
  - Product description
  - Value proposition
  - Intellectual property opportunities and/or barriers to entry
  - Go to market strategy
  - Permits required/obtained
    - Length to obtain
    - Key hurdles to obtain permits
- 5 year financial forecast
  - Previous year and next 5 years
  - P&L
  - Cash flow forecast
- Cash
  - Monthly burn
  - Current balances
- Funding
  - Previous funding amounts
  - Cash invested by owners
  - Partnership proposal: funding request & term sheet
- Exit strategy