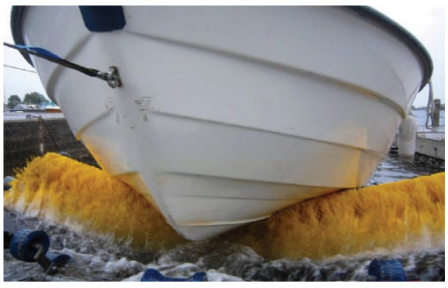
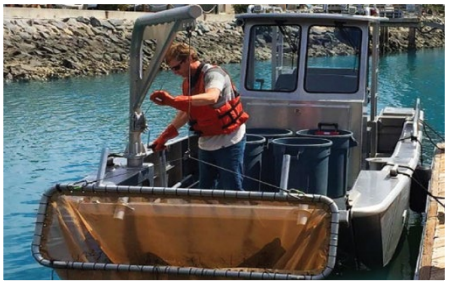
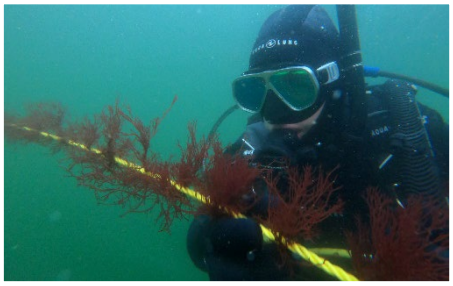
2019 American Association of Port Authorities
Environmental Awards

Comprehensive Environmental Management

Port of San Diego Supports Environmental Innovation through Blue Economy Incubator Program

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Port of San Diego Supports Environmental Innovation through Blue Economy Incubator

I. Introduction

In 2016, the Port of San Diego (Port) established a Blue Economy Incubator (BEI) program to assist in the creation, development and scaling of new Blue Economy business ventures in and around San Diego Bay. Through its BEI, the Port is seeking innovative aquaculture and blue tech proposals to inform present and future Port environmental challenges and opportunities; from compliance to remediation. The Port BEI program acts as a launching pad for sustainable aquaculture and blue tech innovative projects by removing barriers to early-stage entrepreneurs and providing key assets and support services focused on pilot project facilitation.

Since the launch of the BEI Program, the Port has received over 100 inquiries, and 40 proposals were officially submitted for review. Incubator proposals are reviewed following a cross-departmental due diligence process culminating in a staff recommendation to the Board of Port Commissioners. Pilot projects currently supported through the BEI range from shellfish nursery operations, to copper remediation technology, a drive-in Boatwash, a smart marina application, a marine debris removal vessel, and seaweed aquaculture. The BEI program has demonstrated a new procurement pathway for the Port to more efficiently attract and support innovative pilot project proposals to inform port-related environmental challenges and opportunities.

II. Goals and Objectives

- To support entrepreneurship, foster sustainable aquaculture, and help drive port-related blue tech innovation.
- To seek innovative proposals to address present and future Port environmental challenges and opportunities.
- To inform existing Port environmental programs and initiatives aimed at protecting and enhancing San Diego Bay.
- To develop 'innovation partnerships' to build a Blue Economy portfolio of businesses who can deliver multiple social, environmental, and economic benefits to the Port and the region.

III. Discussion

A. Background

With 70 miles of coastline, a strong Navy presence, a vibrant working waterfront, Scripps Institute of Oceanography, and a growing cluster of innovative technology firms, San Diego has emerged as a hub for maritime innovation and the development of a sustainable ocean economy (Blue Economy). The Port of San Diego (Port) is an innovative champion for 34 miles of San Diego Bay waterfront along Chula Vista, Coronado, Imperial Beach, National City and San Diego. From Real Estate to Aquaculture and Blue Technology, the Port invests in major redevelopment and community infrastructure, so businesses in the San Diego region have the opportunity to stay competitive in the global marketplace.

Port of San Diego Supports Environmental Innovation through Blue Economy Incubator

As a long-time champion and catalyst of the region's traditional Blue Economy with its shipbuilding, commercial fishing, marine research, cruise, and cargo business lines, the Port is committed to continue fostering the sustainable development of this sector. As this sector and technology has evolved, the role of the Port has also. In 2016, the Port established a Blue Economy Incubator (BEI) program to assist in the creation, development and scaling of new Blue Economy business ventures in and around San Diego Bay, focusing on aquaculture and blue tech.

Traditional incubators typically offer subsidized office space, shared administrative services, and start-up mentorship. However, the Port BEI program acts as a launching pad for sustainable aquaculture and blue tech innovative projects by removing barriers to early-stage entrepreneurs and providing key assets and support services focused on pilot project facilitation. As a property-owner and regulator of land and water in San Diego Bay, the Port is uniquely positioned to provide key assets and services such as permit-ready infrastructure, entitlements assistance, marine spatial planning tools, market access, and strategic funding.

Through its BEI, the Port is seeking innovative aquaculture and blue tech proposals to inform Port environmental challenges and opportunities; from environmental compliance to remediation. Within the BEI context Blue Tech is being defined as technologies and/or business models that are focused on promoting or restoring the health of ocean and marine waters. Aquaculture, beyond food production, can also be used as a tool for environmental remediation and mitigation.

To date, with extensive cross-departmental support, the Port has launched six pilot projects, ranging from shellfish nursery operations, to copper remediation technology, a drive-in Boatwash, a smart marina application, a marine debris removal vessel, and seaweed aquaculture. New proposals being considered for funding under the BEI Program include pilot projects to demonstrate an innovative marine bio-enhancing concrete as a green/nature-based shoreline armoring alternative, and new approach to soil remediation in marine environments.

The BEI Program directly aligns with or is otherwise complementary to several planning and environmental initiatives underway at the Port. Through facilitation of pilot projects, the BEI Program has created synergies with and continues to inform other existing environmental programs at the Port from copper remediation, to marine debris removal management, to using shellfish and seaweed aquaculture as a tool for bioremediation and restoration. More broadly, as part of the Port Master Plan update, aquaculture and blue tech have been added to both land and water use categories for consideration as new uses that support the effort's cross connecting themes of a healthy bay and healthy communities.

B. Methodology

The BEI was launched on May 9, 2016, inviting early stage and market-ready ventures that align with the incubator objectives to submit business and pilot project proposals. Since then, the Port has received over 100 inquiries, and 40 proposals were officially submitted for review.

To be selected for review, incubator proposals need to provide the required business plan information for staff to analyze the pilot project feasibility, the financial viability of the proposal, and strategic alignment with the District's core mission and Public Trust purposes. Incubator proposals are reviewed following a cross-departmental due diligence process culminating in a staff recommendation to the Board of Port Commissioners.

The selection process balances each proposal's potential social and environmental benefit, alignment with the District's core mission and Public Trust obligation, as well as the potential financial return on investment. All companies that apply to the BEI are extensively vetted through the formal four-step competitive review process and any of the selected proposals are required to undergo California Environmental Quality Act review, and coastal review where applicable, and obtain all necessary permits.

The incubator cross-departmental due diligence process involves the participation of Subject Matter Experts (SME) from various Port departments that are bringing their expertise in evaluating and vetting proposals. From due diligence to installation, the successful launch of pilot projects through the BEI involves an extensive cross-departmental collaboration process. This team effort is at the core of the Port BEI's unique value proposition to act as a launching pad for sustainable aquaculture and innovative blue tech ventures.

C. How The Project Meets Award Criteria:

1. The level and nature of benefits to environmental quality, beautification or community involvement:

By supporting the demonstration of sustainable aquaculture business models and innovative Port-related 'blue' technologies, the BEI Program is informing existing environmental initiatives at the Port and delivering social and environmental benefits to the region. Specifically, below are example of such benefits for completed and ongoing pilot projects.

- ***Marine Debris Removal pilot project***

This pilot project allowed for the demonstration of a novel approach to marine debris removal and for the development of a database of key variables influencing marine debris accumulation in San Diego Bay. Over 33,000 pounds of marine debris from San Diego Bay were collected, as well as location, volume and content data on trash. The information collected during the pilot project will help inform management decisions to address marine debris sources and hotspots within the Bay. Since March 2019, the company is working under contract with the Port's General Services department to continue providing marine debris removal services in San Diego Bay.

- ***Seaweed Aquaculture pilot project***

This pilot project is allowing to demonstrate the feasibility of seaweed aquaculture in the San Diego Bay. The project includes cultivating, out-planting, growing, monitoring, and harvesting several species of native marine macroalgae, and exploring expanding domestic markets for uses in human and animal food production, biofuels, and fertilizers, as well as exploring a variety of ecosystem services applications.

The monitoring data collected during the project will be used to assess seaweed aquaculture as a tool for bioremediation, carbon sequestration, restoration, mitigation banking, habitat enhancement and otherwise improving water quality and ecosystem productivity.

2. The level of independent involvement and effort by the Port:

Through its Blue Economy Incubator, the Port has contributed funding to the pilot projects in the amount of $1,016,000.00 to date, provided use of Port-owned property, assistance with obtaining all necessary regulatory and operational permits, coordination and installation of projects, and assistance with community and media relations.

3. The creativity of the solution or programs:

Traditionally, Ports are funding innovative projects through service agreements or grants. A Port-led BEI provides a new and innovative procurement pathway to attract and efficiently deploy innovative ideas and projects to address port-related environmental challenges and opportunities. As a property-owner and regulator of land and water in San Diego Bay, the Port is uniquely positioned to provide key assets and services focused on pilot project facilitation. This new way to partner with a company to support new technologies to help solve environmental issues facing ports around the world puts the Port of San Diego at the forefront of innovation.

4. Whether the project or program results are apparent:

Since its establishment in 2016, the BEI program has deployed multiple innovative pilot projects and demonstrated a new procurement pathway to more efficiently attract and support innovative pilot project proposals to inform port-related environmental challenges

and opportunities. The BEI program allowed the Port to develop 'innovation partnerships' with businesses who can deliver multiple social, environmental, and economic benefits to the Port and the region. Below are examples of co-benefits demonstrating the effectiveness of the Program:

- Conducted the first commercial shellfish and seaweed aquaculture projects in San Diego Bay and measuring the associated environmental benefits.
- Coordinated installation of the first drive-in Boatwash on the U.S. West coast which will test effectiveness of addressing copper pollution in the Bay.
- Removed over 33,000 pounds of marine debris from the Bay through the marine debris removal pilot project.
- Recognized by state and federal agencies, as well as industry and academia for providing pathways for the sustainable development of aquaculture in the region.

5. The cost effectiveness of the activity or the program:

In exchange for funding and in-kind support provided to launch pilot projects the Port receives a royalty position from the business' operations and technology. As an example, if the technology being piloted is adopted in ports and bays elsewhere, the Port will share in the business' success and the Port's share of revenue can be reinvested into new innovative projects or used to fund the Port's other operations like parks, security, and other public services.

6. The transferability of the technology or idea to the port industry:

Ports worldwide are at the forefront of the environmental challenges associated with sustainable coastal management.

By allowing for the demonstration of innovative blue technology and sustainable aquaculture business models that are focused on promoting or restoring the health of ocean and marine waters, the Port BEI is acting as a catalyst to better understand and address port-related environmental challenges. In the future, other ports may rely on the information gathered during the pilot projects to address their needs. Additionally, other ports may consider supporting innovation in similar ways and generate revenue to reinvest in new ideas or pay for other port services.

IV. Conclusion

As the state-legislated trustee of tidelands around San Diego Bay, developing sustainable domestic aquaculture and driving blue tech innovation helps fulfill the Port's public trust responsibility to promote fisheries and commerce, as well as aligning with our mission to enhance and protect the environment. Ports can, and are increasingly playing a critical role in the sustainable development of these industries, given their familiarity and expertise in the permitting and entitlements process for a variety of coastal and ocean uses, the unique role they often play as landlord, operator, and/or regulator, and as champions of the blue economy. The Port's BEI program exemplifies this role in creating an innovative pathway to supporting and enhancing public-private partnerships that inform port-related environmental challenges and opportunities.