



California Marine Affairs & Navigation Conference



**PORT of
SAN DIEGO**
Waterfront of Opportunity

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What's Happening Around San Diego Bay



1. Granted Lands - Port of San Diego
2. Chula Vista Bayfront Development
3. Maritime Clean Air
4. Nature Based Solutions
5. Blue Economy Initiatives

Port of San Diego Granted Lands

34

miles of waterfront

2,404

acres of Port Tidelands

3,677

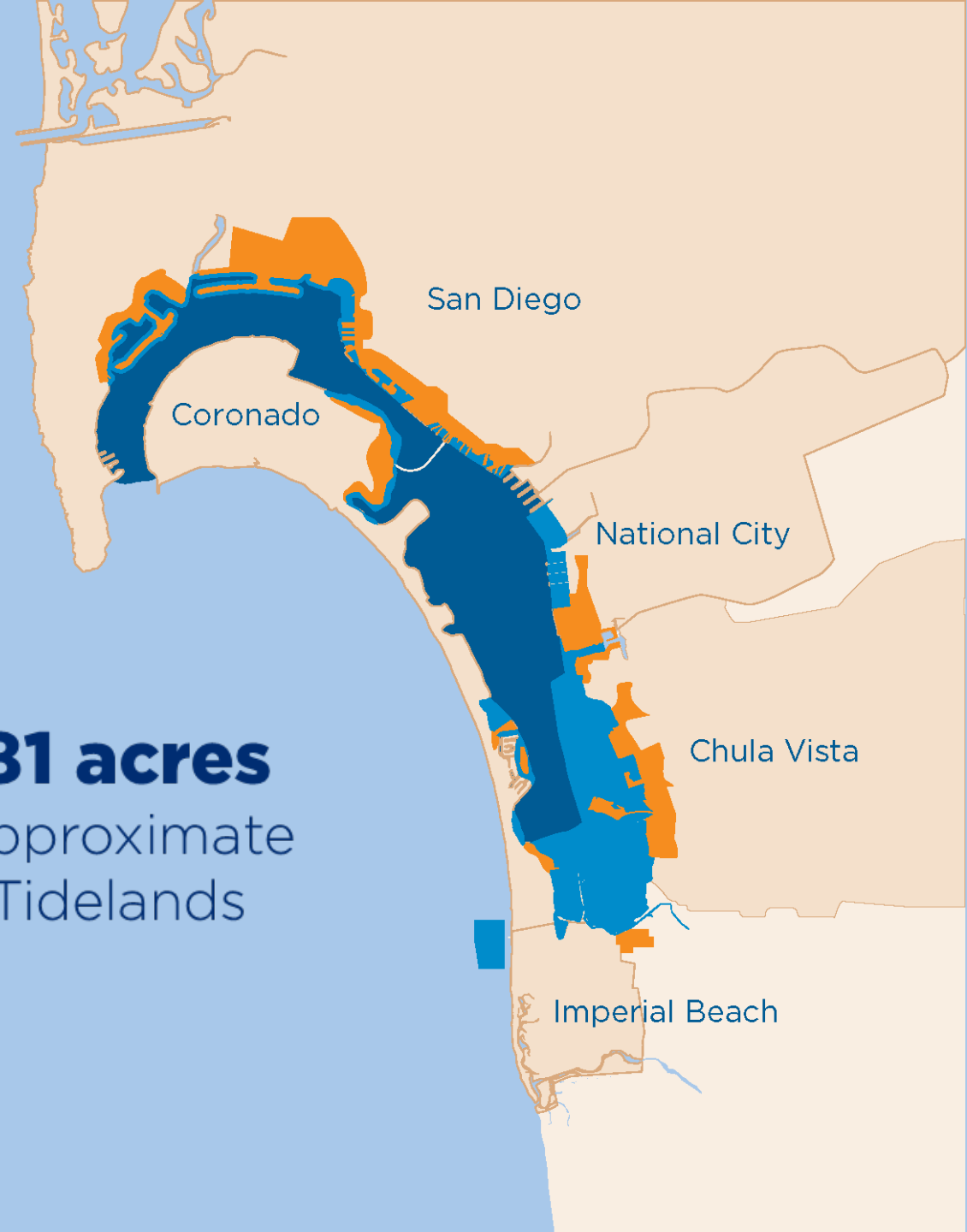
acres of Submerged Tidelands
prior to January 1, 2020

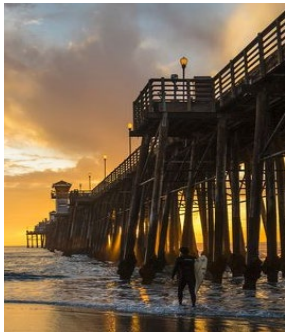
Approximately

8,300

acres of new Submerged Tidelands
(subject to survey) as of January 1, 2020

14,381 acres
Total approximate
Port Tidelands





5

public piers



9

museums & attractions



18

hotels



22

parks



70

artworks



74

restaurants



80+

sponsored events

Economic Engine

\$9.4 Billion in economic Impact and 70,000 jobs (2017)

Maritime Clean Air Strategy



Vision Statement: Health Equity for All



Trucks: 100% ZE truck trips by 2030 for all trucks that call to the Port's two marine cargo terminals.



Cargo Handling Equipment: Transition diesel cargo handling equipment to 100% ZE by 2030.



Harbor Craft: Tugboat diesel emissions reduced 50% through transition to Zero / Near-Zero Emission technologies and/or other lower-emitting engines or alternative fuels.



Port Fleet: Transition to 100% Zero / Near-Zero Emission technologies.



Ocean-going Vessels: Equip marine terminals with shore power and/or an alternative technology to reduce ocean-going vessel emissions for ships that call to the Port.

In-Progress

Projects, plans and investments underway with significant near-term milestones.

- **Heavy Duty ZE Truck Transition Plan**
 - Prepare pathways to 100% ZE truck trips by 2030
- **Port Fleet**
 - Purchase of 16 electric vehicles
- **Urban Greening**
 - Plant 20 trees at Cesar Chavez Park
- **Shore Power**
 - Install additional shore power at CST and NCMT
- **Electric Cranes at TAMT**
- **1st All Electric Tug in the United States**
 - Deploy on San Diego Bay

Secured Stimulus Funding

- \$26.8 million for electrification.



Chula Vista Bayfront 530-acre development

- **S-1** RV Park opened April 2021
- **H-3** Hotel and Convention Center
 - Close of Escrow



Resort Hotel & Convention Center - RIDA



Gaylord Pacific Hotel



Approximately 1,600 hotel rooms
and 275,000 net usable square feet
of convention and meeting space



Associated retail and resort-level
amenities



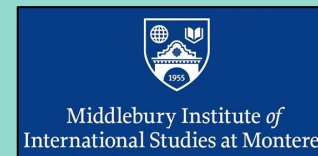
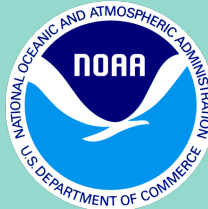


Advancing Nature-Based Solutions

Building a Profile of Nature-Based Solutions



Building Our Network of Partners & Collaborators



Restorative Aquaculture - Planning

Ecosystem Co-Benefits:

Bioremediation
Carbon/Nitrogen Sequestration
Fisheries Enhancement
Improved Water Quality
Improved Ecosystem Functioning

Nutritious
Food
Production

Coastal and
Climate
Resiliency

High
Quality
Blue Jobs

Minimal
Input
Resources

Shellfish and
Seaweed
Grown Together

The GreenWave Model: 3D Ocean Farming

Polyculture vertical farming system

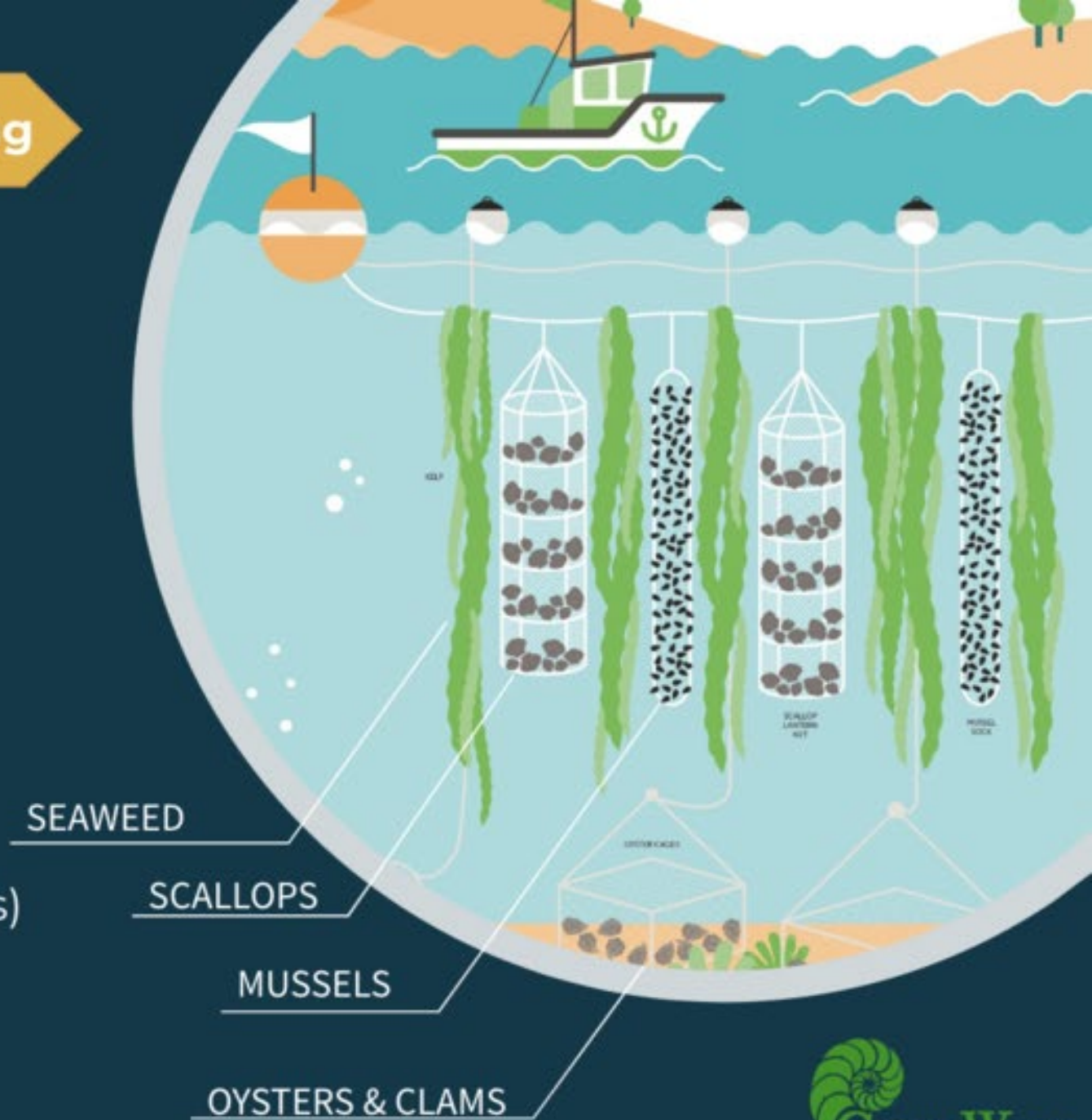
High yields of shellfish & seaweed
Small footprint

Replicable

Low barrier to entry
20 acres, a boat, and \$20K

Restorative

Carbon and nitrogen sink
Zero inputs (no fresh water, fertilizers, feeds)
Storm surge protection
Rebuilds marine ecosystems



Mitigation Banking – Pond 20



Pond 20 – Proposed Design



Native Oyster Living Shoreline



Native Oyster Living Shoreline

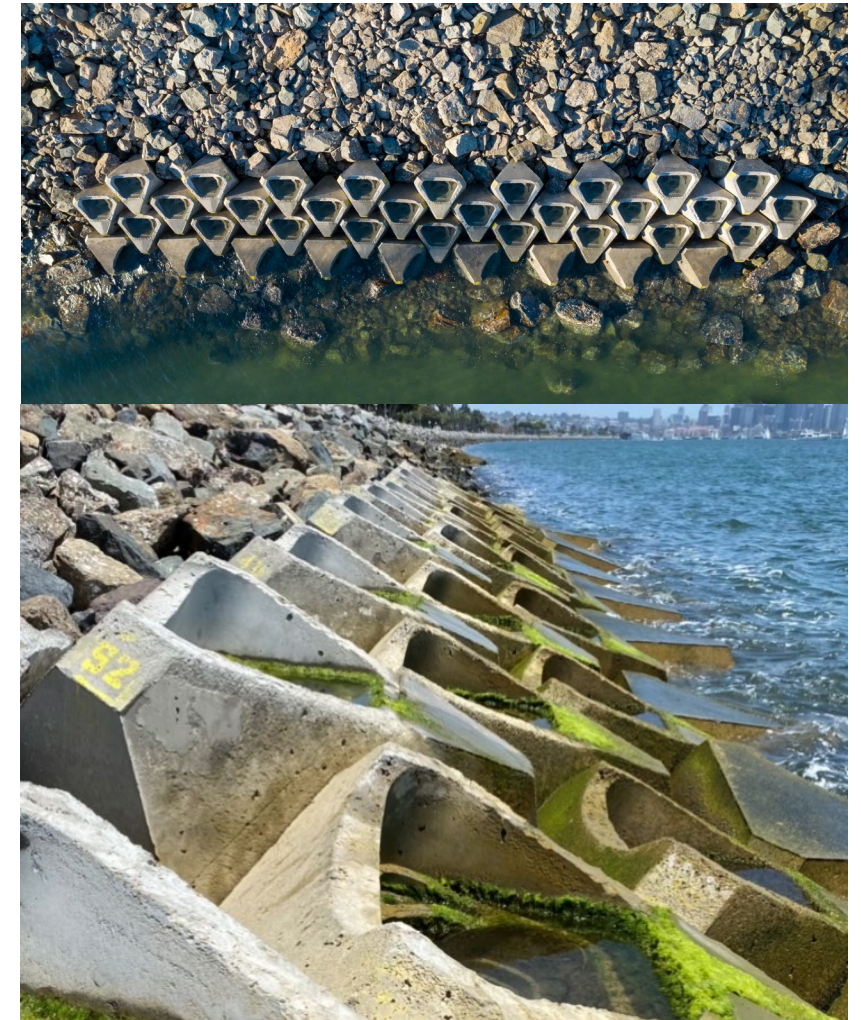


Native Oyster Living Shoreline





Bio-Enhancing Concrete | EConcrete





Bio-Enhancing Concrete | EConcrete



San Diego Bay Blue Carbon Eelgrass Study

Funded by the Maritime Administration

\$150,000 for one year with a maximum of **\$500,000** over three years.

Study Goals:

- 1) Collect baseline data on carbon storage.
- 2) Map carbon storage & locate potential hot spots.
- 3) Evaluate storage within historic & restored areas.
- 4) Sea level rise modelling.
- 5) Continue annual sampling to build a long-term dataset.



San Diego Bay's Eelgrass Habitats

Blue Carbon Sequestration and Storage

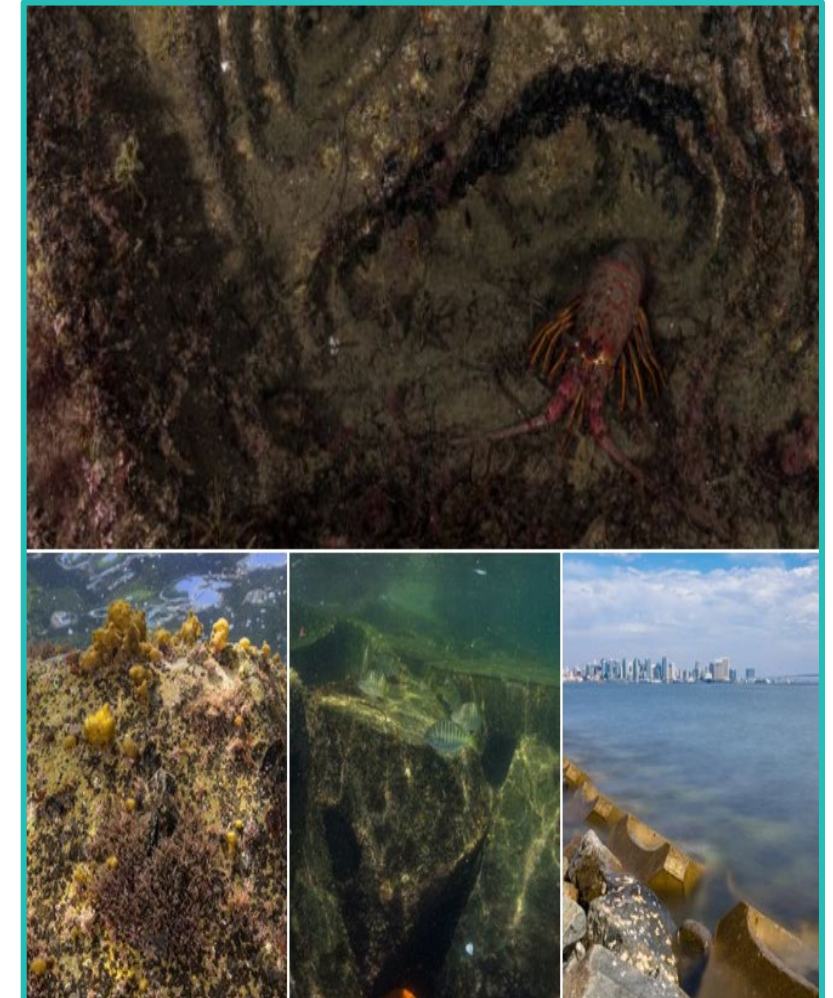
2020 San Diego Bay Eelgrass inventory
Merkel & Associates, Inc.

San Diego Bay supports:

- 17% of all eelgrass in the state.
- 50% of all eelgrass in Southern California.
- A literature review on the Bay's eelgrass beds calculated they potentially contain:

132,753 metric tons of carbon stock, equaling
107,059 cars off the road.

518 to 2,500 metric tons of carbon sequestered
annually, equaling **1,036** cars off the road.



Aquaculture and Blue Technology Program



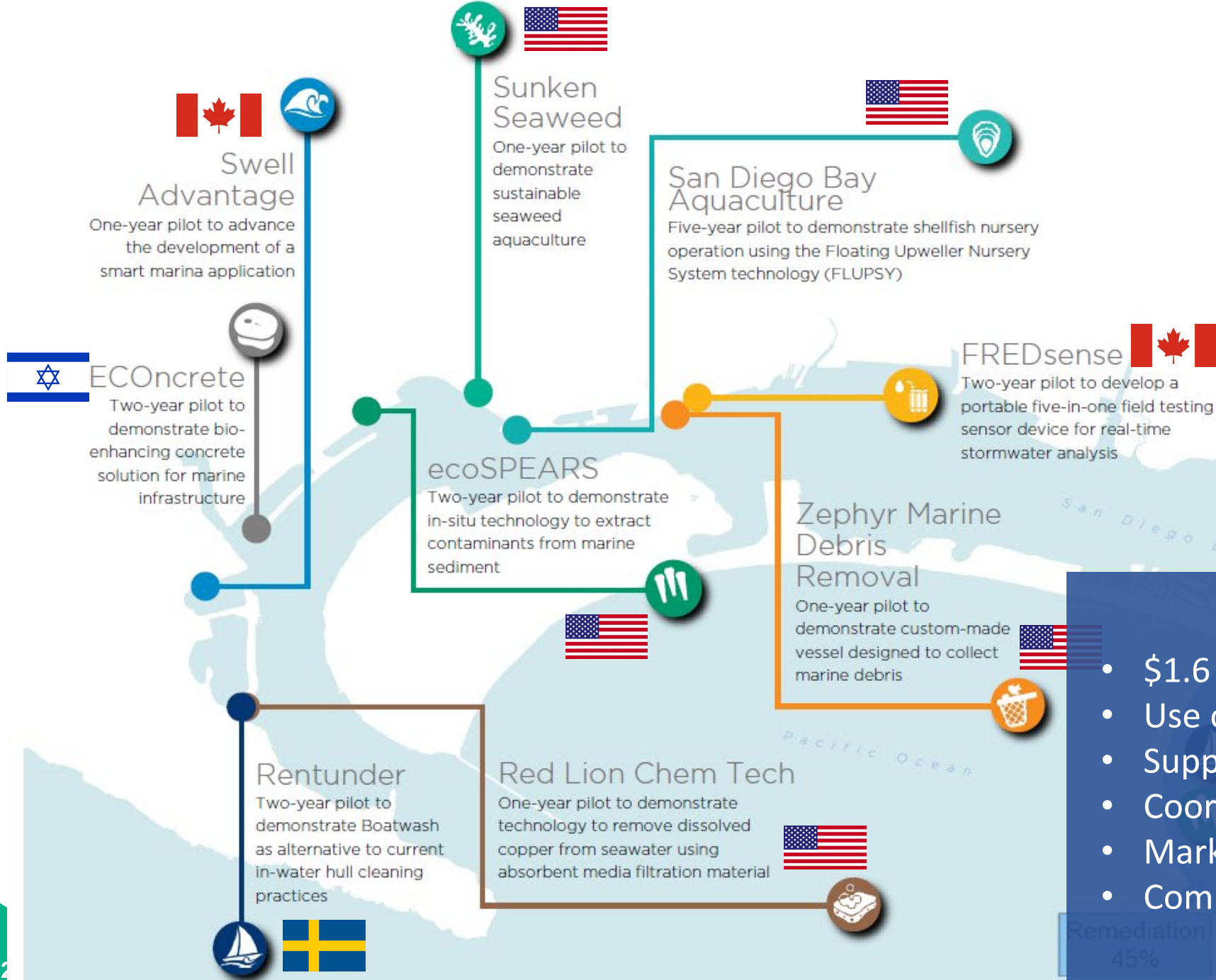
Exploring new Blue Economy Opportunities

Unique Role of the Port

- 
- An aerial photograph of the Port of San Diego, showing the harbor, surrounding city, and the San Diego Bay Bridge. A semi-transparent blue box is overlaid on the center of the image, containing a bulleted list.
- Expertise in permitting and entitlement
 - Role as landlord, operator, regulator, & environmental steward
 - Champion of the Blue Economy
 - Supporting Public-Private/Public Partnerships

Port of San Diego as Catalyst for Blue Economy

Blue Economy Incubator Portfolio



- \$1.6 M in funding
- Use of Port-owned property
- Support obtaining regulatory permits
- Coordination of pilot project launch
- Market access
- Community and media relations





In-Situ Soil Remediation | ecoSPEARS



SPEARS: How it Works

The diagram illustrates the SPEARS (Sediment Permeable Extraction and Remediation) process for removing PCBs from sediment. It consists of several steps:

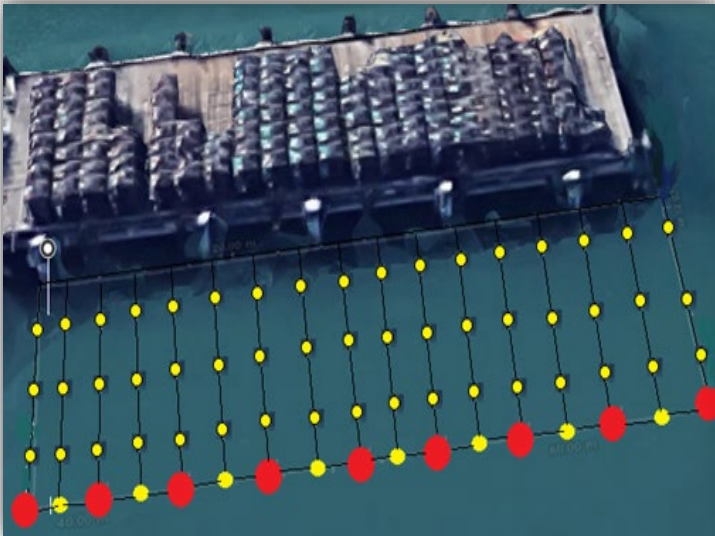
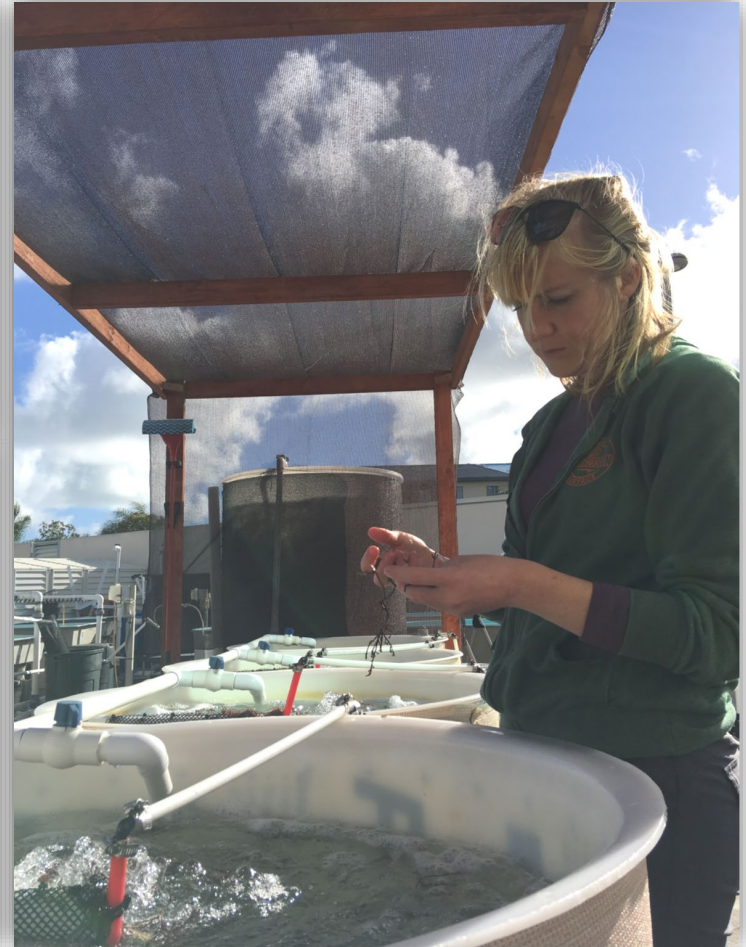
- SPEARS are filled with proprietary solvent and inserted into mat:** A green, star-shaped device is shown being inserted into a brown sediment layer.
- SPEARS mats are deployed into sediment:** Multiple green devices are shown inserted into the sediment.
- PCBs are absorbed into SPEARS:** Chemical structures of PCBs are shown being drawn into the green devices. The sediment is labeled "PCB FREE".
- SPEARS are retrieved from sediment once site goals are met:** The green devices are shown being pulled out of the sediment.
- SPEARS mats enter the destruction process:** The retrieved devices are shown being destroyed.

A photograph in the top right corner shows a real-world application of the technology, with green plants growing in a container next to a sediment sample.





Seaweed Aquaculture | Sunken Seaweed

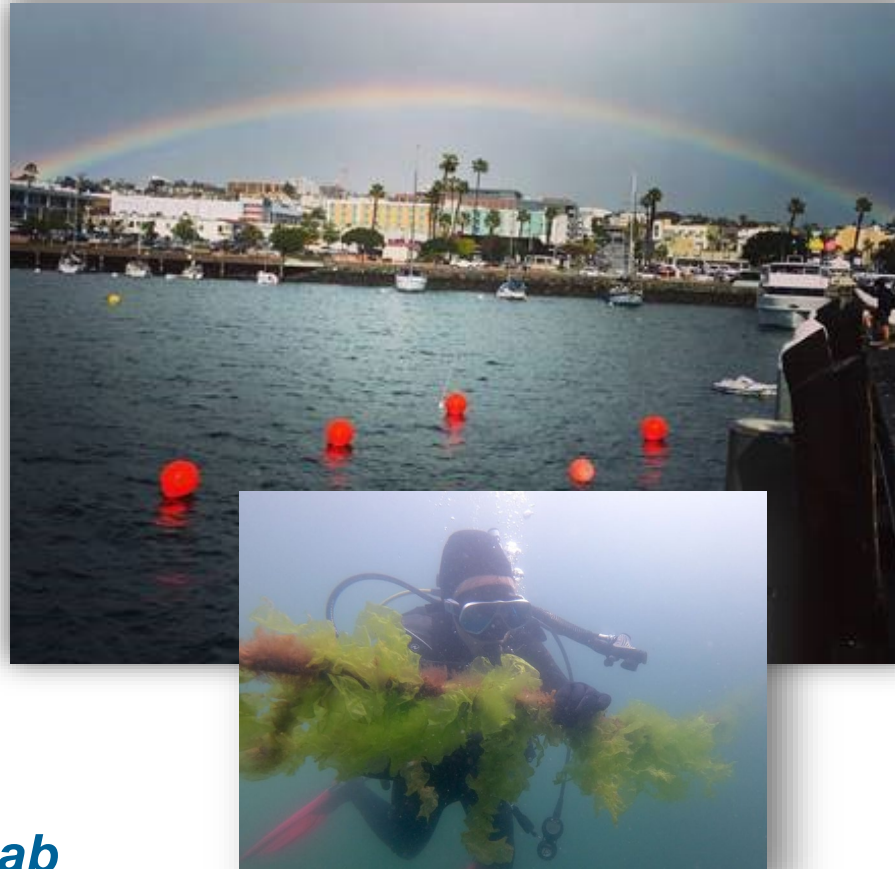




Seaweed Aquaculture | Sunken Seaweed



Hatchery at SDSU Marine Lab



Pilot Farm at Port Grape St Pier



Research supported by ARPA-E



California Marine Affairs & Navigation Conference Thank You Questions

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