



**PORT of  
SAN DIEGO**  
Waterfront of Opportunity

# Port of San Diego Environmental Champions

Association of Pacific Ports - Winter Conference



# PORT OF SAN DIEGO



Details responsibility on behalf of the people of the State of California



Manage San Diego Bay and the Waterfront 'Tidelands'



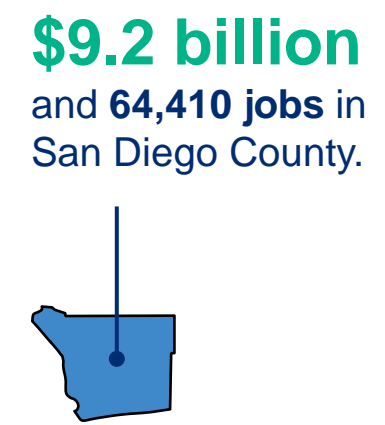
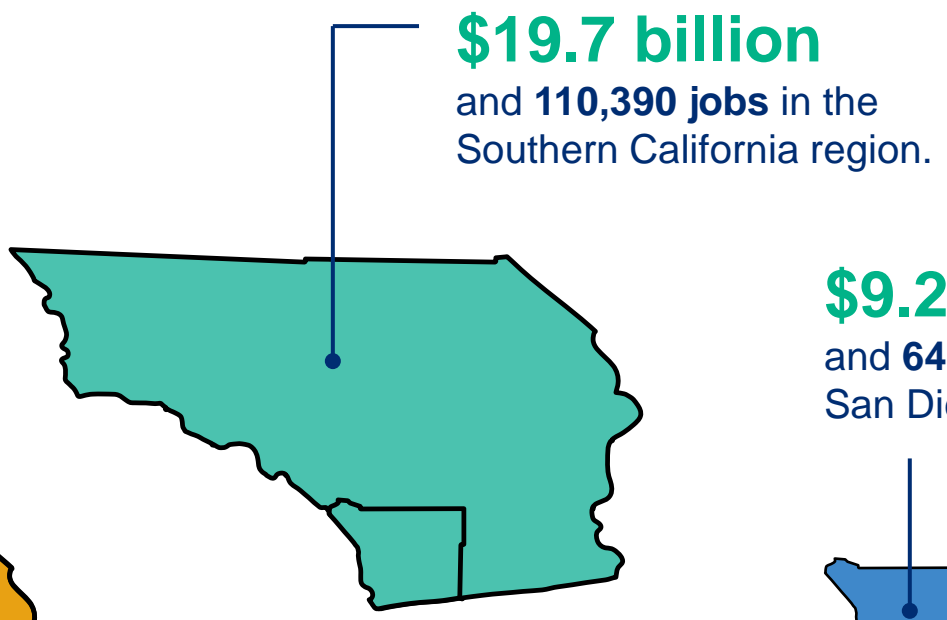
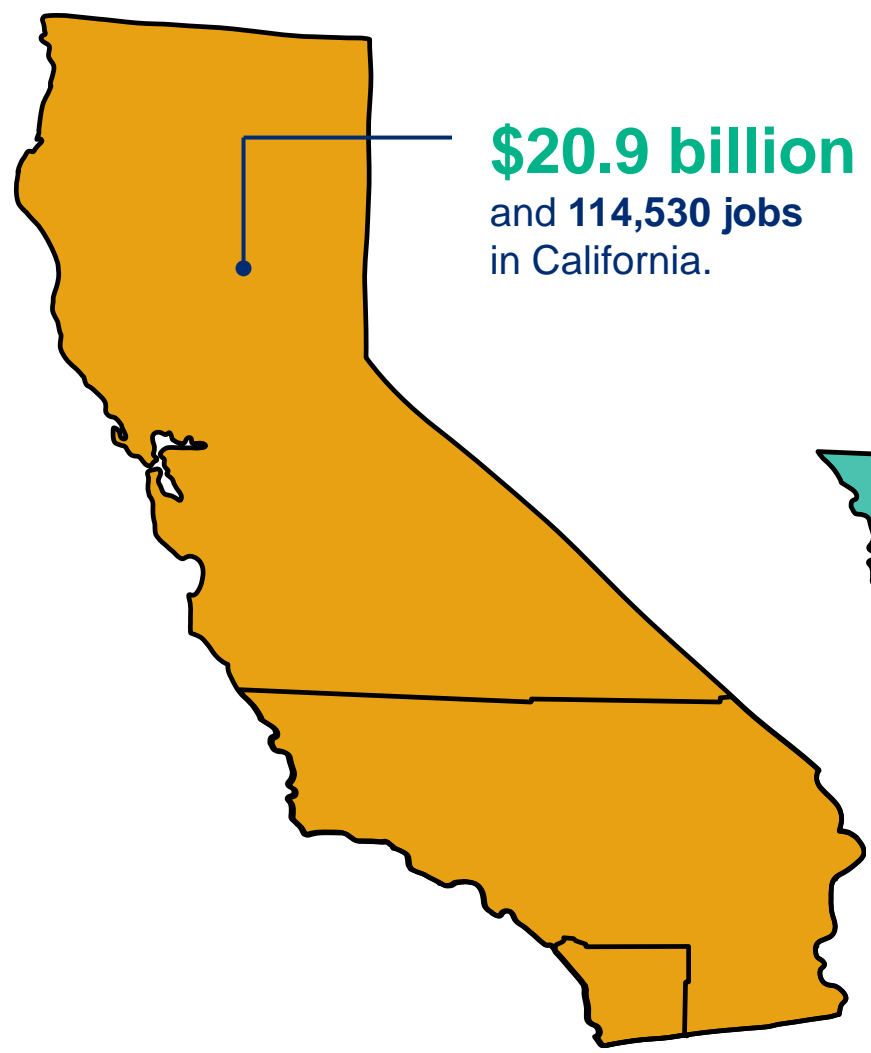
Promote commerce, navigation, fisheries, recreation, and environmental stewardship



We collect no taxes; we generate our own revenue



# ECONOMIC IMPACT





# Wide-Ranging Operations





# PORTSIDE COMMUNITIES: ENVIRONMENTAL JUSTICE





# MARITIME CLEAN AIR STRATEGY - 2030 GOALS

## 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. 40% ZE truck trips by 2026.



**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.

# Electrification and Clean Freight

Striving Toward Zero Emissions Goods Movement



First All-Electric  
Tug in the US

Shore Power  
Infrastructure

First All-Electric  
Mobile Harbor  
Cranes in North  
America

Continued  
Advancement of  
Zero Emissions  
Cargo Handling  
Equipment

Zero Emission  
Truck Incentives  
and Solicitation  
to Develop a ZE  
Truck Stop



# Shore Power Investments

## Cruise Ship Shore Power

- Phase 1 (2010)
- Phase 2 (2022)
- Phase 3 (2024)

**\$3.47 M**

Cost for Infrastructure

**\$2.67 M**

Cost for Infrastructure

**\$676,273**

Cost for Infrastructure

TAMT Shore Power for  
Container Vessels (2014)

**\$2.97 M**

Cost for Infrastructure

NCMT Shore Power Phase 1  
(2023-2024)

**\$8.9 M**

Cost for Infrastructure

NCMT Future Shore Power  
Phases 2-3 (*TBD*)

**\$29 M**

Engineer's Estimates



**\$47 M** Estimated Total





# Alternative Emissions Reduction Technologies for Ocean-Going Vessels

- The Port has entered into an agreement with Clean Air Engineering Maritime (CAEM) to procure the Marine Exhaust Treatment (METS4) or bonnet system.
- This bonnet system supports compliance with the California Air Resources Board At-Berth regulations for emissions reductions for vessels that are not shore power capable.
- The treatment system includes a catalytic ceramic filter that treats diesel particulate matter and nitrogen oxide emissions.

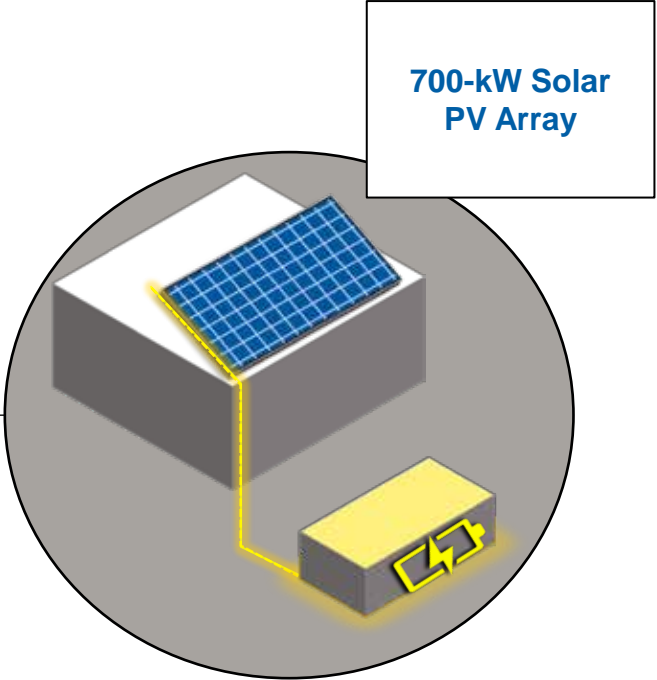
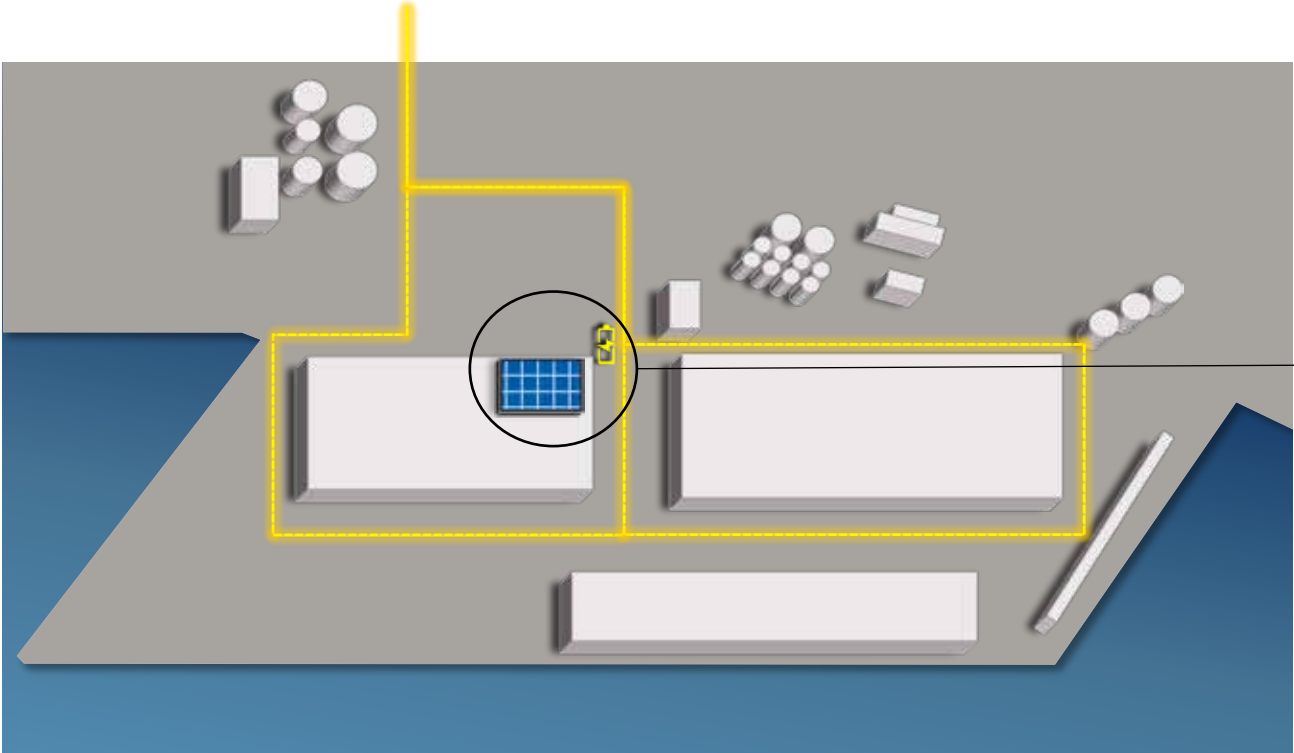


METS4 Schematic Rendering

# ELECTRIC MOBILE HARBOR CRANES



# TAMT Microgrid Infrastructure Project



**700-kW Solar  
PV Array**

Not to drawn to scale.

**Battery Energy Storage  
System / Electrical  
Infrastructure**



# ELECTRIC TUG - eWolf





# SSA Marine - Zero Emissions 55,000-pound Forklift





# Harbor Drive 2.0





# Port of San Diego: Catalyst for the Blue Economy

- Expertise in permitting and entitlement
- Role as landlord, operator, regulator, and environmental steward.
- Champion of the Blue Economy
- Supporting Public-Private/Public Partnerships



# Blue Economy Incubator



May 2023

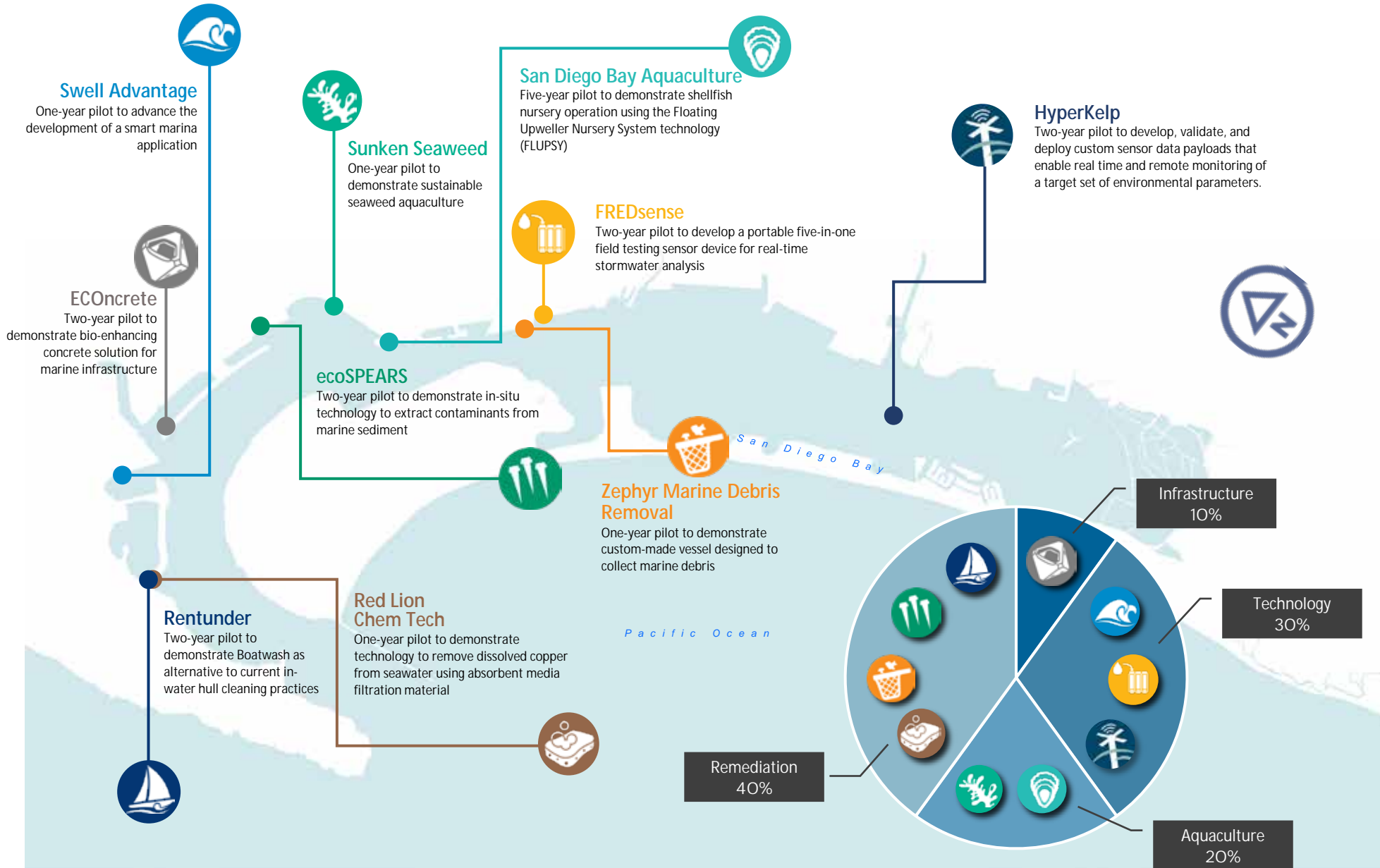
## BEI Value Proposition – Pilot Project Facilitation

- Funding
- Port-based testbed and pilot sites
- Regulatory and permitting assistance
- Subject matter expertise
- Strategic stakeholder collaboration
- Public Relations services and media visibility
- Support to leverage grant opportunities





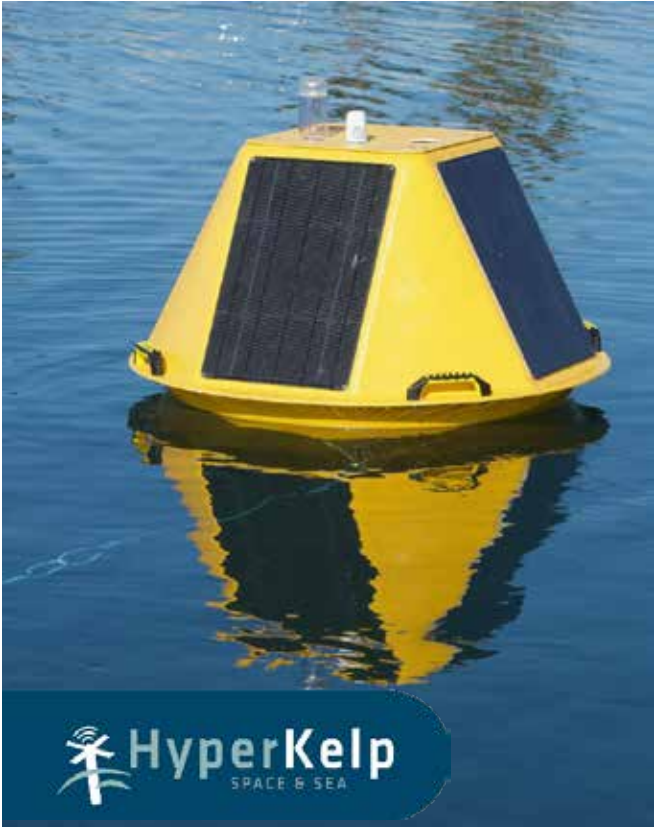
# Blue Economy Incubator Portfolio



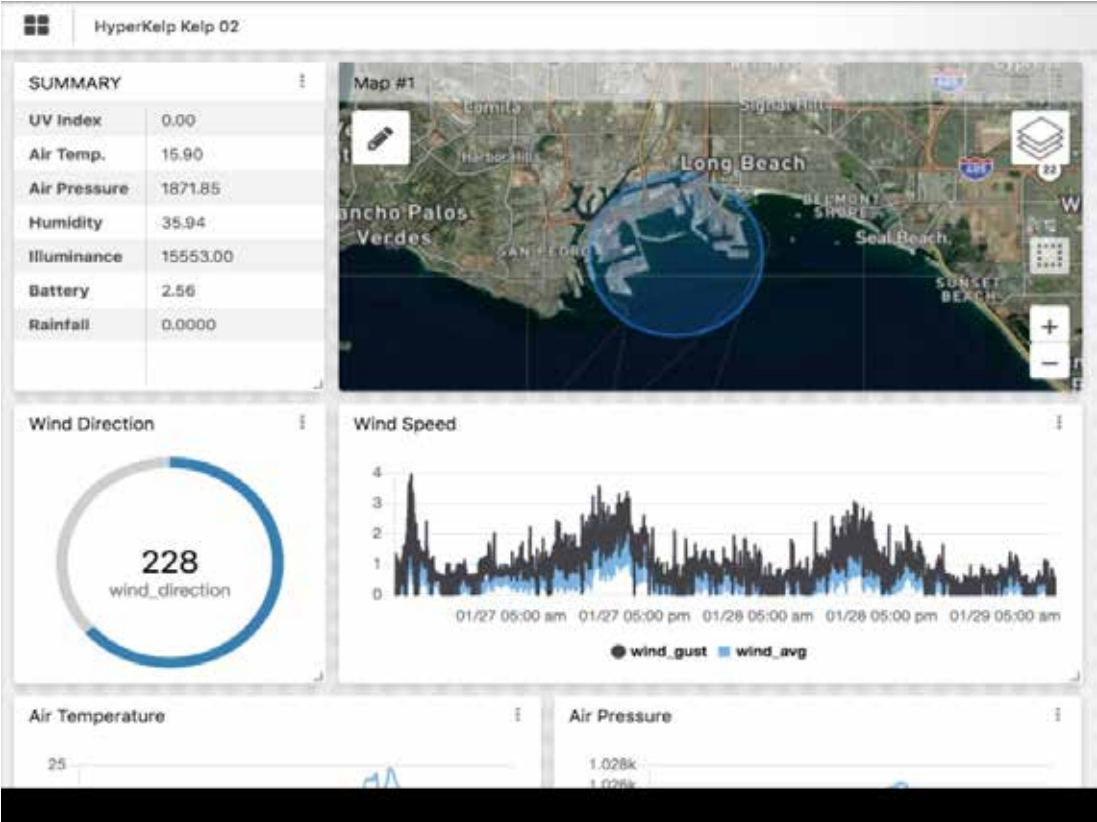


# New Pilot Project / HyperKelp

2-year pilot to develop, test, and validate a smart buoy platform tailored for various Port monitoring applications



Multi Sensor Buoy Technology



Ocean Data as a Dashboard (ODaaS)



# ECOConcrete

## ECO-Engineered Solution for Shoreline Protection

📅 2021

📍 Harbor Island



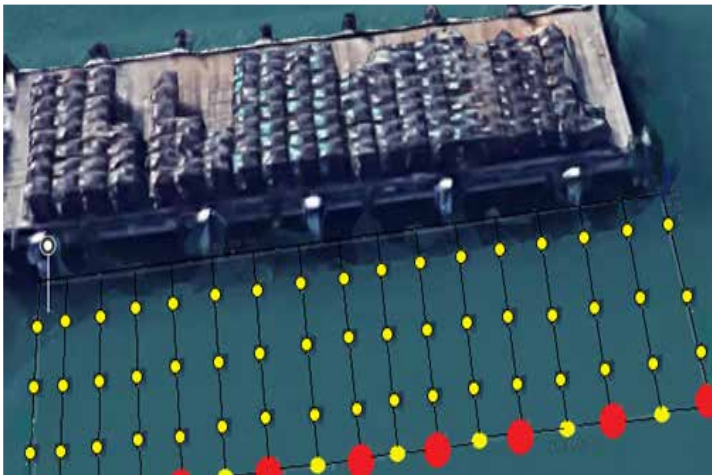
Final biodiversity monitoring event / 2 years post installation



# Sunken Seaweed

## Seaweed Aquaculture

📅 2018    📍 San Diego Bay



Ongoing research and experiments at San Diego Bay facilities

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