

# ECONcrete

ECONcrete is developing bio-enhancing concrete technology to enable both development and sustainability in coastal and marine construction.



## PILOT PROJECT

In 2019, ECONcrete partnered with the Port of San Diego to demonstrate a new design of its tide pool coastal armor unit product. ECONcrete is an early-stage company comprised of a multidisciplinary team of renowned marine ecologists, biologists, 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 is designed as a single-layer interlocking armor unit, with the ability to create and mimic different natural habitats, often missing from artificial structures. When rotated, the units can create unique habitats such as water retaining tidepools, caves, and overhangs, providing niches critical to diverse marine species. During the pilot project, ECONcrete will install 74 Coastal Star tide pools across two sites along the San Diego Bay shoreline. ECONcrete will conduct ecological and structural monitoring every six months for two years.

## 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 pool units and installation was completed in partnership with a local contractor. In 2021, 74 interlocking COASTALOCK armor units were installed across two sites along the San Diego Bay shoreline and the first two monitoring events (November 2021 and May 2022) were conducted by ECONcrete.

## HIGHLIGHTS



The project was the recipient of the 2022 'Outstanding Airports and Ports Project' awarded by the San Diego Section of the American Society of Civil Engineers (ASCE) to projects that demonstrate the greatest engineering skills and represents the greatest contribution to civil engineering progress and to society.

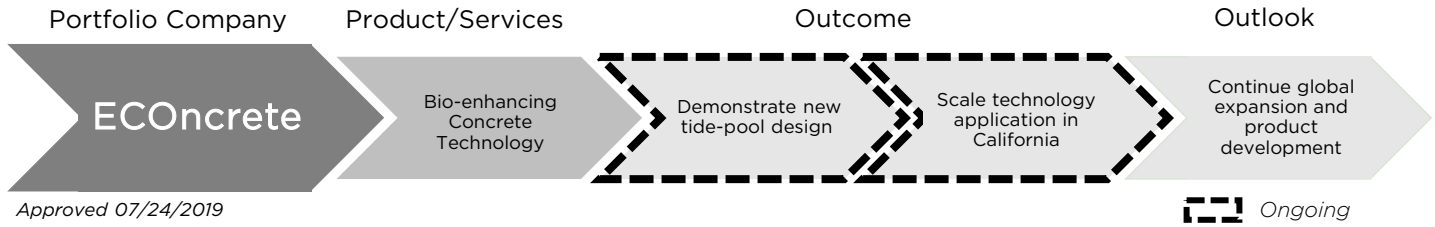


# Scorecard: ECONcrete / FY21-22

PILOT TIMELINE: Board Approval: 07/24/2019 Start Date: 04/15/2021 End Date: 04/15/2023

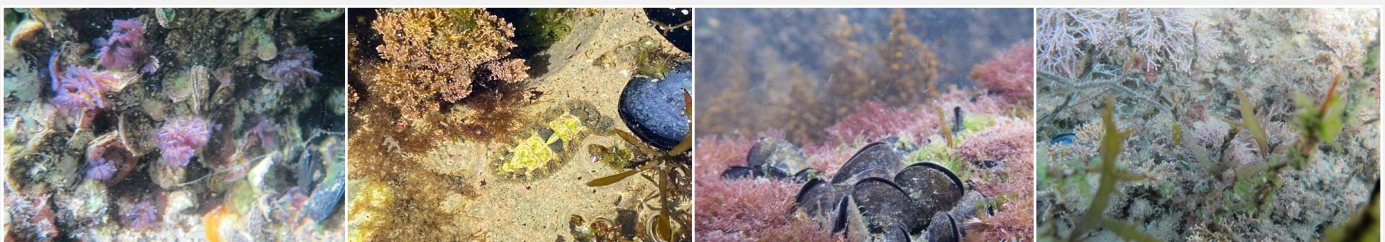
## PILOT OVERVIEW

*Tracking progress from pilot project to commercial success*



## KEY PERFORMANCE INDICATORS & HIGHLIGHTS

OVERALL KPI	Biodiversity	Species Abundance	Species Richness	Community Structure	Percent Live Cover	Accumulation of Biogenic Build-Up (calcium carbonate)
FY21-22 Highlights	<p>In November 2021, eight-months post-deployment, the results from the first biological monitoring event showed a diverse community that has developed on the Coastallock units, including many sessile species, mobile invertebrates, and different fish species. In addition, on the Coastallock units a diverse algal community was noticed including 13 species, composed of green, red, brown, and coralline algae while on the control rocks the algal community comprised nine species and was dominated by an invasive red alga.</p> <p>Structural criteria will be evaluated according to the Level 1 &amp; 2 visual inspection of the Coastallock 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".</p>					



The Coastallock creates unique habitats providing niches critical to a diversity of marine species promoting local biodiversity and ecosystems.



Control Rock



Coastallock Armor Unit