Stone Living Lab

Living Seawalls

Overview

The Stone Living Lab is a partnership led by UMass Boston and Boston Harbor Now to test and scale up nature-based approaches to climate adaptation, coastal resilience and ecological restoration in the Boston Harbor and beyond. In 2022, the Lab partnered with Living Seawalls, whose team developed modular habitat panels that mimic natural features to help marine life thrive on built coastal structures. The Stone Living Lab began piloting the first installation of these panels in North America in November 2024, creating an opportunity to test the panels in a new environment—a cold water harbor with a winter freeze.

This project was made possible in collaboration with the City of Boston, Woods Hole Group, and the Commonwealth of Massachusetts, and with funding from the Stone Foundation and 11th Hour Racing.

Goals

The Boston Harbor has 47 miles of coastline, the majority of which is hardened with artificial structures. This project aims to advance understanding of the ecological and other benefits of Living Seawalls in urban coastal environments and inform the scaling of nature-based approaches in coastal infrastructure management. The primary objectives are to:

1. Quantify changes in biodiversity associated with habitat panels
2. Understand how panel design and placement influence ecological outcomes
3. Test the physical performance of panels including durability and potential contributions to wave attenuation or other engineering functions
4. Develop guidance for incorporating habitat-enhancing designs into existing seawall infrastructure



Living Seawalls installation at Condor Street Urban Wild, East Boston.



Researchers evaluating habitat colonization at Fan Pier, Seaport

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Habitat Panels

Panel designs replicate different natural habitats, allowing a range of marine communities to thrive. The Lab's Living Seawalls installations in Boston include five panel designs:

Control



Small Rockpool



Large Rockpool



Crevice



Swim-through



Panel Details

- Each panel weighs 20 kg (approximately 44 lbs)
- Each panel measures 55 x 55 cm (approximately 1.8 x 1.8 feet)
- Made with 3D-printed molds and cast with an eco-blend cement

Credit: Living Seawalls

Project Sites

Condor Street Urban Wild and Fan Pier are now home to 240 Living Seawalls panels. The Lab is exploring potential sites in the region to expand the project.

Scan to view the Lab's Living Seawalls project sites.



For more information, visit
stonelivinglab.org/living-seawalls

info@stonelivinglab.org

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@StoneLivingLab