

# Rebuilding an island: Project in Lake Worth Lagoon relies on nature for coastline protection

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The Nature Conservancy's Joseph Schmidt envisions a future for the Lake Worth Lagoon. In it, American oystercatchers forage the shoreline,

mangroves and oysters filter pollution, and kayaks glide from restored island to restored island. In turn, those islands help protect human development.

This vision is one step closer to reality with the completion of the the Palm Beach Resilient Island Project, which rebuilt an eroded island in West Palm Beach with green infrastructure such as oyster beds and mangroves in lieu of seawalls.

The hope is that the island will both protect nearby shoreline by softening the brunt of storm surge, while also buttressing marine habitat: Nesting sites attract shorebirds while mangroves and oysters cleanse polluted waters and create habitats for shrimp, snook, mangrove snapper and even juvenile grouper.

The project is spearheaded by Schmidt, the interim climate strategy director at the Florida chapter of the Nature Conservancy, and the Palm Beach County Department of Environmental Resources Management. It marks the latest effort to strengthen the county's shorelines against climate change.

Construction began in mid-March and was completed July 1. The final step, planting mangroves, is scheduled for August.

"Florida is very vulnerable. Everywhere here is not too far from the coast and our low-lying topography makes it even more vulnerable during storms," Schmidt said. "So if this works well, we can replicate it elsewhere."

Funding for the project came from both private and public sources. The Nature Conservancy provided \$300,000 through funds from the Batchelor Foundation and the Carrier Corporation, while the Florida Department of Environmental Protection also provided \$300,000

through its Resilient Coastlines Program.

## **Green infrastructure**

Prior to the project, the one-acre island had eroded, and barely poked out of the water during low tide.

"Increased traffic, high tides, [sea level rise](#) have really taken its toll," Schmidt said, "so this remnant of an island was much larger in the past."

County crews built up the island with leftover soil from dredging projects in the Intracoastal Waterway.

They then ringed the island with different elements. An outer ring of limestone boulders buffers the impact of storms and floods that could otherwise beat against coastlines or uproot mangroves. Inside that, they placed an array of small limestone rocks ideal for oyster growth. Both the boulders and the rocks have enough nooks and crannies to double as homes for small fish and invertebrates.

Closer to the island there's a shallow area for mangrove and seagrass—more habitat for sea life.

"Living shorelines and using green infrastructure is definitely not new," Schmidt said of the project. "But arranging them specifically for coastal resilience is relatively new, and it's kind of at its early infancy."

## **The lagoon's health**

Water quality treatment is especially necessary in the central portion of the lagoon, where the project lays. The county's Lake Worth Lagoon Management Plan, updated in 2021, says the central portion has

"markedly diminished [water quality](#) and biodiversity" since it's the furthest away from tidal flushing.

Outputs from hundreds of square miles of runoff from the C-51 Canal, among other canals, feed into the lagoon. The outflow brings with it polluting nutrients, algae and fine sediments that prevent sunlight from reaching the lagoon's floor.

"When it rains a lot, there's not any place to store the water," said Lisa Interlandi, an attorney for the Everglades Law Center. "So it's basically all discharged into the lagoon with whatever it has with it—everything from sediments to lawn clippings to what people have sprayed on their lawns, to the harmful residual chemicals in Lake Okeechobee."

Living shoreline projects and restored lagoon islands aim to chip away at the damage done by a century's worth of human development.

Both the mangroves and oyster beds will filter water and absorb carbon dioxide, while stabilizing the soil to keep the island intact.

## **A look forward**

Where there was once scant habitat for [sea turtles](#) and shorebirds, there are now nesting sites and fertile bottom for soon-to-be mangroves.

Even with the [mangroves](#) still missing, American oystercatchers, a protected species of shorebird, have already started foraging around the island. The species only returned to the lagoon within the last decade—a response chalked up to restoration efforts.

"Since we've been building projects over the past 30 years, we've had four pairs take up residence in our restoration areas," said David Carson, senior environmental analyst for the Palm Beach County Department of

Environmental Resources Management. "Since 2005, we've had 40 pairs of chicks fledged out of [restored areas]."

With the arrival of oystercatchers comes a revived vision of the lagoon, the county's largest estuary. As more of the bright orange bills peck through the sand of the lagoon's latest island, other visitors—winged and not—could follow suit.

Now, other coastal communities dependent on the [lagoon](#) are requesting islands, too, says Gregg Weiss, commissioner and vice mayor of Palm Beach County's second district and member of the Lake Worth Lagoon Initiative Steering Committee.

Weiss said the next areas to receive them will likely be along Lake Worth Beach or further south near Lantana and Boynton.

"It took many years for us to understand the impact we were having," says Weiss, "and then try to figure out how to undo some of the damage done by previous generations."

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