

## Living shoreline offers coastal protection, tasty oysters

### Tagline:

The Nature Conservancy and CH2M constructed a living shoreline project with more than 200 volunteers in Mobile Bay, Alabama, at Arlington Cove.

### Story:

“You can already see it working,” said David Stejskal, manager for the Arlington Cove project in Mobile, Alabama, and client service manager for our Gulf Coast Master Services Agreement (MSA) with The Nature Conservancy (TNC). He pointed to waves breaking gently across the top of a new 10-meter-long row of precast oyster castle\* reef units. Each unit is about the size of a standard cinder block and weighs 35 pounds, and each reef section is 1.5 meters wide and stacked 0.7 meter high. The five new reefs, built by more than 200 volunteers in 3 hours, are designed to reduce wave energy, thereby encouraging marsh regrowth and beach stability, while providing habitat for oysters and other bivalves at the same time.

Our team worked closely with TNC scientists to design the project to protect 2.5 kilometers of the Gulf of Mexico coastline. Using green infrastructure we are delivering protection for communities while creating conservation outcomes. The project was designed with volunteer construction in mind and—no pressure—TNC’s entire global leadership team, including their CEO, Mark Tercek, being among the participants.

“David and his team delivered this design on an incredibly tight schedule so that TNC could make this installation a central part of its global leadership team meeting,” said Brandy Wilson, program manager for [CH2M’s Collaborative Agreement with TNC](#). “Not only did they deliver on time and under budget, but our team also went above and beyond to make the event successful, including finding local surveyors at the last minute to get the site staked and ready.”

Green infrastructure and shoreline stabilization are emerging technologies, and the close coordination with our counterparts at TNC enabled the two organizations to share resources and insight. Our team included experts from multiple offices and different countries.

“Since this was the first task order under the Gulf Coast MSA, we wanted to start it off right,” said David. “Collaboration was key every step of the way, from the way we assembled the CH2M team, to the way we worked with TNC side-by-side, as true partners.”

That spirit of collaboration continued at the reef build, as our engineers helped coordinate the efforts of the five teams assembled to build different portions of the structure. The teams formed lines to hand the 35-pound precast blocks to the builders, stretching from pallets of blocks on shore to the construction site, where the water was waist-deep on most people.

### By The Numbers:

**2.5 kilometers** of shoreline protected

**Over 12,500 oyster castles** (reef building units) placed

**35 pounds** each unit

First five-reef section constructed by **200 volunteers in 3 hours**

Reef varies between **0.7 to 1 meter tall** based on bay floor elevation

“As we handed the blocks down the lines, we experienced the kind of camaraderie that only comes from rolling up your sleeves together,” said Elisa Speranza, executive sponsor for our relationship with TNC.

David, Brandy, and Elisa lent a hand for the reef building event, along with Matt Deavenport, project design lead, and Guerry Holm, project scientist. Other team members who participated in the design of the Arlington Cove project were coastal engineers Tim Johnson and Andy Schofield, both based in the UK. Shanon Bretz, based in the southeast US with David, Matt, and Guerry, served as design technician for the project.

From a technical perspective, our work consisted of understanding the site conditions, including wind, waves, and geomorphology, as well as conducting topographic and bathymetric surveys and a wave climate study. Next, we studied options to determine the most appropriate reef units from stability and constructability considerations. Finally, we prepared documentation for the permitting process and prepared detailed design drawings.

Elisa Speranza reflected on the day working in the water with our partners. “We had some great conversations, and we are looking forward to many more projects like this.”

*This message is brought to you by [Enterprise Sustainability](#). Our vision is to solve the world’s complex problems in water, energy, environment and development one project at a time. Join us on [our active Yammer group](#) to stay up to date on what’s happening in sustainability, or follow our TNC happenings on [The Nature Conservancy group](#).*

\*[Oyster castles, as explained by TNC](#): Constructed basically of recycled oyster shells and concrete, the “oyster castles” provide a hard surface to which microscopic oyster larvae, or “spat,” can attach and begin to grow their own reef structures. Without them, the “spat” can sink into the mud and die. Oysters not only help the environment by filtering impurities from coastal waters, but they build important reef habitats for fish, shrimp, crabs, and other marine life as well. In addition, oyster reefs can help slow erosion and protect shorelines.