



Restoring Habitat for Great Lakes Fish at the Historic Edsel and Eleanor Ford Estate

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With \$7 million in funding from NOAA Fisheries, the Ford House estate on Lake St. Clair in Michigan is rebuilding shoreline habitat for fish and other wildlife while expanding access and educational opportunities for visitors.



View of Ford Cove where shoreline restoration is underway. Credit: InSite Design Studios, Inc.

NOAA Fisheries' [Office of Habitat Conservation](#) has established a unique partnership with [Ford House](#), the historic 1920s estate of Eleanor and Edsel Ford. Together, they are restoring shoreline habitat for fish and other wildlife on Michigan's Lake St. Clair. About 99.9 percent of Michigan's shoreline is hardened with concrete slabs and rock piles. Shoreline hardening helps prevent erosion and flooding, but it also removes important fish habitat.

"The hardened shoreline essentially eliminates that nearshore habitat that's important for fish spawning, breeding, and nursery areas," said NOAA Marine Habitat Resource Specialist Terry Heatlie. "It's also tough on turtles and other species that need to move between the land and water."

Across the lake in Canada, the contrast between the two shores is stark.

"On the Canadian side, where there's much less shoreline hardening, monitoring shows a huge difference in the number and diversity of fish," Heatlie said. "It's largely attributed to how developed the U.S. shoreline is."



Shoreline hardening at Ford House prior to construction. Credit: NOAA Fisheries/Terry Heatlie

Ford House is removing hardened shoreline and replacing it with nature-based features that reduce flooding while rebuilding habitat for fish, amphibians, reptiles, and birds. New boardwalks and other amenities will also allow visitors to experience the restored shoreline and learn about the importance of habitat restoration.

“There are very few places left on the lake where you can do restoration at this scale,” said Kevin Drotos, Ford House landscape and natural areas manager. “We have more than a mile of shoreline, and it would be nearly impossible to find another site like this.”

The Ford House project will:

- Restore 1 mile of shoreline
- Restore 5.5 acres of coastal marsh
- Restore 8 acres of nearshore habitat
- Restore 4 acres of forested wetland
- Construct multiple boardwalks and a fishing pier

“Eleanor Ford really wanted to preserve the estate but also ensure that it was there for future generations to enjoy,” said Ford House President & CEO Mark Heppner. “This project gives us a whole new way of engaging current and future generations of visitors. I think Eleanor would be thrilled.”



Largemouth bass. Credit: Adobe Stock

Rebuilding Habitat for Great Lakes Fish

Crews are removing broken concrete and replacing it with natural features designed to mimic a functioning shoreline.

This includes “lunkers”—undercut sections of shoreline that create protected spaces where fish can rest and hide from predators. Crews are also placing downed logs into the cove to create complex underwater habitat and planting native wetland vegetation.

These changes will benefit important Great Lakes fish such as northern pike, muskellunge, smallmouth and largemouth bass, and yellow perch, along with smaller species that support the food web. The restoration team is also regrading the shoreline to allow turtles and other wildlife to move more easily between land and water.

“What I’m really excited about is seeing the monitoring data several years down the road,” said Drotos. “Hopefully, we’ll see an increase in fish biodiversity. That’s something that intrigues me as a fisherman.”



Excavator installing a fish lunker on Ford Cove. Credit: Ford House

Restoring a Full Ecosystem

While fish are a primary focus, the project is rebuilding habitat for other wildlife.

On Bird Island, the restoration team is creating vernal pools where frogs can reproduce and grow. Because the pools are not connected to the lake, fish cannot enter to eat the eggs and tadpoles.

Previous restoration work on the property has already shown how quickly species can return.

“This property has had almost no frog sightings in its recorded history,” said Drotos. “After a small wetland project, we started seeing frogs return within a year.”



Common mudpuppy. Credit: Peter Paplanus

The Ford House is also adding underwater ledgestone rock structures to encourage the return of mudpuppies. Mudpuppies are fully aquatic, foot-long salamanders with spotted bodies and frilly red gills. These unusual creatures play a critical role in the life cycle of the endangered salamander mussel. The mussels, while in their free-swimming larvae stage, live in the gills of mudpuppies until they are ready to move to their next life stage, causing no harm to the salamanders.

The restoration will benefit birds as well.

“We’re located on a major migratory bird pathway, and we’ve documented more than 200 species here,” said Heppner. “With more habitat and more food sources, we expect even more activity.”

“You’re going to see herons using the downed trees, osprey and bald eagles fishing in the cove, and all kinds of shorebirds taking advantage of the new habitat,” Drotos added.



New wetland boardwalk. Credit: Ford House

Blending Restoration with Preservation

As a National Historic Landmark, the estate must preserve the intent of its original landscape architect, Jens Jensen. With careful planning and consideration, the Ford House team designed the restoration project to complement the architect's work.

"Looking at Jensen's original designs, they almost mimic modern ecological restoration drawings," said Drotos. "He used almost exclusively native Michigan plants, a lot of which we are reincorporating into the landscape through this project."

Although some trees were removed during construction, the restoration is increasing overall biodiversity.

"We had to remove 136 trees, which consisted of only a few species," said Karl Koto, Ford House Director of Landscapes. "We're replacing them with 290 trees representing 43 different species. That greatly improves the long-term resilience of the property."

In some cases, restoration has meant carefully preserving elements of the original landscape. Multiple century-old willow trees were cut down, but the staff decided their genetics should live on.

"They've taken cuttings from the historic willow trees and are replanting them in the exact same locations," said Heatlie. "The level of detail they're putting into maintaining the historic landscape is incredible."



Schoolchildren visiting the Ford House estate. Credit: Ford House

Opening the Shoreline to the Public

Ford House welcomes 150,000 visitors annually, including thousands of children from Detroit public schools who can visit for free thanks to the Ford Foundation. The restoration project will open new possibilities for education and exploration. Construction will wrap up in 2027, but the public is already enjoying the project's recreational amenities.

Last year, the team finished a 400-foot-long ADA-accessible boardwalk that winds through a restored wetland near the visitor center. Workers planted more than 15,000 native perennials and 500 trees and shrubs in the wetland. Another boardwalk is planned for Bird Island.

"Once the shoreline is in a more natural state, it's going to offer so much more for school groups," said Drotos. "They'll be able to see what nature is supposed to look like, and how it's been changed over time. That contrast is really powerful."

Mark Heppner pointed to the project's potential to reach young people who may have little access to natural places.

“When I look out my window, I can see school groups walking to Bird Island and the shoreline,” he said. “You can see the smiles and the awe on their faces when they return. They come away with a new appreciation for nature and a sense of responsibility for protecting it.”

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