Frequently Asked Questions
About the Grassy Island Fish Spawning Reef Project

We have compiled the following questions and answers based on questions we have been asked or anticipate about the Grassy Island reef project. Please contact us if you have any questions that are not answered here. (Note: this FAQ was mailed to shoreline residents prior to construction beginning.)

What is a fish spawning reef?
Many fish use rocky areas for spawning – laying and fertilizing their eggs. The spawning reefs that we are installing recreate these natural spawning areas and consist of loose rock strategically placed on the river bottom. The rock will provide a safe place for the eggs to incubate until the fish larvae hatch out and drift down the river. The construction of commercial shipping channels removed much of the rocky habitat that historically existed in the St. Clair and Detroit rivers.

Where will the reef be built?
After carefully evaluating the fish populations and physical conditions throughout the Detroit River, the project team selected one location to create a fish spawning reefs in 2015. The Grassy Island Reef is located just upstream of Grassy Island on the western edge of the Fighting Island Channel. This location is deep, with clean, fast-flowing waters that will keep the spawning reefs clean and will help oxygenate fish eggs that are deposited on the reefs.

Who is involved in this project?
We are part of a research team made up of local, state, national and private partners working to bolster the local fish populations. The team includes scientists from the U.S. Geological Survey, the U.S. Fish and Wildlife Service, the University of Michigan, Michigan Sea Grant, SmithGroup JJR, and the Michigan Department of Natural Resources. Faust Corporation was selected to build the reefs through a competitive bidding process. Funding is from the federal Great Lakes Restoration Initiative with additional support from the cooperating agencies.

What size will the reef be?
The Grassy Island Reef will be approximately 4 acres in size: 1,219 feet long, 143 feet wide and 2 feet tall.

What type of rock is used and where does it come from?
The fish spawning reefs will be made of broken limestone, about 4 to 8 inches in diameter. The rock is from a quarry in Maybee, Michigan, and will be transported by truck to a staging area along the shoreline of the Rouge River. The rock has been inspected and will not affect water quality.

How will the spawning reefs be constructed?
A marine construction firm, Faust Corporation, will place the rock on the river bottom using a crane mounted on a barge. A GPS-guided clamshell shovel will place the rock at the locations specified by the project plans. Another barge will bring rock from the shoreline to the reef site using a tugboat.

When will construction begin and how long will it last?
Construction at Grassy Island is likely to begin in August of 2015 and last 10 – 12 weeks. The construction timelines are approximate and unforeseen challenges may extend the work. The construction vessels will only be on the water during daytime working hours, typically Monday through Saturday. All vessels will be docked when not working.

Why is this project needed?
Over the past 100 years, the Detroit River has been extensively modified by human activities. For example, the river bottom was blasted and dredged to create deep channels for large, commercial ships, which damaged the rocky and gravel areas where millions of fish spawned (reproduced). These and other factors led the Detroit River to be listed as an Area of Concern under the Great Lakes Water Quality Agreement, and federal dollars are now available to remediate fish and wildlife habitat. Unlike the St. Clair and Detroit rivers, most other large rivers have dams that block access to historical spawning areas, making it especially important to remediate fish habitat in the St. Clair and Detroit rivers where access to spawning areas is not restricted.

Researchers have determined that additional rocky spawning habitat is needed to increase the reproduction of native fish and help restore fish populations in the rivers. Currently, many fish spawn near the Bluewater Bridge at the head of the St. Clair River because it is one of the few optimal spawning sites in the region. Spawning reef construction will diversify the type and locations of spawning habitat available and will make the system more resilient to potential future changes.

What species of fish will use the reefs?
These fish habitat projects were designed to enhance the reproduction of lake sturgeon (a state threatened species), walleye (a popular sport fish) and lake whitefish (a commercially harvested fish). These three

species, as well as a number of suckers, catfish and perch, seek out rocky areas in fast-flowing water to deposit their eggs and will likely benefit from the reef projects.

How does the reef project differ from other restoration efforts?
The Grassy Island reef project is designed to create habitat that is needed by a particular group of fish that deposit their eggs on rocks in fast-flowing waters, including lake sturgeon, walleye and lake whitefish. Research shows that in the St. Clair and Detroit rivers, these fish select deep water sites for spawning, and natural and constructed reefs in deep water remain free of algae that could make the habitat unattractive to these fish.

Federal restoration programs are also supporting projects designed to improve shoreline and shallow water habitat of the rivers, such as those on Belle Isle. Some of these projects include rock material that is helping make shorelines more natural and provide habitat for small fish and other aquatic life. By creating and restoring a variety of habitat types in the river we can sustain many different species of native fish.

The St. Clair and Detroit rivers are different; how does this affect restoration?
Over the past 10 years, the team has completed five spawning reef projects in the St. Clair and Detroit rivers. Both the St. Clair and Detroit rivers have been designated federal Areas of Concern under the Great Lakes Water Quality Agreement, and efforts are underway to correct the loss of historical fish and wildlife habitat in both rivers. However, the riverbed geology and fish communities are unique in each river, which influences the way the team plans restoration efforts.

For example fish spawning habitat has been damaged in different ways — gravel mining was widespread in the St. Clair River and blasting of limestone shelves was extensive in the lower Detroit River. It is also known that currently there are more lake sturgeon in the St. Clair River and more walleye and lake whitefish in the Detroit River. Knowledge of historical changes and the current fish community helps the team set realistic objectives for restoration efforts. In general, the goal is to enhance the reproduction of a number of target native fish species, while diversifying the type of habitat and the fish community in a given area.

How will you know the reefs are working?
The project team will perform ongoing monitoring and evaluation of this reef as well as at completed habitat projects in the St. Clair and Detroit rivers. Project scientist will study the numbers and types of adult fish, eggs and fish larvae in the area before and after the spawning reefs are created. Data is collected at the reef site during spring and fall spawning seasons and compared to reference areas without spawning reefs using scientific methods. In addition, underwater cameras, sonar and scuba divers will be used to evaluate how well the reef material stays clean over time.

Will young fish produced by the constructed reefs find enough nursery habitat?
Fish need access to different types of habitats during their life span in order to successfully survive and reproduce. Wetlands provide nursery habitat for many types of young fish, however there are relatively few remaining wetlands along the St. Clair and Detroit rivers. The team uses hydrological models and a variety of sampling equipment to predict and study the movement of larval fish that emerge from eggs deposited on the reef. For example, larval fish from the Grassy Island reef are expected to settle in the open waters and wetlands of both the Detroit River and Lake Erie. In the St. Clair River, evidence suggests that lake sturgeon larvae are able to successfully migrate long distances, from spawning areas under the Bluewater Bridge to the Lake St. Clair area.

Will sand or silt build-up in the reefs?
The likelihood of sediment building up in and around a constructed reef is an important consideration when planning a restoration project. Each completed reef project has generated important lessons that are applied in subsequent projects, following an adaptive management approach. Over the past 10 years, the team has completed five spawning reef projects and carefully monitored sediment accumulation. As a result of early experiences, the team has made improvements to project siting and design to minimize the risk of sediment build-up. For example, the team uses an optimal rock type to construct a single long, narrow reef bed that is oriented parallel to the current in a spot with ideal conditions.

A comprehensive site selection process identifies potential sources of sediment and determines whether modifications to the river bottom are likely to cause sediment to settle. Sidescan sonar, underwater video, acoustic doppler current profilers, hydrodynamic models and a range of fish sampling gear are used to evaluate potential reef locations. A number of observations help identify erosional areas where a constructed reef is likely to be scoured clean, including fast water; a hard, stable river bottom with relatively little loose sediment; and, an absence of upstream sources of sediment. However, some amount of sediment deposition is expected with every constructed spawning reef and has been incorporated into the design and planning.

Will the project affect shipping or boating or change the flow of water?
No. The reef is located in deep waters, 28 - 35 feet, and will only rise 2 feet above the river bottom. The reef will not interfere with personal boats or freighters. The project has been carefully reviewed by a number of agencies and all analyses indicate that there will be no detectable effect on water flow or water levels in the river.

Will the projects improve fishing?
Eventually. The reef is designed to enhance the reproduction of specific types of fish such as lake sturgeon, but several other fish species have been observed to use previously constructed reefs. Most of these fish will only spend time on the reefs during spawning season, and therefore, fishing directly above the reef is not expected to be exceptional. However, over time, the projects should improve fishing in the Detroit River. After many years, the spawning reefs could expand the fishing opportunities for lake sturgeon, the largest fish in the Great Lakes that currently provides a unique — but tightly regulated — fishing experience in the St. Clair River.

How else will these projects benefit people?
This spawning reef project is part of a large effort to remediate the St. Clair River and Detroit River, and remove the areas from the federal list of Areas of Concern. Despite a variety of changes to the shoreline and water quality, the rivers are home to the largest remaining population of lake sturgeon in the Great Lakes. Projects like this help improve the region's environment, and unique fish and wildlife populations can boost the region's identity and reputation, and ultimately help attract talented people and businesses.

Where can I find more information?
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