

Handshake Partnership Program Final Project Close-Out Report

1. Fiscal Year Selected as Winning Project: 2021
2. Name of Corps Project/Lake: Nolin River Lake
3. District / Division of Corps Project/Lake: Louisville/LRD
4. Handshake Project Name: Reef Ball Shoreline Erosion Control
5. Amount of Handshake Funds remaining: \$0
6. What has been accomplished? Please provide photographs; before, during, and after!:
Handshake funds were used to purchase fiberglass molds for pouring concrete reef balls. These structures have primarily been used in the marine environment for fish habitat, to promote coral reef growth, and to help protect shoreline and beaches, but have seen limited use in freshwater habitats. Shoreline erosion is a common problem at USACE reservoirs while shoreline protection can be extremely expensive and access to the shoreline can be extremely limited. Under this partnership, USACE and the Kentucky Department of Fish and Wildlife Resources poured reef balls and then deployed the reef balls in 4 locations at Nolin River Lake. Two of these locations focused on shoreline erosion, while 2 others focused primarily on fish habitat. Our expectation for erosion control is that the reef balls will serve as wave breaks, reducing bank erosion while allowing sediment to fill in behind the reef balls. During this project, we learned a lot of lessons on the best methods to pour and install reef balls.

Fiberglass reef ball molds come in 3 pieces and are assembled on a wooden platform. Metal pins hold pieces together and hold the molds in place on the platform. Air-filled bladders provide the voids in the concrete.



Four or five people can easily pour 15-20 reef balls in 2-3 hours per day once molds are assembled.



After concrete cures for a day, forms are removed and stored or reassembled for additional pours.



Reef balls serve as fish habitat and also as anchors for other structure which can be attached to them.



Completed reef balls can be installed with heavy equipment or they can be installed by boat. We found that the best way to install them by boat is by placing the reef balls on 2"x 8" pieces of wood placed on/parallel with rollers. The boat maneuvers into position and the reef ball is easily pushed off the bow of the boat.



Typical shoreline-before.



Shoreline after reef ball installation.



	Total
Handshake Program Funding Amount	\$24,471
Local Corps Office Funds (total expended on labor, materials, contracts, etc.)?	\$56,644
Partner's Contributions (total value of funds, goods, services, volunteer hours, etc.)	
Partners Name	Total Value of Contributions
1 Friends of Rough River Lake	\$4333
2 Kentucky Department of Fish and Wildlife Resources	\$40515
3 Friends of Nolin Lake	\$180
4	\$
5	\$
6	\$
7	\$
8	\$
9	\$
10	\$

6. Handshake Program Recipient Feedback

Please take this opportunity to provide feedback on all aspects of the Handshake Program and the Challenge Partnership Agreement authority. Your productive comments are important to the ongoing improvement of the program. Make sure to let us know how the Handshake funds have benefited your efforts to initiate and/or strengthen your partnerships.

Handshake funds furthered the relationship between USACE and the Kentucky Department of Fish and Wildlife Resources and provided an opportunity for our Friends groups to participate in environmental protection and habitat improvement projects. We've received a lot of questions and comments on reef balls from visitors, allowing us to explain some of the issues USACE projects are dealing with, including shoreline erosion and invasive species. Our partnership has also allowed us to experiment with the best locations for reef ball use, methods for deployment, and how reef balls can be combined with other structures to improve habitat.

7. Handshake Summary:

Please also include a separate newspaper type article describing the project and the benefit to the Corps of Engineers and to the public as a result of this partnership project. Examples can be found on the gateway under [Handshake Success Stories](#).



NEWS RELEASE

U.S. ARMY CORPS OF ENGINEERS

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For Immediate Release:
October 4, 2023

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FY21 Nolin River Lake Handshake Partnership Completion

Nolin River Lake, Ky. - In 2021, the U.S. Army Corps of Engineers partnered with the Kentucky Department of Fish and Wildlife Resources (KDFWR), Reef Innovations, the Friends of Rough River Lake and the Friends of Nolin Lake to request \$25k in funding through the USACE Handshake Grant program. The funds received were used to purchase fiberglass reef ball molds, which can be used to construct concrete structures 4-feet across and 2-feet tall. Reef balls can be installed on the shoreline to help reduce shoreline erosion while also improving fish habitat and can also be placed in deeper water along with other structures to help improve fish habitat. This partnership is part of a larger effort to help reduce shoreline erosion, plant native terrestrial vegetation, reduce invasive species, and enhance fish habitat.

USACE and KDFWR recently completed work on the second of two planned areas at Nolin River Lake in Bee Spring, Kentucky. Nolin River Lake visitors may have noticed the two erosion control projects, one of which is upstream from the Wax Recreation Area while the second is across the lake from the Nolin Lake State Park near Mammoth Cave, Kentucky.

"Reef balls have been installed in other areas of the lake to provide fish habitat; fishermen report that these structures are attracting bass, crappie and catfish," said Chris Boggs, USACE Green River Area Manager. "USACE looks forward to a continued relationship with KDFWR and our other partners to continue to protect our natural resources while improving fish habitat."

While the work under this grant has been completed, the reef ball molds can be used in the future to reduce shoreline erosion and improve fish habitat, not only at Nolin River Lake, but at other USACE Louisville District projects throughout Kentucky.

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KDFWR staff installing a reef ball from their habitat barge.



Reef balls installed near Wax Recreation Area.