

Reservoir Fisheries Habitat Partnership Grant Proposal

A. Applicant Information

Applicant:

U.S. Army Corps of Engineers
Rend Lake Project Office
11981 Rend City Road
Benton, IL 62812

Person of Contact:

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B. Project Information

Title: Rend Lake Fishery Habitat Enhancement Project

Location: Rend Lake, Benton, Illinois, 62812, Temperate Plains

-Rend Lake is located in Franklin and Jefferson Counties of Southern Illinois. The dam site is located on the Big Muddy River, 103.7 miles upstream from its confluence with the Mississippi River and about three miles northwest of Benton, Illinois.

U.S. Congressional District: 12th Congressional District of Illinois

Start/End Dates: June 2016 – March 2017

Amount of Grant: \$10,000

Total Project Cost: \$24,828

(Grant = \$10,000, Federal In-kind = \$2,032, Non-Federal in-kind = \$12,796)

Partners:

Illinois Department of Natural Resources
Southern Illinois Crappie Association
Sesser-Valier Outdoorsman Club

Primary Impairment: Lack of Structure

C. Project Description

1. Project Overview

Rend Lake is located in the middle of Southern Illinois within Franklin and Jefferson Counties. The dam impounds the Big Muddy River, 103.7 miles upriver from its confluence with the Mississippi River. The lake's construction was authorized by Congress by the Flood Control Act of October 23, 1962 with the purposes of flood control, area redevelopment, fish & wildlife conservation, recreation, and water supply. The U.S. Army Corps of Engineers completed the construction of the 19,000 acre

impoundment ahead of schedule in only five years. The lake reached normal pool on March 12, 1973.

Since its completion, Rend Lake has become more than just a lake. It has become part of the culture of Southern Illinois. Visitors from all 50 states and 14 countries have come to see the beauty. Traditions have been born at Rend Lake that are now in their third generation. Marriages are started along its shores and memories are made all over the project.

As the coal mining waned, so did the economy of Southern Illinois. Industry and tourism were there to help revitalize the area. Both of these have counted greatly on Rend Lake. Industry, such as General Tire in Mt. Vernon IL, needed a reliable source of water which they found in Rend Lake. In the same way, tourism has benefitted and recreation at Rend Lake has become a driving factor in the area's economy, with visitors adding approximately \$73 million annually to the regional economy

The area offers a myriad of recreational opportunities and visitors come to Rend Lake for many reasons. But one very significant reason is fishing at Rend Lake. In 2012, over 3.6 million people visited Rend Lake and 20% of them came to go fishing. With its large size, Rend Lake provides unique angling opportunities and is an extremely popular fishing destination. Rend Lake receives more than 750,000 angling trips and hosts 50 or more major (50 or more boats) bass tournaments annually. Rend Lake also hosts numerous smaller tournaments (2-4 small LMB tournaments per weekend) plus one-day and seasonal crappie, catfish, and multispecies tournaments.

Fisheries Management Program

The pressure placed on the fishery by the tournaments, along with nearly year round recreational harvest of popular species such as sunfish, crappie, white bass, and catfish accounts for a tremendous annual mortality and a need for a very active management program. The fisheries management program at Rend Lake is supervised by fisheries biologists from the Illinois Department of Natural Resources. The goal of the State's fishery program is to produce the best fishing possible for the maximum number of people. The program is guided by a "Strategic Plan for Fish in Reservoirs" that identifies fisheries problems and strategies, and sets five year objectives. The Corps cooperates and supports the recommendations which are consistent with lake purposes.

To achieve the goal of providing the best fishing possible for the maximum number of people requires a multifaceted management strategy that includes commercial harvest of rough species, habitat enhancement, forage base enhancement, supplemental stocking, and species specific length and creel limits.

The Fishery

Over 119 species of fish have been recorded from the Big Muddy Basin. The major fish species providing sport fishery at Rend Lake are white crappie, black crappie, bluegill, channel catfish, flathead catfish, white bass, hybrid striped bass, and largemouth bass. No cold water fish habitat or fishery occurs at the lake.

The Habitat

Prior to the construction of Rend Lake, the area was bottomland forest and small family farms. There were several active coal mines busy removing coal under what was to become what is now known as Rend Lake. This rural area was transformed into the second largest man-made lake in Illinois.

To build Rend Lake, the Big Muddy River was rerouted and dammed. Most of the trees in the 19,000 acres lake basin were bulldozed, piled, and burned, leaving a barren future lake bottom, devoid of any useable fish habitat structure. In the upper reaches of the lake, along the river and creeks leading into what would become the lake, the trees were left standing. Over time, these became stump fields for the bass fisherman. As time passes, even these are slowly rotting away. Additional subsidence from mining has created additional limited tree and stump areas.

Historically there have been few submerged or emergent aquatic plants in Rend Lake. A combination of turbidity, wave action, and water level fluctuations has prevented aquatic and semi-aquatic plants from colonizing the lake. Some improvement has been seen recently in protected coves with reduced turbidity and establishment of dense stands of aquatic submerged and floating vegetation including lotus, milfoil, coontail, southern naiad, leafy pondweed, creeping water primrose, duckweed, and American pondweed. Some fish habitat is provided by flooded timber, which is decreasing 30 plus years after impoundment.

Early sampling of the Rend Lake benthos and plankton revealed that the diversity and populations were increasing each year. The wide diversity of benthic organisms in Rend Lake samples indicates that waters are in good condition. Plankton surveys also had shown increasing diversity of floating organisms indicating favorable water quality conditions.

The Challenge

Rend Lake's barren lake bottom, large size, fluctuating lake levels, and shallow depth have worked together to create one of the single largest challenges facing the Rend Lake fishery, which is loss of habitat.

Rend Lake has an unregulated spillway and has seasonal fluctuations of five feet or more each year. Greater fluctuations have been recorded many times since the lake has been established. The extreme water level fluctuations have a significant impact on sport fish spawning success and recruitment. If these fluctuations are timed poorly and the crappie spawn in the brush while the water is high and it subsequently recedes, Rend Lake loses a year class. This unregulated seasonal fluctuation inhibits the permanent establishment of large area of aquatic plants for spawning and nursery habitat.

Rend Lake is a very large, open body of water with relatively flat topography. This fact coupled with an average depth of only 8-10 feet creates waves of one-three feet almost daily. Waves of three to five feet are not uncommon. This constant wave action pounds the shoreline and causes it to erode. The waves also inhibit the establishment of aquatic plants and lower the quality of spawning habitat.

Habitat Improvement

As stated previously, the single largest challenge facing the fishery at Rend Lake is habitat loss or the lack thereof. Rend Lake has added enhanced habitat through shoreline stabilization projects. Also, the staff has partnered with the Illinois Department of Natural Resources to place approximately 300-500 Christmas Trees in the lake each year as fish attractors for more than 20 years.

We propose to expand the fish attractor program by adding additional fish habitat structures that will last longer than the natural materials. If we receive the grant, we will purchase the materials to construct and place 150 porcupine balls and 500 spider blocks in grouped locations to create new habitat areas in presently barren areas, including shoreline fishing areas being developed for universal accessibility.

The Corps of Engineers and Sesser-Valier High School Outdoorsmen Club have a long history of partnering on conservation project including working together to provide hunting opportunities for disabled hunters in the longest running hunt in the United States. The club was created in the fall of 1977 by high school biology teacher and seasonal Crops Ranger, Gene Morgan. It was born out of a desire to get young adults out of the house and back into the outdoors experiencing nature. Gene saw the writing on the

wall so to speak in that young people, even rural area young people, were spending less time outdoors hunting, fishing, and exploring nature. In such, the desire to maintain and care for our ecosystem was diminishing. Through this project, the 60 high school students will earn volunteer service hours constructing the 650 habitat structures while learning construction skills in our shop and directly enhancing fisheries habitat. They will also assist the Corps of Engineers, the Illinois Department of Natural Resources, and the Southern Illinois Crappie Association when they bring approximately 20 boats to place the structures in the lake.

The Outcome

Placing commercial fish attractors into this reservoir will provide valuable artificial structure. This structure will provide much needed cover for smaller sport fish. As these structures age they will be rapidly colonized by periphyton which will both provide and attract a variety of food items for these smaller fish. As these smaller fish begin to utilize these structures they will attract and hold a variety of larger sport fish. These concentrations of adult sport fish will provide excellent fishing habitat for the hundreds of thousands of anglers that visit Rend Lake annually. Providing anglers with the locations of these structures will increase both catch rates and harvest. These structures will primarily benefit crappie and largemouth bass. Channel catfish and some species of sunfish may also benefit to a lesser degree from the cover provided by these structures. In addition to providing valuable habitat for smaller fish, these structures can also provide limited spawning cover for largemouth bass and crappie. . The species of fish most likely to benefit/affect in order of priority are crappie, largemouth bass, bluegill, and catfish.

Though this project will not completely solve the lack of habitat in an area the size of Rend Lake, it will have a measureable and lasting effect as a first step in a new phase of the habitat enhancement program. This project will establish areas with high quality habitat and make them easy for the anglers to locate, which, in turn, will definitely attract more anglers to Rend. With the success of the project and additional areas added annually, the habitat, angler catch rates, and harvest will improve. Along with this, the improved quality of the fishing experience will bring more fishermen and more tourism dollars, thus, helping the local area and visitors to a better quality of life.

2. Monitoring plan overview:

The Illinois Department of Natural Resources Office of Fisheries conducts a yearly creel survey at Rend Lake to monitor the health of the fishery. The habitat improvement areas would be prime areas for surveying. In addition, the fishery

biologist makes additional trips to the lake throughout the year to supply the visitor center exhibits, which would allow these sites for collection of specimens. Furthermore, we plan to work with our partners, the Southern Illinois Crappie Association, to monitor the success of the habitat areas and sites for future locations.

3. Outreach plan overview:

The Corps of Engineers at Rend Lake produces a set of air photos and GPS locations for all the Christmas Trees fish attractors that are maintained. These are updated each year as sets are replenished or adjusted or relocated. The new areas of habitat improvement will be located by GPS as they are set and added to these fish attractor maps. Additional areas in future years will be done likewise.

The Corps of Engineers would market the new habitat improvements, the grant award, and the new partnerships resulting from this grant. This marketing usually includes news releases, camper newsletter, webpage/social media coverage, St. Louis District Public Affairs, contacting local news media, request for District Engineer visit, etc.

4. Provision to protect the restoration project site.

The project site will not require any specific protection after completion. The project locations will be mapped and included in the fish attractor maps to make it easier for anglers to locate and improve catch rates. To help insure that the placed fish attractors stay where the project volunteers place them, we will be reinforcing the leg that the porcupine ball stands on and securing them in concrete blocks.

5. List of required permits:

The project will require a National 404 Permit of the Clean Water Act request and will be included on the application we do for the Christmas Trees sets annually.

6. Project timeline:

June 2016 – August 2016: coordination with fishing tournament organizers for potential locations of habitat development.

September 2016: IDNR Creel Survey

October 2016: Coordination on potential locations with IDNR and purchase materials.

December 2016 – February 2017: Construction of habitat structures

February-March 2017: Installation of the habitat structures.

D. Budget

1. Amount Requested: \$10,000
2. Amount of in-kind contributions: \$14,828
 Federal In-kind = \$2,032
 Non-Federal in-kind = \$12,796
3. The grant money will be used to purchase the supplies to build 150 porcupine balls and 500 spider blocks.

E. Optional Supporting Material

Categories	Partner Contribution Amount	Cash or In-Kind	Timeline (anticipated date of expenditure)
Reservoir Fisheries Habitat Partnership			
Administrative/ Technical Services			
Construction Costs/ Materials	\$10,000		Oct-16
Labor (Paid)			
Labor (Volunteer)			
Miscellaneous			
Total	10,000		
U. S Army Corps of Engineers			
Administrative/ Technical Services		\$192	Mar-17
Construction Costs/ Materials			
Labor (Paid)		\$1,440	Feb-March 2017
Labor (Volunteer)			
Miscellaneous		\$400	Feb-March 2017
Total		\$2,032	

Illinois Department of Natural Resources			
Administrative/ Technical Services		\$192	Feb - March 17
Construction Costs/ Materials			
Labor (Paid)		\$960	Feb-March 17
Labor (Volunteer)			
Miscellaneous		\$640	Feb - March 17
Total		\$1,792	
Sesser Outdoorsmen Club			
Administrative/ Technical Services			
Construction Costs/ Materials			
Labor (Paid)		\$384	Dec 16 - Feb 17
Labor (Volunteer)		\$6,720	Dec 16 - Feb 17
Miscellaneous		\$1,500	Dec 16 - Feb 17
Total		\$8,604	
Southern Illinois Crappie Association			
Administrative/ Technical Services			
Construction Costs/ Materials			
Labor (Paid)			
Labor (Volunteer)		\$800	Feb-March 17
Miscellaneous		\$1,600	Feb-March 17
Total		\$2,400	