A. Applicant Information

Name of Organization: U.S. Army Corps of Engineers - 801 Lake Road, Carlyle, Illinois 62231

Contact Information: Robert Wilkins, Project Manager, 618-594-2484, Robert.Wilkins@usace.army.mil

Name of F.O.R. Members: U.S. Army Corps of Engineers & Illinois Department of Natural Resources

B. Project Information

Title: Homer Guthrie Brood Ponds/Shoreline Erosion Reduction

Location: Carlyle Lake

GPS Coordinates: 38°39'34.23"N 89°19'55.99"W

U.S. Congressional District: 15th Congressional District of Illinois

Project Objectives:

- Repair Homer Guthrie Brood Pond filling system and screw gate.
- Eliminate areas of intense shoreline erosion.
- Provide fish spawning habitat.

Estimated Start and End Dates: 1 January 2016 – 31 December 2016

Amount of Grant and Total Cost of Project: $10,000.00

C. Project Description

1. Project overview:

Carlyle Lake is located in south central Illinois, approximately 50 miles east of St. Louis, Missouri. The Corps of Engineers began construction on the largest man-made lake in Illinois in 1958 and completed the project in 1967. The lake is 12 miles long and 1-3 miles wide with approximately 26,000 acres of surface water. Carlyle is multi-purpose lake; one of those being downstream flood control. While flood control has many benefits for the surrounding communities, from the 1970s to the 1990s poor fish spawns were common place because of fluctuating water levels due to flood control. Illinois Department of Natural Resources (IDNR) reservoir fisheries biologist have recommended maintaining stable water levels during spring fish spawns with no more than one tenth of a foot fall in water level per day. This recommendation prolongs flood events which lead to higher pool levels and severe damage such as shoreline bank erosion and recreation facility inundation.

Following the Carlyle Lake Water Control Plan, water levels drop at a rate that has adverse impacts on fish spawn. During a flood event, following the water control plan, the spring fish spawn may be interrupted several times. In addition, high water levels can cause major shoreline erosion impacts that destroy fish habitat in critical spawning areas.

To mitigate for the fluctuating water levels, IDNR built three 10 acre fish rearing ponds from 1997 to 1999. These ponds are capable of producing hundreds of thousands of game fish each year, when in full operation. The 30 acre complex was built in a prime location and well designed; however, after nearly 20 years of operation the facilities are in desperate need of repairs. The water intake piping system has slowly lost its ability to function as designed and the water control screw gates are faulty. In addition, multiple IDNR biologists have been in charge of the area during its lifespan making consistence operational procedures difficult. As current IDNR budgets are cut, the biologist in charge of the brood pond has fewer resources at hand for proper operation and maintenance costs. The biologist in charge is also located over an hour away making it very difficult to properly manage the facility. For these reasons, maximum fish production from the complex has never been achieved.

The main purpose of the rearing ponds was to mitigate for fish spawning interruption caused by fluctuating lake levels, during the critical fish spawning season, that are the result of following the Carlyle Lake Water Control Plan. The species most adversely affected by the fluctuations are black and white crappie and largemouth bass. Brood ponds allow fish to spawn in a controlled environment free of fluctuating water levels and outside disturbances. Brood ponds also provide an environment that is (for the most part) free of predators, which give young fish ample time to mature before being released into Carlyle Lake.

Carlyle Lake is over 45 years old and is losing critical habitat and structures for fish fry to protect themselves, making them vulnerable to predation. Upcoming fish recruitment has the potential to decline as shoreline erosion and limited habitat around the lake increases. Starting in the early 1990's, Carlyle Lake staff has been providing temporary structures in the lake by sponsoring a Christmas tree recycling/fish habitat project which places approximately 1,500 Christmas trees in the lake annually.

Carlyle Lake is also working to manage excessive nutrient loads caused by spring runoff of phosphorous and nitrogen from agricultural fields surrounding the lake. Excessive nutrient loads can cause algal blooms which lead to low dissolved oxygen levels in tributaries and in turn results in habitat loss. Degraded shorelines cause by excessive nutrient loads can cause siltation issues and decreased water depths that prohibit the transition to deep water habitat for fish to survive the cold water ice formations. Although short term flood conditions may be beneficial to the fish spawn, prolonged flooding destroys terrestrial vegetation, shoreline willows, aquatic vegetation and lotus beds.

The brood ponds help to reverse some of the negative effects on fish spawning occurring at Carlyle Lake. To ensure the brood ponds are performing at their

maximum levels, repairs are needed. The water control structures are leaking and not sealed to hold water. Screw gates need reinforcement and more sealant to allow the ponds to be filled to maximum water capacity each season. The pumping system pipes are rising out of the ground due to pumping pressure. Repairing these pipes will provide maximum water acreage to be reached and decrease pumping hours to fill the ponds.

Maximizing fish production in the brood ponds is not limited to game fish such as crappie and largemouth bass. The ponds can also be used for production of fathead minnows and other forage fish species to feed largemouth bass. Brood ponds that are functioning to their maximum capacity would provide fish protection in the form of structures and helping to reduce the likelihood of predation on fish fry (cormorants).

With reservoir fisheries habitat partnership funding, IDNR and the Corps can work together to provide the knowledge and labor needed to restore these vital brood ponds. Allowing the ponds to reach their maximum capacity as designed. The Corps will match any grant contributions to ensure that the project gets the support and attention that is needed.

The Corps and IDNR are committed to improving the fisheries at Carlyle Lake and providing fish for future generations. It is essential to continually strive to have a healthy and sustainable fish population. Fall surveys are conducted to monitor fish population dynamics and brood pond management is based on the proceeding survey results. It is of the upmost importance to ensure the fish population is healthy and continues to increase.

Improving the conditions at Carlyle Lake each year is imperative. In 2012 visitation numbers were approximately 2.6 million, with $580,000 in revenue collected, and $67.6 million in visitor spending within 30 miles of Carlyle Lake. With 17 boat ramps and 40 – 45 fishing tournaments annually, fishing has a great impact on the lake and surrounding community. Carlyle Lake has been the host site for the Illinois High School Association State Bass Fishing Finals since its inaugural year in 2009. Other professional fishing tournaments including the FLW College Central Conference Championship and the Illinois Bass Federation Northern Divisional Championship are hosted at Carlyle Lake.

A healthy, increasing, and sustainable fish population will create recreational benefits that aren’t just highlighted in dollars and cents. It also represents quality of life to visitors. In today’s society, many focus solely on monetary benefits, but steps are being taken to understand that recreation experiences come first. Creating a favorable environment for recreation and fishing will ultimately lead to monetary benefits. However, the first goal is to provide an opportunity for visitors to enjoy the lake and the resources it provides. By putting in the time, effort, and money that it takes to raise fish, buy fish, and create habitat we can ensure that future generations will enjoy the same recreational experiences that we do today.

2. Monitoring plan overview:

Monitoring the plan will consist of a “boots on the ground” layout design of structural repairs. The project will be completed in a timely fashion to ensure that no significant time is lost to raise fish for the upcoming year. A 1-2 month window will be needed to complete all necessary repairs to structures. Most of the work will be completed in house with most money being used for heavy equipment operation. Corps personnel will oversee the project and will provide a daily inspection report. The scope of work will be established prior to any contractual agreements and contractors will be held to contract specifications. This process has been used previously and has proven to ensure work is completed at the highest standard.

3. Outreach plan overview:

Within the U.S. Army Corps of Engineers, the St. Louis District Interpretive Services and Outreach Program has received high praise from various organizations outside of the St. Louis District. Prior to work beginning on the brood ponds, Carlyle Lake will work with IDNR to inform visitors and the local community about the project getting them excited, supportive, and involved in the project.

Once the necessary repairs to the brood ponds are completed, the Corps and IDNR will have the opportunity to present educational interpretive programs throughout the recreation season. Through these programs the Corps and IDNR will be able to explain the importance and function of the area and give the public a hands-on approach to help them better understand proper fisheries management. In addition, once fish that have matured in the brood ponds are released in the fall, a news release will be sent out to the public giving them an opportunity to assist in brood pond improvement practices.

The improvements to the brood pong will provide a real-life example of the importance and positive effects that proper fisheries management has on our environment. This project will help the public better connect with public lands and understand how they can get involved in the process of providing fisheries habitat improvements.

4. Provisions to protect the restoration project site after project completion:

It is imperative that the Homer Guthrie Brood Ponds/Shoreline Erosion Reduction Project repairs are done in a self-sustaining manner. While there may be other future issues, the repairs to the brood ponds should last 10-20 years.

5. List of required permits: None

6. Project timeline:

Once funding is received for the proposed project, construction will begin immediately and be completed within two months, weather permitting. The ponds will have to be dewatered and ground conditions will have to be dry to conduct work. The repairs that are outlined in this proposal can be completed in a timely manner.

D. Budget:

1. Amount requested: $10,000

2. Amount of in-kind:

In-kind contributions will come from IDNR and the brood pond engineer assigned to the project. Both contributions will be made in the form of service to the project. IDNR has extensive expertise and knowledge related to fisheries. The brood pond engineer will provide knowledge regarding structural design, ensuring the proposed repairs fix all issues.

Categories	Partner Contribution Amount	Cash or In-Kind	Timeline (anticipated date of expenditures)
Reservoir Fisheries Habitat Partnership			
Administrative/Technical Services			
Construction Costs/Materials	$10,000		31Aug 2016
Labor (paid)			
Labor (volunteer)			
Miscellaneous (outreach materials)			
Carlyle Lake Project Office			
Administrative/Technical Services	$960		30 June 2016
Construction Costs/Materials	$1,000		31 Aug 2016
Labor (paid)	$1,920		31 Aug 2016
Labor (volunteer)			
Miscellaneous (outreach materials)			
Illinois Department of Natural Resources (IDNR)			
Administrative/Technical Services		$2,500	30 June 2016
Construction Costs/Materials			
Labor (paid)		$2,500	31 Aug 2016
Labor (volunteer)			
Miscellaneous (outreach materials)			
Total Direct Costs	**$13,880**	**$5,000**	

Partner Contributions and Timeline Chart:

1. Meet with IDNR and brood pond engineer.
2. Assess plan to ensure all repairs are adequate in all facets.
3. Final draft of comprehensive work plans to be carried out.
4. Begin heavy equipment operation to repair exposed water pipes. Dig pipes out, dig a deeper trench, lay pipe back in, and fill with dirt (Based on structural recommendations).
5. Repair leaking screw gates.
6. Fill ponds and assess completed work.

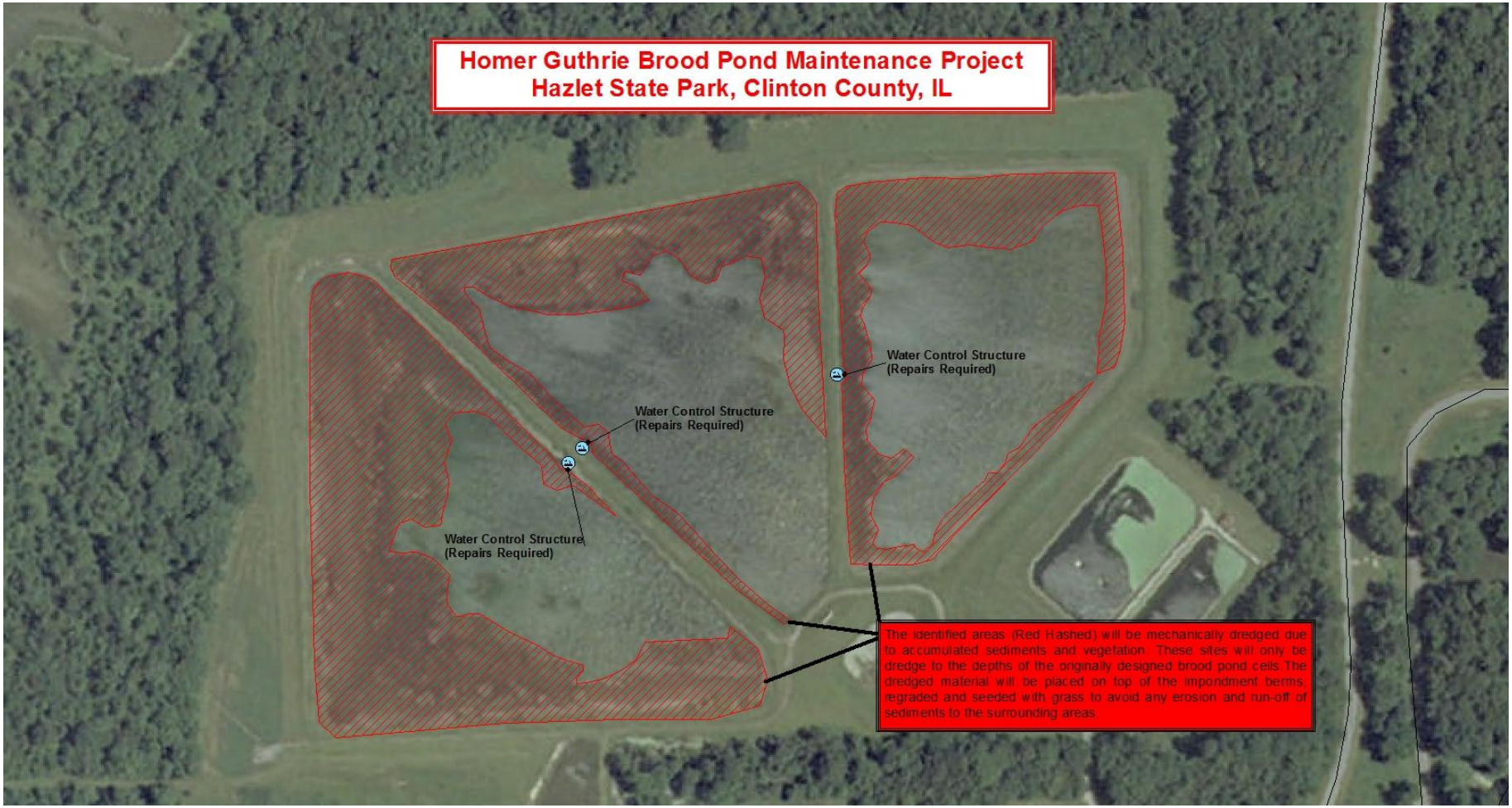
3. Budget narrative:

Grant funding will be incorporated with Corps of Engineers and Illinois Department of Natural Resources contributions to complete the construction of this project.

The Reservoir Fisheries grant money will be used for construction costs, materials, and equipment costs. This will include trackhoe, dump truck and bulldozer rental from the current Carlyle Lake equipment contractor and purchase of 50 pound rip rap from the current rock contractor.

The Carlyle Lake Project will provide the following: Administrative/ Technical support in the design, funding for miscellaneous construction materials as needed, and labor hours for maintenance workers to complete all necessary repairs.

The Illinois Department of Natural Resources Division of Fisheries will provide in-kind contributions to support the project in the form of Administrative/ Technical support and employee labor.


Homer Guthrie Brood Pond Maintenance Project
Hazlet State Park, Clinton County, IL
Water Control Structure
(Repairs Required)
Water Control Structure
(Repairs Required)
Water Control Structure
(Repairs Required)
The identified areas (Red Hashed) will be mechanically dredged due to accumulated sediments and vegetation. These sites will only be dredge to the depths of the originally designed brood pond cells.The dredged material will be placed on top of the impondment berms, regraded and seeded with grass to avoid any erosion and run-off of sediments to the surrounding areas.

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Illinois Department of **Natural Resources**

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

Bruce Rauner, Governor
Wayne A. Rosenthal, Director

September 10, 2015

Mr. Robert Wilkins, Project Manager
U.S. Army Corps of Engineers
Carlyle Lake Reservoir
801 Lake Road
Carlyle IL 62231

Dear Mr. Wilkins,

The Division of Fisheries in the Illinois Department of Natural Resources (IDNR) supports the Reservoir Fisheries Habitat Partnership Grant Proposal for the Homer Guthrie Brood Ponds/Shoreline Erosion Reduction project. We strongly support the repair of the water control structures, the water intake piping system, and the pumping system at the three brood ponds to restore maximum fish production. One of the main purposes of Carlyle Lake is flood control and the Water Control plan requires lowering water levels at a rate that can impact sport fish spawning during flood events, which makes the maximum operating ability of these ponds critical to fisheries management. If these ponds can be repaired and put into full operation, they will provide critical spawning habitat for sport fish and minnows that is protected from fluctuating water levels. The maximum operation of these ponds also will allow for the Carlyle Lake water levels to be lowered in a manner that not only provides flood control but reduces shoreline erosion.

If this project is awarded funds, then as a partner with the U.S. Army Corps of Engineers in the fisheries management of Carlyle, the Division of Fisheries will commit to support of the project and provide non-federal match in in-kind contributions by providing administrative and technical services to the project at an estimated $5,000.

We look forward to working with the U.S. Army Corps of Engineers on this project to repair the Homer Guthrie Brood ponds. If you have any questions or require more information, please contact Mr. Rob Maher, the IDNR Carlyle Lake Fisheries Biologist, in the Division of Fisheries, Office of Resource Conservation at 618-468-2852.

Sincerely,

Debbie Bruce

Debbie Bruce, Chief
Division of Fisheries