

MARSH LAKE, APPLETON, MINNESOTA ECOSYSTEM RESTORATION PROJECT

27 SEPTEMBER 2011

ABSTRACT: The purpose of the Project is to restore habitat structure, form and function to Marsh Lake, the upper pool of the Lac qui Parle reservoir, a previously constructed USACE reservoir system on the Minnesota River. The project includes modifications to the existing dam and other project structures, rerouting of the Pomme de Terre River to its historic channel and implementation of limited recreation features compatible with the habitat restoration purpose. The State of Minnesota, Department of Natural Resources is the non-Federal sponsor.



Construction of the Marsh Lake Dam initially began in the late 1930's by the State of Minnesota and the Federal Works Progress Administration as part of the multi-purpose Lac qui Parle Water Control Project. The project was authorized by the Flood Control Act of 1936 (Public Law 74-738) and was partially constructed by the Works Progress Administration. The Corps of Engineers completed project construction between 1941 and 1951. Operation of the project was transferred from the State of Minnesota to the Corps of Engineers in 1950.

The original construction of the Marsh Lake Dam was intended to serve as a flood damage reduction measure as well as a recreational feature to the region, primarily through the creation of a static pool on the river. As with many projects constructed at the time, a full understanding of the ecology of the system was not of primary concern.

Since construction of the impoundment, Marsh Lake has undergone significant degradation of aquatic habitat due to a number of stressors including high sediment and nutrient loading, a fixed crest dam that prevents natural fluctuation in seasonal water levels, high turbidity from wind-driven sediment resuspension, and abundant common carp that increase turbidity and graze off submersed aquatic vegetation and macroinvertebrates. Marsh Lake provides an open water area for migratory waterfowl to rest and islands for nesting colonial waterbirds along the Mississippi River flyway, although degradation of the aquatic ecosystem limits habitat suitability for many species of fish and wildlife.

The recommended plan includes the following:

- Restoring the Pomme de Terre River to its natural channel.
- Modifying the dam with a fishway for fish passage.
- Constructing a drawdown water control structure.
- Breaching a dike to restore connectivity to an abandoned fish rearing pond adjacent to the dam.
- Installing gated culverts at Louisburg Grade Road to maintain pool elevations in upper Marsh Lake.
- Providing compatible recreation features, including shoreline fishing access, picnic facilities, canoe access and a pedestrian bridge over the dam.

In combination, each of these features would contribute toward restoring river habitat, eliminating winter oxygen refuge for carp and providing for ecosystem connectivity. The natural flooding and drying cycles could be restored, promoting growth of emergent vegetation, increased waterfowl habitat and reduced sediment resuspension. Restoration would benefit thousands of migratory waterfowl and many other species of birds and fish.

The estimated total cost for the Recommended Plan is \$9,967,000 (October 2011 price level), for which the Federal share is approximately \$6,403,000 and the non-Federal share is approximately \$3,563,000. The non-Federal sponsor is responsible for operation, maintenance, repair, rehabilitation and replacement, at an estimated annual cost of \$35,000. The net increase in average annual habitat units is estimated at 8400 AAHU's and the benefit-cost ratio on recreation components is estimated at 8.6:1.

REPORT DOCUMENTATION: Pertinent documentation on the project, the results of the CWRB and subsequent Washington-Level Review Actions are linked below:

- [CWRB Agenda](#)
- [Project Summary](#)
- [CWRB Briefing Slides](#)
- [CWRB Lessons Learned](#)
- [CWRB Meeting Record](#)
- [State & Agency Review Comment Letters](#)
- [Documentation of Review Findings](#)
- [Signed Chief of Engineers Report](#) -- 30 December 2011
- [Advance Copy to Congressional Committees](#)
- [ASA\(CW\) Memo to OMB](#)
- [OMB Response](#)
- [ASA\(CW\) Transmittal to Congress](#)
- [Signed Finding of No Significant Impact \(FONSI\)](#)
- Authorization

ADDITIONAL INFORMATION:

[Mississippi Valley Division](#)

[St. Paul District – Marsh Lake Ecosystem Restoration Project](#)