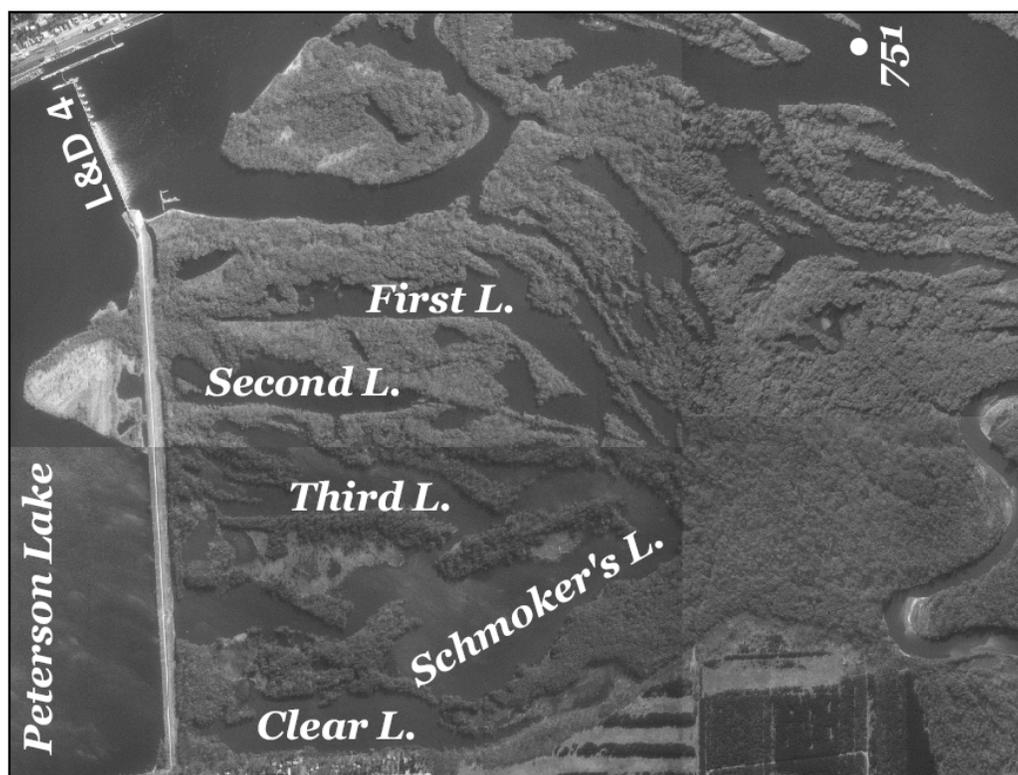


## FACT SHEET

### CLEAR LAKE AREA HABITAT RESTORATION PROJECT POOL 5, UPPER MISSISSIPPI RIVER, MINNESOTA ENVIRONMENTAL MANAGEMENT PROGRAM

#### LOCATION

The Clear Lake Area is located in the Finger Lakes vicinity of the Upper Mississippi River pool 5 between River miles 752.8 and 752. The area is located just below the Dam 4 embankment near Wabasha, Minnesota (Figure 1), within the Upper Mississippi River National Wildlife and Fish Refuge. It is bounded by the Dam 4 embankment and Peterson Lake on the north, Second Lake on the east, the Minnesota mainland on the west, and pool 5 backwater sloughs on the south. Included in the area are the 26-acre Clear Lake, 47-acre Schmoker's Lake, and 40-acre Third Lake. The lakes are interconnected by small sloughs and normally receive flow through gated culverts from Peterson Lake upstream of the Dam 4 embankment.



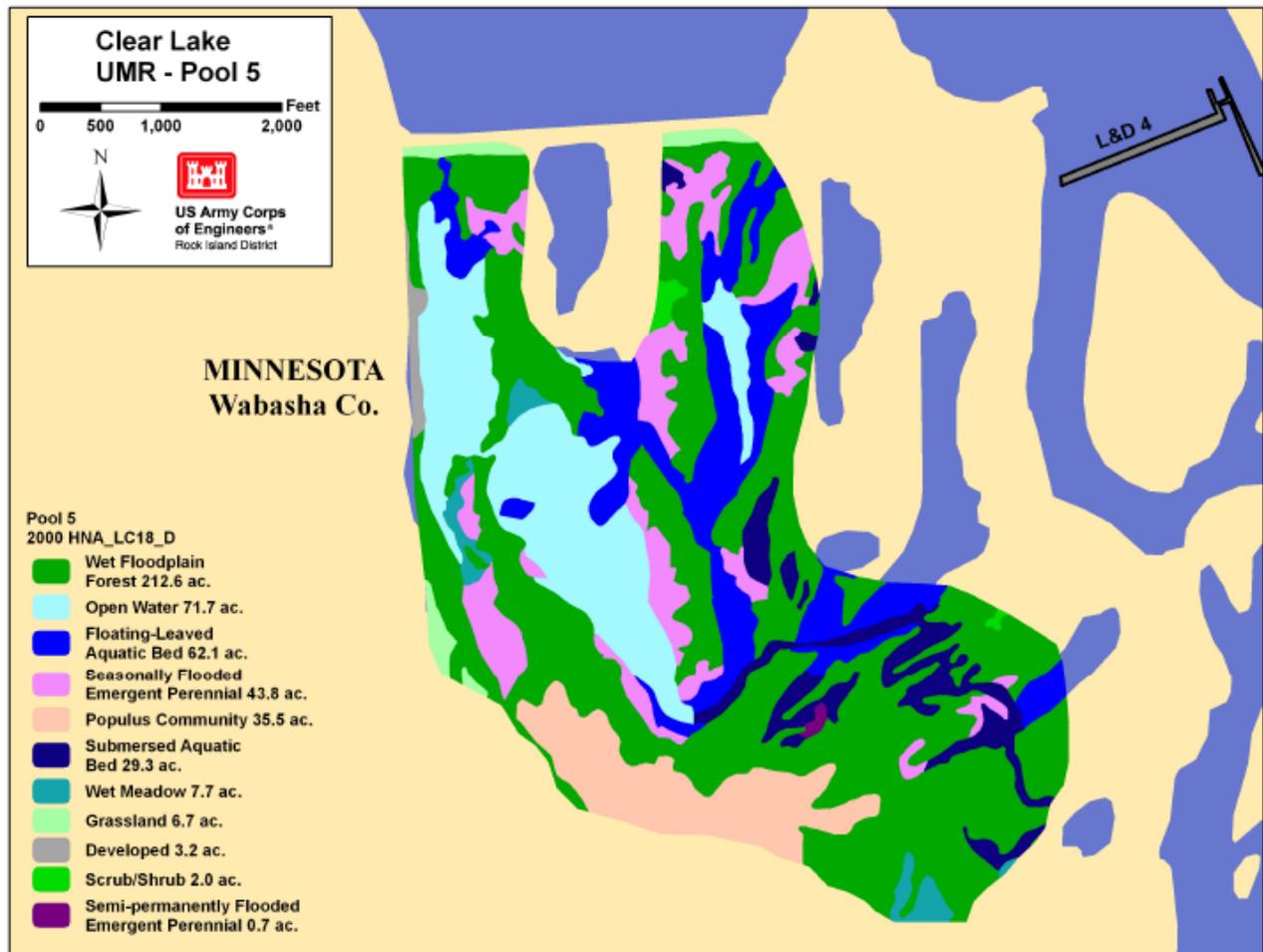
**Figure 1.** General Project Location

#### EXISTING RESOURCES

The Finger Lakes include six backwater lakes—Clear, Lower Peterson, Schmoker's, Third, Second, and First Lakes. All are located immediately below the embankment at Lock and Dam 4. Historically, these lakes provided good habitat for fish and wildlife, including an abundance of both emergent and submerged aquatic vegetation. Finger Lakes is the site of an EMP habitat project completed in 1996, designed to improve over-wintering habitat for centrachids by introducing flow into the Finger Lakes. Three gated culverts were installed to provide flow to

about 113 acres of the lakes in order to maintain minimum dissolved oxygen levels of 5 mg/l. Figure 2 shows 2000 land cover data and acreages.

In 2008, about one acre of Clear Lake was dredged to improve the fishery by providing deep water habitat for both overwintering and foraging fish. This dredging was done in conjunction with a maintenance project to help protect the Dam 4 embankment for the 9-Foot Channel project. The Clear Lake dredging was coordinated with the Lock and Dam 4 embankment project to assure that the dredged material could be integrated into the embankment project in order to reduce the overall cost to both of the projects. The embankment work preceded the Clear Lake dredging so that the dredged material could be utilized as topsoil for the new berm at the embankment. The results of the dredging on the Clear Lake fishery will not be known until additional monitoring is done.



**Figure 2.** 2000 Land Cover Data

## PROBLEM IDENTIFICATION

Since completion of the Finger Lakes habitat project, sedimentation has continued to occur, and depths in the lakes generally range from two to four feet at average water elevations. A distributary channel of the Zumbro River delivered sediment-laden waters into the Finger Lakes until a project sponsored by the Minnesota DNR and USFWS redirected the majority of the flow and suspended solids away from the area. The Finger Lakes HREP resulted in flow conditions

that met the dissolved oxygen and temperature objectives of the original design. However, after 10 years of post-project monitoring, it was determined that the lack of water depth reduces the quality of the fisheries habitat, especially in Clear, Schmoker's, and Third Lakes. Deeper water in all the lakes would significantly improve fish habitat, especially over-wintering habitat, and would contribute to the overall improvement of the entire Finger Lakes ecosystem.

## **PROJECT GOALS**

Project goals are derived from the Environmental Pool Plans (EPPs), Pools 1 through 10. The desired future condition for Clear, Schmoker's, and Third Lakes includes additional deepwater in the lakes to provide the habitat needed for a quality fishery. Benefits would accrue to the entire Finger Lakes and upper pool 5 area by enhancing the fisheries habitat. Management actions for this area focus on restoring backwater fish habitat by providing additional deepwater in areas where flow and dissolved oxygen conditions are conducive to the fishery requisites. The pool-wide goals and specific project goals and objectives are as follows:

### **Protect/enhance/restore 3,500 acres of aquatic habitat for fish, invertebrates, aquatic and semi-aquatic mammals, reptiles, amphibians, waterfowl, shorebirds, and other aquatic organisms**

- Protect, enhance, and restore 170 acres of aquatic habitat for lentic fish and other aquatic organisms in the Finger Lakes and upper pool 5 areas
- Restore 15 acres of deepwater habitat in the Finger Lakes and upper pool 5 area to meet the design criteria

### **Enhance/restore/emulate a sustainable ecosystem (natural water levels, sediment transport and deposition regime, and distribution of water flows within the Mississippi River floodplain)**

- Restore a desirable hydrologic regime in the Finger Lakes and upper pool 5 areas
- Restore flow in the Finger Lakes area to meet the design criteria for dissolved oxygen and temperature (the Finger Lakes HREP constructed in 1996 resulted in flow conditions that met the dissolved oxygen and temperature objective)

## **PROPOSED PROJECT**

The proposed project action includes dredging portions of three lakes to a depth of six to seven feet below the average project pool elevation (Figure 3). Approximately 6 acres would be dredged in Clear Lake (23% of the lake), 6.6 acres in Schmoker's Lake (14 % of the lake), and 1.6 acres in Third Lake (4% of the lake). Dredging quantities for Clear, Schmoker's, and Third Lakes are estimated at 42,000, 43,000, and 10,000 cubic yards, respectively. The dredged material is anticipated to be fine-grained and would be suitable for use as topsoil.

The authority for this study and potential project construction is provided by Section 1103 of the Water Resources Development Act of 1986 (Public Law 99-662), as amended.

## **PROJECT OUTPUT**

The proposed dredging would enhance and restore the fishery quality in the Finger Lakes area for desirable backwater fish species. About 14 acres of overwintering habitat would be provided.

## **IMPLEMENTATION CONSIDERATIONS**

Backwater dredged material could be used for topsoil needed for implementation of future Channel Maintenance Management Plan objectives in lower pool 4, such as island building. If habitat project dredging is conducted using traditional hydraulic dredging methods, a large containment area may be difficult to find for the total estimated quantity. Use of a small, transportable dredge would be necessary because the area to be dredged is not accessible from the main navigation channel by deeper draft vessels. Access dredging to the lakes would be prohibitively excessive and costly. Project dredging would begin with Clear Lake, followed by Third Lake, and then Schmoker's Lake in order to achieve the most fisheries benefits. The project could be completed in stages as funding permits.

Project features within the closed area must be compatible with the purpose of the closed area, so construction activities would likely be restricted during the waterfowl hunting season.

## **FINANCIAL DATA**

The estimated cost for the general planning, design, and construction of the total project is \$1,000,000. The project features would be located entirely on the Upper Mississippi River National Wildlife and Fish Refuge. Therefore, in accordance with Section 906(e) of the Water Resources Development Act of 1986, the total cost of the proposed project would be 100% Federal. The U.S. Fish and Wildlife Service manages the lands and would be responsible for operation, maintenance, and rehabilitation of project features, in accordance with Section 107(b) of the Water Resources Development Act of 1992. However, no O&M dredging would be required because the continued operation of the culvert structures will limit future sedimentation.

## **STATUS OF PROJECT**

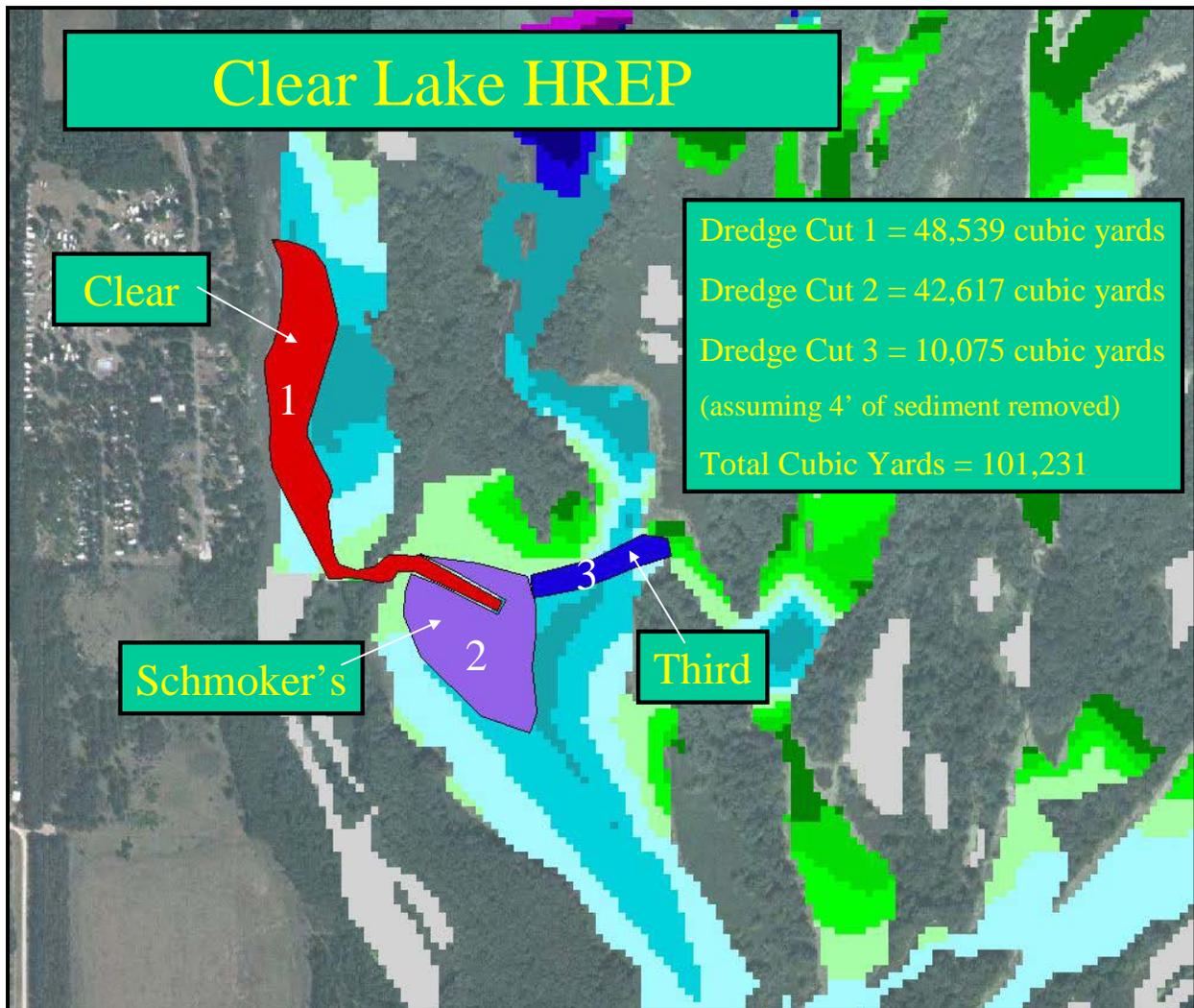
The Finger Lakes habitat project was completed in 1993 as part of the EMP. Physical, chemical, vegetation, and biological monitoring of the Finger Lakes were done until 1997. The Dam 4 embankment project was completed in 2009 and included construction of a berm on the upstream side of the embankment. About 6,500 cubic yards of topsoil was provided by dredging in Clear Lake. In the future, if topsoil is needed for potential island construction in Peterson Lake, dredging would continue in Clear, Third, and Schmoker's Lakes as appropriate to provide the quantity of topsoil needed. A small portion of the dredging in Clear Lake was completed in 2009 as described above.

The Fish & Wildlife Workgroup, the River Resources Forum, and the System Ecological Team have endorsed this project.

Partnering organizations include the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and the Minnesota and Wisconsin Departments of Natural Resources.

## **POINTS OF CONTACT**

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**Figure 3. Proposed Project Features**  
(Dredging quantities include about 6,500 cubic yards dredged in 2009 from Dredge Cut 1)