Lessard-Sams Outdoor Heritage Council Fiscal Year 2020 / ML 2019 Request for Funding

Date: May 31, 2018

Program or Project Title: Marsh Lake Phase III

Funds Requested: \$1,300,000

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County Locations: Lac qui Parle

Regions in which work will take place:

Prairie

Activity types:

Enhance

Priority resources addressed by activity:

Wetlands

Abstract:

The dam for the 5100-acre Marsh Lake will be modified to allow for improved habitat management and the Pomme de Terre will be rerouted to its original channel outlet to restore floodplain habitats thereby reducing sedimentation coming into the shallow lake. This Phase III request seeks funding to accommodate a 6-month weather related contract extension due to multiple flood events in 2017, additional clay borrow material, and the need for extensive on-site construction supervision.

Design and scope of work:

The over 31,000 acre Lac qui Parle Wildlife Management Area (WMA) includes a mixture of grasslands, seasonal and permanent wetlands, and scattered croplands managed for waterfowl and upland game birds. The WMA is a critical stopover for both ducks and geese. Peak numbers of 150,000 Canada geese and 20,000 mallards are recorded. A portion of Lac qui Parle Lake (6,400 acres) is managed as a waterfowl refuge while immediately upstream a portion of Marsh Lake (5,100 acres) is managed as a Migratory Feeding and Resting Area.

In 1938 the Pomme de Terre River, carrying the runoff from a watershed nearly 560,000 acres in size, was re-routed to empty into Marsh Lake. Since that time, over 80% of the Pomme de Terre watershed has been developed for agriculture. A fixed-crest dam built at the same time kept the lake from having naturally occurring fluctuations in depth. Since 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 low 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. Although Marsh Lake provides an open water area for migratory waterfowl to rest and islands for nesting colonial waterbirds, degradation of the aquatic ecosystem there limits habitat suitability for many species of fish and wildlife." A robust population of common carp added to the turbidity that is aggravated by wave action due to the lake's shallow depth (maximum 3 feet), large size and northwest to southeast orientation. This combination of factors has resulted in increased sedimentation and sediment suspension through wave action, severely degrading the habitat within the lake.

To resolve the habitat degradation at Marsh Lake, plans were developed to modify the dam to allow for improved habitat management



and allow for fish passage and to reroute the Pomme de Terre River to its original outlet to reduce sedimentation coming into the shallow lake. The Marsh Lake Phase I OHF funding provided engineering, project design, and preliminary project work. Phase II OHF funding provided the majority of money needed for project work. Phase III funding is being requested to address a projected funding shortfall resulting from extreme flooding events that have occurred during construction and the need for extensive construction oversight. Funds will be provided to the Upper Minnesota River Watershed which will in turn provide them to the US Army Corps for Engineer for Marsh Lake project costs.

Note that \$500,000 is available from the ML17 DNR Stream Habitat - Phase II OHF appropriation to be redirected to Marsh Lake project and would be compatible with it's stated goals. The DNR views the Marsh Lake Project as a priority and would accept LSOHC direction to use this funding for Marsh Lake. Use of the DNR Stream Habitat Phase II funding would reduce this Marsh Lake Phase III request to \$800,000.

Which sections of the Minnesota Statewide Conservation and Preservation Plan are applicable to this project:

- H4 Restore and protect shallow lakes
- H5 Restore land, wetlands and wetland-associated watersheds

Which other plans are addressed in this proposal:

- Long Range Duck Recovery Plan
- Minnesota Prairie Conservation Plan

Describe how your program will advance the indicators identified in the plans selected:

The Minnesota Duck Recovery Plan includes objectives for both breeding and migrating, both of which will be supported by work at Marsh Lake. Waterfowl production habitat occurs within prairie habitat complexes 4-9 square miles in size with at least 20% of the area is wetland and 40% is grassland. At least one-half of the acreage should be temporary or seasonal basins and ideally each complex will include one shallow lake over 50 acres. Completion of the work at Marsh Lake, combined with the surrounding prairie landscape of wetlands and prairies, contributes to the needed landscape. The word 'wetland' appears 233 times in the Minnesota Prairie Conservation Plan. Within Prairie Plan core areas, 83,169 acres of restored wetlands are needed. It also makes the assumption that high numbers of prairie wetlands will be actively managed.

Which LSOHC section priorities are addressed in this proposal: Prairie:

Not Listed

Describe how your program will produce and demonstrate a significant and permanent conservation legacy and/or outcomes for fish, game, and wildlife as indicated in the LSOHC priorities:

Enhancement of the 5100-acre Marsh Lake through the dam modification and rerouting of the Pomme de Terre River is a unique once-in-a-lifetime opportunity that makes a significant habitat impact. Multiple strategic habitat plans, including the Minnesota Comprehensive Prairie Plan, the Minnesota Duck Recovery Plan, and the Minnesota Shallow Lakes Plan, all call for the type of work being undertaken. The size of the project, 5100 acres, will produce significant results for waterfowl and other wetland-dependent species. The design of the dam will allow for future management actions that will 'reset' shallow lake conditions to optimize wildlife habitat. Rerouting of the Pomme de Terre will further reduce sedimentation and extend positive habitat conditions.

Describe how the proposal uses science-based targeting that leverages or expands corridors and complexes, reduces fragmentation or protects areas identified in the MN County Biological Survey:

The Marsh Lake Ecosystem Restoration Project is compatible with and complementary to adjacent land uses and existing conservation plans. Any adverse effects caused by the Project are anticipated to be short term or minor. The Marsh Lake Project supports the goals and purposes in the Minnesota Prairie Plan. Long Range Duck Recovery plan, and the Minnesota Shallow Lake Plan. The Project purposes directly support goals and directions in the Big Stone County Water Plan and the Upper Minnesota River Watershed District Watershed Plan. There are several Minnesota County Biological Survey (MCBS) Sites of Biodiversity Significance near the proposed Project area. These sites contain Dry Hill Prairie and Mesic Prairie native plant communities. The rare plants and butterflies listed on the database reports are associated with these prairies. The MCBS sites are outside the project area, but will provide buffers and complimentary habitat to the completed project.

How does the proposal address habitats that have significant value for wildlife species of greatest

conservation need, and/or threatened or endangered species, and list targeted species:

Minnesota Statewide Conservation and Preservation Plan for species in greatest conservation need has identified significant loss and degradation of habitat as the number one management challenge. Over 20 species that rely on shallow lakes and wetlands are listed as species of special concerns. The Project would result in enhancing shallow lake habitat conditions and water quality within Marsh Lake, restoring the Pomme de Terre River to its original channel and floodplain, enhanced riverine and floodplain processes, and restored fish connectivity to the Minnesota River and the Pomme de Terre River. Availability for colonial waterbird nesting at Marsh Lake and on Marsh Lake islands would be part of the overall project. Colonial waterbird nesting, including American White Pelican nesting, on Marsh Lake is most successful during years with low water levels.

Identify indicator species and associated quantities this habitat will typically support:

Mallards are a commonly used indicator species for numerous waterfowl plans due to (1) extensive research that has occurred with this species on many aspects of its life history, habitat requirement and response to management, and (2) the fact that it is representative of the "typical" upland nesting duck. Both Joint Venture waterfowl plans that cover Minnesota – the Prairie Pothole Joint Venture and the Upper Mississippi River and Great Lakes Region Joint Venture (UMRG LRJV) – use the mallard as a focal species. The biological model used in the UMRG LRJV to estimate habitat needs to support mallard population growth uses a simple but accepted rate of 1 mallard pair per hectare (1 pair per 2.47 acres) of wetland habitat (noting that upland habitat for nesting is also obviously needed). Trumpeter swans could also be used as an indicator species relative to assessing wetland habitat work. Trumpeter swans are a recognizable feature on wetlands and their restoration is a modern wildlife management success story. Trumpeter swans are strictly territorial on their breeding areas with shoreline complexity and food availability being factors in defining the area being defended. Though reported territories can range in size from 1.5 - >100 hectares, a reasonable expectation is that one additional trumpeter swan pair would be supported by each 50 acres of wetlands protected, restored, or enhanced.

Outcomes:

Programs in prairie region:

• Protected, restored, and enhanced shallow lakes and wetlands Specific monitoring identified in the Marsh Lake feasibility report and environmental assessment are based on nine project ecosystem objectives and associated monitoring activities. Monitoring activities would be conducted in the first 10 years following project construction and include water level monitoring, vegetation cover estimates, secchi disk depth determination, submerged aquatic plant surveys, fall waterfowl surveys, shorebird surveys, colonial waterbird surveys, fall fish surveys, and stream electrofishing surveys.

How will you sustain and/or maintain this work after the Outdoor Heritage Funds are expended:

Minnesota DNR and federal staff will evaluate the infrastructure and resulting habitat change resulting from this project. Future maintenance and enhancement will be undertaken by DNR staff as needed using annual funding requests to available DNR sources. Specific monitoring identified in the Marsh Lake feasibility report and environmental assessment are based on nine project ecosystem objectives and associated monitoring activities and will conducted in the 10 year period following construction.

Explain the things you will do in the future to maintain project outcomes:

Year	Source of Funds	Step 1	Step 2	Step 3
Annual	US Army Corps of Engineers	Water Level Monitoring		
Years 1,5,10 post- construction	DNR	Aerial vegetation monitoring	Stream electrofishing monitoring	
Years 5, 10 post- construction	DNR	Submerged aquatic lake survey		
Years 1-10 post- construction	DNR	Weekly secchi disk readings, fall waterfo wl, fish and waterbird colony surveys		
Post- drawdown years	DNR	Late summer shorebird surveys, fall fish surveys		

What is the degree of timing/opportunistic urgency and why it is necessary to spend public money for this work as soon as possible:

The Marsh Lake project was developed by an interdisciplinary planning team of MN DNR and US Army Corps of Engineers (USACE) staff. It received unanimous unconditional approval by the federal Civil Works Review Board in October, 2011. The proposal elements reflect the strategies of the DNR 2006 Duck Recovery Plan and 2010 Shallow Lake Plan. These plans underwent substantial review by nearly all

the major wildlife conservation groups in Minnesota. Stakeholders have been supportive of the strategies outlined in the plan, although some have expressed frustration with the long timeline. The USACE announced the beginning of Marsh Lake construction on April 24, 2017. The estimated cost of Marsh Lake is only 5% of a typical habitat restoration project of this size. Federal funding combined with state OHF money have gotten the project off the ground thanks to many peoples' efforts. The requested funding will allow project completion.

How does this proposal include leverage in funds or other effort to supplement any OHF appropriation:

Federal funding has come to this project through appropriations appropriated to the US Army Corps of Engineers. The total project cost is currently capped at \$13 million. Federal funding provided 65% of this amount; non-federal funding provided 35%. A previous OHF grant provided an initial \$2.63 million for engineering/design work and some construction funds. A Phase II OHF appropriation provided an additional \$2 million. This current OHF proposal seeks additional funds to address needs resulting from flood events that have impacted construction and the need for extensive construction oversight by the USACE. USACE has submitted a request for a reauthorization of the Marsh Lake Ecosystem Restoration project for an additional \$2M in the next Water Resources Development Act (WRDA) passed by congress. If authorized and appropriated, the Corps would be able to provide 65% of the additional project funds needed to take project through completion.

Relationship to other funds:

• Federal funding appropriated to the US Army Corps of Engineers

Describe the relationship of the funds:

Federal funding has come to this project through appropriations expended by the US Army Corps of engineers. Federal funding was provide at a match rate of 65% federal to 35% non-federal.

Per MS 97A.056, Subd. 24, Any state agency or organization requesting a direct appropriation from the OHF must inform the LSOHC at the time of the request for funding is made, whether the request is supplanting or is a substitution for any previous funding that was not from a legacy fund and was used for the same purpose:

This request is to address needed work at Marsh Lake that would not be attainable but for the appropriation.

Describe the source and amount of non-OHF money spent for this work in the past:

Not Listed

Activity Details

Requirements:

If funded, this proposal will meet all applicable criteria set forth in MS 97A.056 - Yes

Will restoration and enhancement work follow best management practices including MS 84.973 Pollinator Habitat Program - Yes

Is the restoration and enhancement activity on permanently protected land per 97A.056, subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15 - Yes (WMA, Public Waters, Federal)

Do you anticipate federal funds as a match for this program - Yes

Are the funds confirmed - No

What is the approximate date you anticipate receiving confirmation of the federal funds - November 2019

Land Use:

Will there be planting of corn or any crop on OHF land purchased or restored in this program - No

Accomplishment Timeline

Activity	Approximate Date Completed
Marsh Lake Construction	June 2020

Budget Spreadsheet

Total Amount of Request: \$1,300,000

Budget and Cash Leverage

Budget Name	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	\$0	\$0		\$0
Contracts	\$1,300,000	\$0		\$1,300,000
Fee Acquisition w/ PILT	\$0	\$0		\$0
Fee Acquisition w/o PILT	\$0	\$0		\$0
Easement Acquisition	\$0	\$0		\$0
Easement Stewardship	\$0	\$0		\$0
Travel	\$0	\$0		\$0
Pro fessio nal Services	\$0	\$0		\$0
Direct Support Services	\$0	\$0		\$0
DNR Land Acquisition Costs	\$0	\$0		\$0
Capital Equipment	\$0	\$0		\$0
Other Equipment/Tools	\$0	\$0		\$0
Supplies/Materials	\$0	\$0		\$0
DNR IDP	\$0	\$0		\$0
Total	\$1,300,000	\$0	-	\$1,300,000

Amount of Request: \$1,300,000

Amount of Leverage: \$0

Leverage as a percent of the Request: 0.00%

DSS + Personnel: \$0

As a % of the total request: 0.00%

Easement Stewardship: \$0

As a % of the Easement Acquisition: -%

Does the amount in the contract line include R/E work?

All OHF money requested for Marsh Lake (Phases I, II, and III) is for design, engineering, construction, and construction oversight leading to the enhancement of Marsh Lake.

Describe and explain leverage source and confirmation of funds:

USACE submitted a request for a re-authorization of the Marsh Lake Ecosystem Restoration project for an additional \$2M in the next Water Resources Development Act (WRDA) passed by congress. If authorized and appropriated, the Corps would be able to provide 65% of the additional project funds needed for completion.

Does this proposal have the ability to be scalable? - No

Output Tables

Table 1a. Acres by Resource Type

Туре	Wetlands	Prairies	Forest	Habitats	Total
Restore	0	0	0	0	0
Protect in Fee with State PILT Liability	0	0	0	0	0
Protect in Fee W/O State PILT Liability	0	0	0	0	0
Pro tect in Easement	0	0	0	0	0
Enhance	0	0	0	0	0
Total	0	0	0	0	0

Table 2. Total Requested Funding by Resource Type

Туре	Wetlands	Prairies	Forest	Habitats	Total
Restore	\$0	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0
Pro tect in Easement	\$0	\$0	\$0	\$0	\$0
Enhance	\$1,300,000	\$0	\$0	\$0	\$1,300,000
Total	\$1,300,000	\$0	\$0	\$0	\$1,300,000

Table 3. Acres within each Ecological Section

Туре	Metro/Urban	Forest/Prairie	SEForest	Prairie	Northern Forest	Total
Restore	0	0	0	0	0	0
Protect in Fee with State PILT Liability	0	0	0	0	0	0
Protect in Fee W/O State PILT Liability	0	0	0	0	0	0
Protect in Easement	0	0	0	0	0	0
Enhance	0	0	0	0	0	0
Total	0	0	0	0	0	0

Table 4. Total Requested Funding within each Ecological Section

Туре	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
Restore	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$1,300,000	\$0	\$1,300,000
Total	\$0	\$0	\$0	\$1,300,000	\$0	\$1,300,000

Table 5. Average Cost per Acre by Resource Type

Туре	Wetlands	Prairies	Forest	Habitats
Restore	\$0	\$0	\$0	\$0
Pro tect in Fee with State PILT Liability	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$0

Table 6. Average Cost per Acre by Ecological Section

Туре	Metro/Urban	Forest/Prairie	SEForest	Prairie	Northern Forest
Restore	\$0	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$0	\$0

Target Lake/Stream/River Feet or Miles

0

I have read and understand Section 15 of the Constitution of the State of Minnesota, Minnesota Statute 97A.056, and the Call for Funding Request. I certify I am authorized to submit this proposal and to the best of my knowledge the information provided is true and accurate.

Parcel List

Explain the process used to select, rank and prioritize the parcels:

The Marsh Lake project was developed by an interdisciplinary planning team of MN DNR and COE staff. It received unanimous unconditional approval by the federal Civil Works Review Board in October, 2011. In addition, the proposal is endorsed as a top priority within the entire DNR representing all divisions. The proposal elements reflect the strategies of the DNR 2006 Duck Recovery Plan and 2010 Shallow Lake Plan. These plans underwent substantial review by nearly all the major wildlife conservation groups in Minnesota. Stakeholders have been supportive of the strategies outlined in the plan.

Section 1 - Restore / Enhance Parcel List

Lac qui Parle

Name	TRDS	Acres	Est Cost	Existing Protection?
Marsh Lake - Lac qui Parle WMA	12043230	0	\$800,000	Yes

Section 2 - Protect Parcel List

No parcels with an activity type protect.

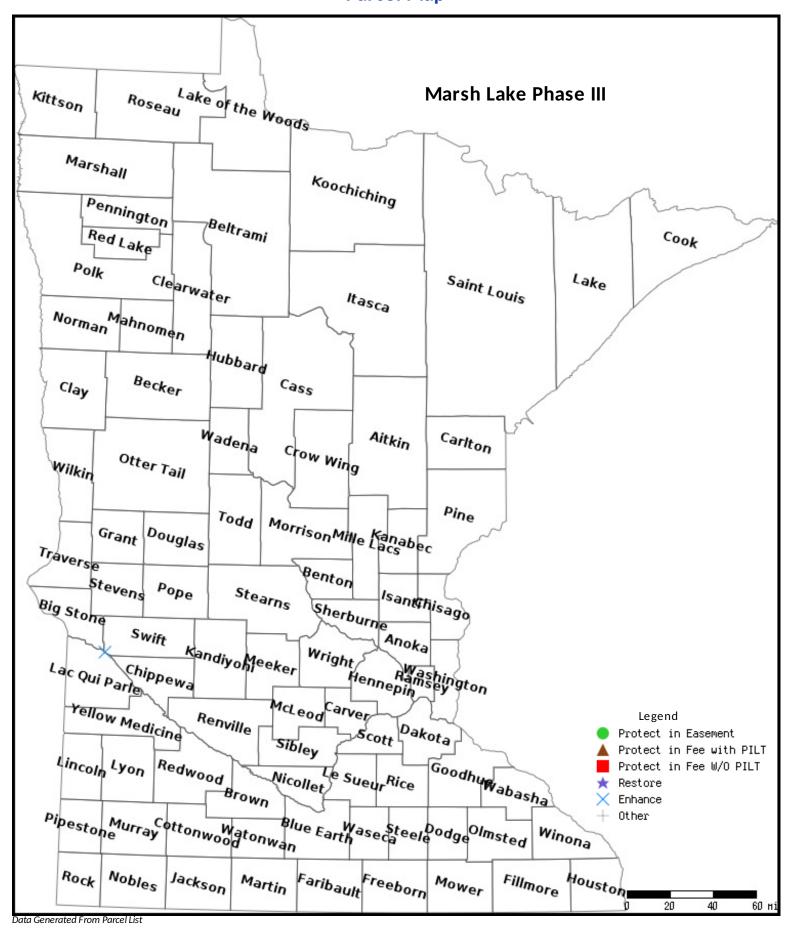
Section 2a - Protect Parcel with Bldgs

No parcels with an activity type protect and has buildings.

Section 3 - Other Parcel Activity

No parcels with an other activity type.

Parcel Map

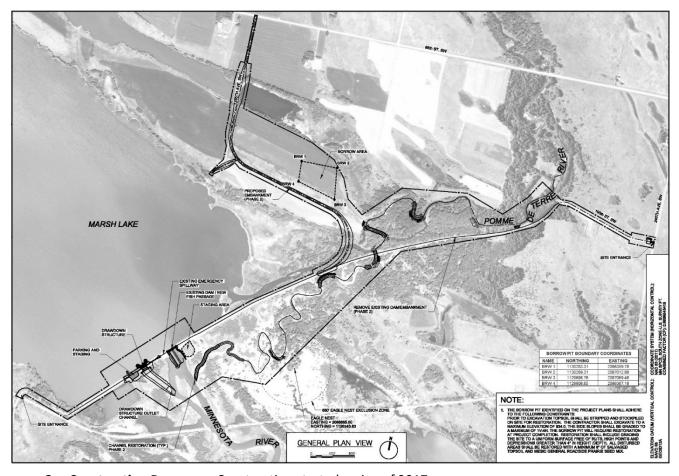


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Marsh Lake Ecosystem Restoration Project

1. Main Project features

- Water Control Drawdown Structure
- Fish Passage
- Re-meander of Pomme de Terre River back into its historic channel



- 2. Construction Progress Construction started spring of 2017.
 - 2017 season consisted of temporary drawdown structure cofferdam, Pomme de Terre Channel excavation, and toe-wood installations. Three separate flood events impacted contractor's progress in year one.
 - 2018 construction will focus on completing the concrete water control drawdown structure and fish passage structure.
 - 2019 construction will comprise of reroute of the Pomme de Terre River and new dam embankment
- **3. Funding** With approximately 15% of construction complete as of May 2018, current construction administration costs are more than 60% above initial estimate.
 - Inclement weather in the first construction season impacted contractor's efforts.
 - Construction complexities and challenges have resulted in an increased need for contract oversight and engineering during construction.

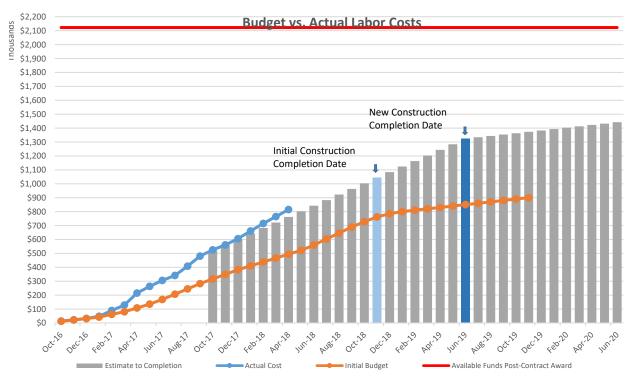




Figure 1-Temporary cofferdam at location of future water control drawdown structure



Figure 2- (Left) October 2017 flood event and (right) Pomme de Terre River channel excavation, January 2018.

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Last Saturday was a day some people living in and near Appleton, Minn., thought might never come. But it did, and a gathering in that town, population about 1,400, near the state's western border with South Dakota, demonstrates once again the power of persistence when natural resources and their conservation are at stake.

Among those on hand was Sen. Amy Klobuchar, D-Minn., whose help in Washington was crucial to the milestone being celebrated. The hard work of many others also was important, including that of local residents, from county sheriffs to small-town mayors, as well as officials from the state Department of Natural Resources (DNR) and a raft of concerned conservation groups.

At issue was Marsh Lake, all 5,100 acres of it, whose average depth is less than 3 feet.

Throughout most of recorded time, Marsh Lake was an oasis for all manner of migratory birds, especially ducks and shorebirds, as well as, more recently, Canada geese and white pelicans.

That was until the 1930s, when, for reasons that made sense at the time, a dam was built at the lake's outlet as part of the Works Progress Administration, or WPA — a Depression-era program intended to give people jobs. The dam was one of three built at the time on the Minnesota River to control flooding.

As part of the project, the Pomme de Terre River was rerouted to flow into Marsh Lake upstream of the 1,200-foot-long dam.

Taken together, the dam and the Pomme de Terre's changed course acted as a double whammy on Marsh Lake:

Where once lay a huge, shallow stretch of vegetation-rich water whose level fluctuated with the weather — completely dry during drought to overflowing at times during spring rains — now sat a stagnant cesspool of turbidity whose most plentiful resident species were common carp.

Dave Trauba, a regional wildlife manager in New Ulm, previously was the Lac qui Parle area wildlife manager who oversaw Marsh Lake and the wildlife-rich region surrounding it.

"I and a lot of other people worked to improve Marsh Lake the entire 24 years I was stationed there," Trauba said.

But not until Saturday was Trauba assured, finally, that his efforts and those of many others had paid off:

The Army Corps of Engineers announced it would spend \$7.6 million of federal money, along with about \$4 million of Minnesota Legacy Amendment money recommended by the Lessard Sams Outdoor Heritage Council, to replace the old dam with a V-notched weir at Marsh Lake. The new structure will allow water levels to fluctuate seasonally.

Additionally, a drawdown structure will be built that will allow wildlife managers to simulate periodic droughts, and the Pomme de Terre River will be rerouted to enter the Minnesota River below the dam.

Final project plans will be completed later this year, with construction contracts signed by early 2017 and work beginning shortly thereafter.

With luck, the Corps of Engineers, DNR and others will agree to draw down the lake during construction. Plans are to reduce it to 936 feet above sea level from its present 938.2 — enough to simulate the 1,600 acres of mud flats that were exposed in the 1976 and 1988 droughts.

The lower water level will produce multiple positive outcomes.

Sago pondweed — which ducks thrive on, and which was once prolific in the lake — is expected to return, and with it clean water.

Downstream, Lac qui Parle (the lake) will benefit, as will its fish, because the new dam will be constructed so all finned species, not just carp, can swim upstream into Marsh Lake, which is expected to act as a seasonal nursery for game fish such as northern pike.

Still in development is the DNR's Marsh Lake management plan, an undertaking that concerned conservationists should follow closely to ensure that periodic drawdowns of the lake will in fact occur indefinitely — something fisheries managers have been known to protest in the past.

"Marsh Lake didn't degrade overnight, and we're not going to solve these problems overnight," Trauba said. "I'd be lying if I said we know exactly how the lake will respond once we bring management to bear on it.

"But every time we do a drawdown, we'll put more of the pieces back together."

In addition to Klobuchar, Sen. Al Franken and Rep. Collin Peterson, fellow Democrats, were among Minnesota congressional delegation members who worked with the Corps to complete the project's funding.

Ducks Unlimited's Washington office also was a player, as was its state staff, headed by Jon Schneider, as well as the Upper Minnesota River Watershed District, administered by Dianne Radermacher, and many others, including individual conservationists such as Win Mitchell, a state DU volunteer leader who counts Marsh Lake and its environs among his favorite parts of the state.

Everyone's efforts had one goal, as Klobuchar said in Appleton on Saturday:

"To put the marsh back in Marsh Lake."