

Lessard-Sams Outdoor Heritage Council

Laws of Minnesota 2012 Final Report



Date: November 06, 2019

Program or Project Title: Protect Aquatic Habitat from Asian Carp

Funds Recommended: \$7,500,000

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Legislative Citation: ML 2012, Ch. 264, Art. 1, Sec. 2, Subd. 5(h)

Appropriation Language: \$7,500,000 in the second year is to the commissioner of natural resources to design, construct, operate, and evaluate structural deterrents for Asian carp to protect Minnesotas aquatic habitat. Use of this money requires a one-to-one match for projects on state boundary waters. ML 2015, First Special Session, Ch. 2, Art. 1, Sec. 7 amended to read: \$7,500,000 in the second year is to the commissioner of natural resources for design, construction, including acquisition, operation, and evaluation of structural deterrents for invasive carp to protect Minnesotas aquatic habitat. Use of this money requires a one-to-one match for projects on state boundary waters. M.L. 2017, Chapter 91, Article 1, Section 2 (h) Protect Aquatic Habitat from Invasive Carp - \$7,500,000 in the second year is to the commissioner of natural resources for design construction, including acquisition, operation, and evaluation of structural deterrents for invasive carp to protect Minnesotas aquatic habitat. Use of this money requires a one-to-one match for projects on state boundary waters. A match is not required for design or feasibility studies. This appropriation is available until June 30, 2019.

County Locations: Blue Earth, Cottonwood, Hennepin, Jackson, and Waseca.

Eco regions in which work was completed:

- Northern Forest
- Forest / Prairie Transition
- Southeast Forest
- Prairie
- Metro / Urban

Activity types:

- Enhance
- Barrier construction

Priority resources addressed by activity:

- Habitat

Summary of Accomplishments:

Funding was used to design, install and evaluate deterrent barrier options in Minnesota and to cost share a barrier in northwest Iowa to limit or slow the movement of Invasive carp.

Process & Methods:

Activity 1 Complete design and all permit requirements for a "sweeping" electrical barrier at Lock and Dam 1. The MN DNR believed that the best approach to keep Invasive Carp out of the upper Mississippi River watershed was to close the Upper St. Anthony Falls Lock. The lock is administered by the US Army Corps of Engineers and required an act of Congress to shut down. Minnesota senators and representatives successfully added an amendment to the Water Resources Reform and Development Act (WRRDA) that called for Upper St. Anthony Falls lock closure within one year of passage of the bill. The bill passed both chambers of the federal legislature and was signed into law by President Obama on June 10, 2014. Lock closure happened June 10, 2015.

Prior to lock closure, the MN DNR initiated an invasive carp deterrent project at Lock and Dam 1 based on the status of carp population at the time and the uncertain political will to close a federal lock. The DNR contracted with Smith-Root Inc. to design an electrical barrier at Lock and Dam 1. With the passage of the 2014 WRRDA bill, construction of a Lock and Dam 1 barrier was not necessary. But, due to the timing of passage of the bill, there was no cost savings by terminating the design contract for the electrical barrier. Also, by completing the design, the MN DNR has a better understanding of the costs, potential effectiveness, and safety concerns associated with this technology. The contractor submitted a final design to the DNR in 2014.

Activity 2 Complete design, acquire permits, and construct deterrent barriers in Minnesota's portion of the Missouri River watershed. Waters in the southwest corner of Minnesota were vulnerable to Invasive Carp expansion from the Missouri River watershed. MN DNR fisheries identified locations to prevent Invasive carp from entering Minnesota waters and from entering the Mississippi River and Minnesota River tributaries through watershed breaches.

- Okabena Creek - Des Moines River Watershed Breach: The DNR acquired a flowage easement and removed two road culverts. With these culverts removed, the township gravel road acts as a physical berm to separate the watersheds.
- Okabena Creek Barrier: The DNR installed an electric barrier by removing two small culverts and installing a 12 foot by 6 foot electrified culvert. The barrier prevents upstream movement of fish.
- Little Sioux River - Des Moines River Watershed Breach: The DNR worked with the Jackson County Soil and Water Conservation District and a private landowner to build up an earthen dike berm to disconnect the watersheds.
- Little Sioux River - Des Moines River Watershed Breach: The DNR worked with the Jackson County Highway Department and the Minnesota Department of Transportation to install a grate system and tile line caps to prevent fish from moving across a watershed boundary via the tile line system.
- Minnesota River - Des Moines River Watershed Breach: An earthen plug was installed in a ditch to reestablish watershed disconnection.
- Little Sioux River - Rock River Watershed Breach: An earthen plug was installed in a ditch and an outlet structure was modified to reestablish watershed disconnection.
- Illinois Lake Protective Barrier: The DNR installed an electric barrier on a WMA downstream of the outlet of Illinois Lake.

Activity 3 Develop cost share agreement with State of Iowa to construct barrier at Lower Gar Outlet.

A joint powers agreement with Iowa DNR was executed to help share costs on a barrier to prevent Invasive Carp in the Missouri River watershed from entering Minnesota. An electric barrier at the outlet of Lower Gar Lake became fully operational in December 2012.

Activity 4 Complete evaluation on feasibility of barriers in the Minnesota River watershed.

The Minnesota River is a free flowing system whose watershed covers much of southern Minnesota. The MN DNR contracted with the Water Resource Center at Minnesota State - Mankato on a project to evaluate several Minnesota River aspects including barrier feasibility. Increasing the understanding of this system aided the DNR in evaluating deterrent barrier potential on the Minnesota River and its tributaries. Additionally, the project provided information on habitat suitability and described the Minnesota/Red River connection. A final report was submitted to the MN DNR in July 2018.

Activity 5 Implement and evaluate deterrent barriers at Lock and Dams.

The susceptible portion of the St. Croix River is not conducive to electrical barriers due to the high level of recreational use (safety concerns) and the required cooperation from Wisconsin, which has expressed limited to no interest in constructing a barrier. The best alternative is exploring deterrent technologies in lock(s) below the confluence with the Mississippi River. The MN DNR contracted with the Minnesota Aquatic Invasive Species Research Center to evaluate the potential effectiveness of flow modifications and an existing acoustic deterrent in Mississippi River Lock and Dam 8 to prevent Invasive Carp movement. A final report was submitted to the MN DNR in March 2019.

Activity 6 Complete design, acquire permits and construct deterrent barriers in the Minnesota River watershed.

The uncertainty associated with a barrier (effectiveness, timeline, cost, native community impacts, and ability to construct) on the Minnesota River was high. This was substantiated by the evaluation completed by Minnesota State Mankato (Activity 4). Given this scenario, DNR Fisheries identified high value aquatic resources that could be protected at locations in tributaries. Construction of the two electric barriers, Madison/Eagle lakes protective barrier and Elysian/Buffalo lakes protective barrier, were completed in February 2019.

Activity 7 Lock and Dam 5 Acoustic Deterrent Feasibility Study

Mississippi River Lock and Dam 5 was identified as a potential location for installation of an acoustic barrier to deter upstream movement of Invasive Carp. Before any potential construction project, the DNR required a feasibility study to estimate the

effectiveness, construction costs, and annual operation/maintenance costs. The MN DNR contracted with the University of Minnesota-Duluth to complete the study. Study results suggest further development of the technology was needed before deployment at this site. A final report was submitted to the MN DNR in December 2018.

Explain Partners, Supporters, & Opposition:

This project contained multiple activities with a variety of partners involved.

Activity 1 - US Army Corps of Engineers, Smith-Root Inc, Barr Engineering

Activity 2 - Landowners, Counties, MN Department of Transportation

Activity 3 - State of Iowa

Activity 4 - Minnesota State University - Mankato

Activity 5 - University of Minnesota - Twin Cities, US Army Corps of Engineers

Activity 6 - Landowners, Counties

Activity 7 - University of Minnesota - Duluth, US Army Corps of Engineers

The overall project was supported by multiple MN DNR divisions.

The Minnesota Stop Carp Coalition, a platform for multiple state and national environmental NGO's invested in the invasive carp issue, was a strong supporter of all activities throughout the duration of the project.

The state of Wisconsin expressed no interest in exploring barrier options on border waters, limiting activities/projects on the St. Croix and lower Mississippi River.

Additional Comments:

Exceptional challenges, expectations, failures, opportunities, or unique aspects of program

The original allocation was to protect Minnesota waters through the implementation of deterrents. The activities included: 1) Designing and constructing a barrier at Lock and Dam 1 to protect northern Minnesota waters; 2) Investing in barriers in southwest MN and NW Iowa to prevent invasive carp expansion from the Missouri River; and 3) Exploring barrier options to protect the St. Croix and Minnesota rivers. A majority of the allocation was dedicated to installing an electric barrier at Lock and Dam 1. It became apparent during the design phase that construction, operation, and maintenance costs were going to be substantial. This information help support the efforts to get Upper St. Anthony Falls Lock closed, accomplishing the same objective cheaper. Given this change of circumstances, the MN DNR thanks the council for the flexibility to shift activities.

Other Funds Received:

- US Fish and Wildlife Service Grants, Minnesota State University - Mankato, University of Minnesota - Duluth, University of Minnesota - Twin Cities

How were the funds used to advanced the program:

Funding was used to advance Invasive Carp preventative actions to prevent invasive carp population expansion and limit negative impacts.

What is the plan to sustain and/or maintain this work after the Outdoor Heritage Funds are expended:

Costs associated with barrier operation and maintenance are the responsibility of the MN DNR.

The MN DNR continues to work on preventative measures to stop or slow invasive carp populations into Minnesota. This includes working with other Upper Mississippi River states and federal agencies to implement actions downstream to prevent expansion into Minnesota.

The University of Minnesota and other partners continue to work on technologies to prevent movement and increase mortality.

Outcomes:

The original accomplishment plan stated the program would

Programs in the northern forest region:

- Not Listed

How will the outcomes be measured and evaluated?

Not Listed

Programs in forest-prairie transition region:

- Not Listed

How will the outcomes be measured and evaluated?

Not Listed

Programs in metropolitan urbanizing region:

- Not Listed

How will the outcomes be measured and evaluated?

Not Listed

Programs in southeast forest region:

- Asian carp have less impact on native species and ecosystems. Fishing and boating will not be negatively affected.

How will the outcomes be measured and evaluated?

Not Listed

Programs in prairie region:

- Not Listed

How will the outcomes be measured and evaluated?

Not Listed

Budget Spreadsheet

Final Budget line item reallocations are allowed up to 10% and do not need require an amendment to the Accomplishment Plan

Total Amount: \$7,500,000

Budget and Cash Leverage

Budget Name	Request	Spent	Cash Leverage (anticipated)	Cash Leverage (received)	Leverage Source	Total (original)	Total (final)
Personnel	\$60,000	\$0	\$0	\$0		\$60,000	\$0
Contracts	\$6,991,000	\$6,426,200	\$0	\$1,414,000	DNR, USFWS, RIM, Iowa, Universities	\$6,991,000	\$7,840,200
Fee Acquisition w/ PILT	\$0	\$0	\$0	\$0		\$0	\$0
Fee Acquisition w/o PILT	\$0	\$0	\$0	\$0		\$0	\$0
Easement Acquisition	\$0	\$0	\$0	\$0		\$0	\$0
Easement Stewardship	\$0	\$0	\$0	\$0		\$0	\$0
Travel	\$0	\$0	\$0	\$0		\$0	\$0
Professional Services	\$261,000	\$85,500	\$0	\$0		\$261,000	\$85,500
Direct Support Services	\$98,000	\$97,900	\$0	\$0		\$98,000	\$97,900
DNR Land Acquisition Costs	\$0	\$0	\$0	\$0		\$0	\$0
Capital Equipment	\$0	\$0	\$0	\$0		\$0	\$0
Other Equipment/Tools	\$90,000	\$110,000	\$0	\$0		\$90,000	\$110,000
Supplies/Materials	\$0	\$0	\$0	\$0		\$0	\$0
DNR IDP	\$0	\$0	\$0	\$0		\$0	\$0
Total	\$7,500,000	\$6,719,600	\$0	\$1,414,000		\$7,500,000	\$8,133,600

Personnel

Position	FTE	Over # of years	Spent	Cash Leverage	Leverage Source	Total
Fisheries Specialist	1.00	1.00	\$0	\$0		\$0
Admin Asst	0.00	0.00	\$0	\$0		\$0
Total	1.00	1.00	\$0	\$0		\$0

Capital Equipment

Item Name	Spent	Cash Leverage	Leverage Source	Total
Truck	\$0	\$0		\$0
Total	\$0	\$0		\$0

Explain any budget challenges or successes:

Budget had to be altered after the Upper St. Anthony Falls Lock closure.

Breakdown of leveraged money by activity:

Activity 1: MN DNR in-kind

Activity 2: \$560,000 from Reinvest in Minnesota credits; \$74,000 in DNR in-kind salary

Activity 3: \$300,000 invested by Iowa DNR; \$400,000 invested by Iowa local governments/private donations

Activity 4: Undocumented contributions from Minnesota State University

Activity 5: \$80,000 from US Fish and Wildlife Service Grant; Undocumented contributions from University of Minnesota - Twin Cities

Activity 6: MN DNR in-kind salary

Activity 7: Undocumented contributions from University of Minnesota - Duluth

All revenues received by the recipient that have been generated from activities on land with money from the OHF:

Total Revenue: \$0

Revenue Spent: \$0

Revenue Balance: \$0

- E. This is not applicable as there was no revenue generated.

Output Tables

Table 1a. Acres by Resource Type

Type	Wetlands (original)	Wetlands (final)	Prairies (original)	Prairies (final)	Forest (original)	Forest (final)	Habitats (original)	Habitats (final)	Total (original)	Total (final)
Restore	0	0	0	0	0	0	0	0	0	0
Protect in Fee with State PILT Liability	0	0	0	0	0	0	0	0	0	0
Protect in Fee W/O State PILT Liability	0	0	0	0	0	0	0	0	0	0
Protect in Easement	0	0	0	0	0	0	0	0	0	0
Enhance	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0

Table 2. Total Funding by Resource Type

Type	Wetlands (original)	Wetlands (final)	Prairies (original)	Prairies (final)	Forest (original)	Forest (final)	Habitats (original)	Habitats (final)	Total (original)	Total (final)
Restore	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,719,600	\$0	\$6,719,600
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,719,600	\$0	\$6,719,600

Table 3. Acres within each Ecological Section

Type	Metro Urban (original)	Metro Urban (final)	ForestPrairie (original)	Forest Prairie (final)	SE Forest (original)	SE Forest (final)	Prairie (original)	Prairie (final)	N Forest (original)	N Forest (final)	Total (original)	Total (final)
Restore	0	0	0	0	0	0	0	0	0	0	0	0
Protect in Fee with State PILT Liability	0	0	0	0	0	0	0	0	0	0	0	0
Protect in Fee W/O State PILT Liability	0	0	0	0	0	0	0	0	0	0	0	0
Protect in Easement	0	0	0	0	0	0	0	0	0	0	0	0
Enhance	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0

Table 4. Total Funding within each Ecological Section

Type	Metro Urban (original)	Metro Urban (final)	Forest Prairie (original)	Forest Prairie (final)	SE Forest (original)	SE Forest (final)	Prairie (original)	Prairie (final)	N Forest (original)	N Forest (final)	Total (original)	Total (final)
Restore	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Enhance	\$0	\$880,000	\$0	\$2,199,800	\$0	\$0	\$0	\$2,639,800	\$0	\$1,000,000	\$0	\$6,719,600
Total	\$0	\$880,000	\$0	\$2,199,800	\$0	\$0	\$0	\$2,639,800	\$0	\$1,000,000	\$0	\$6,719,600

Automatic system calculation / not entered by managers

Target Lake/Stream/River Feet or Miles (original)

0

Target Lake/Stream/River Feet or Miles (final)

0

Explain the success/shortage of acre goals:

This project was unique in that no acre or stream mile targets were listed in the original approved plan.

Parcel List

Section 1 - Restore / Enhance Parcel List

Blue Earth

Name	TRDS	Acres	Total Cost	Existing Protection?	Description
Site 1A: Unnamed tributary to Le Sueur River	10825218	0	\$918,300	No	Electric barrier

Cottonwood

Name	TRDS	Acres	Total Cost	Existing Protection?	Description
Site 10: Cottonwood River breach	10638226	0	\$3,000	No	ditch plug

Hennepin

Name	TRDS	Acres	Total Cost	Existing Protection?	Description
Lock and Dam # 1 lock chamber	02823217	0	\$1,141,900	No	Lock 1 electric barrier design

Jackson

Name	TRDS	Acres	Total Cost	Existing Protection?	Description
Site 1A: Okabena Breach	10238207	0	\$3,800	No	culvert removal
Site 1C: Okabena Electric Barrier	10238205	0	\$488,100	No	electric barrier
Site 2: Milbrath Dike	10237204	0	\$57,100	Partial	reinforce dike
Site 3: Tile line caps	10238207	0	\$8,700	No	Grate system
Site 4: Herlein-Boote WMA	10241212	0	\$104,400	No	water control structure
Site 5: Lower Gar Lake outlet	10136236	0	\$261,000	No	construct electric barrier
Site 6C: Indian/lowa	10137228	0	\$354,000	No	electric barrier

Waseca

Name	TRDS	Acres	Total Cost	Existing Protection?	Description
Site 2B: Mayhew Creek	10724219	0	\$918,300	No	Electric Barrier

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.

Completed Parcel: Lock and Dam # 1 lock chamber

# of Total Acres:	0
County:	Hennepin
Township:	028
Range:	23
Direction:	2
Section:	17
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	
Has there been signage erected at the site:	No - Design only. Construction phase not implemented.
Total cost of Restoration/Enhancement:	\$1,141,900

Completed Parcel: Site 10: Cottonwood River breach

# of Total Acres:	0
County:	Cottonwood
Township:	10 6
Range:	38
Direction:	2
Section:	26
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	
Has there been signage erected at the site:	No - Preventative measures taken on private property to protect native aquatic communities.
Total cost of Restoration/Enhancement:	\$3,000

Completed Parcel: Site 1A: Okabena Breach

# of Total Acres:	0
County:	Jackson
Township:	102
Range:	38
Direction:	2
Section:	07
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	
Has there been signage erected at the site:	No - Preventative measures taken on private property to protect native aquatic communities.
Total cost of Restoration/Enhancement:	\$3,800

Completed Parcel: Site 1A: Unnamed tributary to Le Sueur River

# of Total Acres:	0
County:	Blue Earth
Township:	108
Range:	25
Direction:	2
Section:	18
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	
Has there been signage erected at the site:	No - Signed for electrical barrier. Easement acquired for operation of barrier.
Total cost of Restoration/Enhancement:	\$918,300

Completed Parcel: Site 1C: Okabena Electric Barrier

# of Total Acres:	0
County:	Jackson
Township:	102
Range:	38
Direction:	2
Section:	05
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	
Has there been signage erected at the site:	No - Signed for electrical barrier. Easement acquired for operation of barrier.
Total cost of Restoration/Enhancement:	\$488,100

Completed Parcel: Site 2B: Mayhew Creek

# of Total Acres:	0
County:	Waseca
Township:	107
Range:	24
Direction:	2
Section:	19
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	
Has there been signage erected at the site:	No - Signed for electrical barrier. Easement acquired for operation of barrier.
Total cost of Restoration/Enhancement:	\$918,300

Completed Parcel: Site 2:Milbrath Dike

# of Total Acres:	0
County:	Jackson
Township:	102
Range:	37
Direction:	2
Section:	04
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	
Has there been signage erected at the site:	No - Preventative measures taken on private property to protect native aquatic communities.
Total cost of Restoration/Enhancement:	\$57,100

Completed Parcel: Site 3: Tile line caps

# of Total Acres:	0
County:	Jackson
Township:	102
Range:	38
Direction:	2
Section:	07
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	
Has there been signage erected at the site:	No - Preventative measures taken on private property to protect native aquatic communities.
Total cost of Restoration/Enhancement:	\$8,700

Completed Parcel: Site 4: Herlein-Boote WMA

# of Total Acres:	0
County:	Jackson
Township:	102
Range:	41
Direction:	2
Section:	12
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	
Has there been signage erected at the site:	No - Preventative measures taken on public property to protect native aquatic communities.
Total cost of Restoration/Enhancement:	\$104,400

Completed Parcel: Site 5: Lower Gar Lake outlet

# of Total Acres:	0
County:	Jackson
Township:	10 1
Range:	36
Direction:	2
Section:	36
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	
Has there been signage erected at the site:	No - Signed for electrical barrier. Easement acquired for operation of barrier.
Total cost of Restoration/Enhancement:	\$261,000

Completed Parcel: Site 6C: Indian/Iowa

# of Total Acres:	0
County:	Jackson
Township:	10 1
Range:	37
Direction:	2
Section:	28
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	
Has there been signage erected at the site:	No - Signed for electrical barrier. Easement acquired for operation of barrier.
Total cost of Restoration/Enhancement:	\$354,000

Parcel Map

Protect Aquatic Habitat from Asian Carp

