Murray County Aquatic Invasive Species (AIS) Prevention and Management Plan

December 3, 2024

Drafted by:
Murray County Environmental Services Department

Murray County
Aquatic Invasive Species Prevention and Management Plan

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Aquatic Invasive Species Prevention and Management Plan for Murray County

Original Date: July 7, 2015

Amended Date: December 3, 2024

Guidelines for using Aquatic Invasive Species Prevention Aid (MN Statute 477A.19)

INTRODUCTION

Aquatic Invasive Species (AIS) are threatening Minnesota waters. Aquatic Invasive Species (sometimes called exotic, invasive, nonindigenous or non-native) are defined by the U.S. Fish and Wildlife Service as "aquatic organisms that invade ecosystems beyond their natural, historic range. Their presence may harm native ecosystems or commercial, agricultural, or recreational activities, depending upon their ecosystems." Their presence can be harmful to fish populations, water quality, and water recreation.

Some prevalent examples of these species include curly-leaf pondweed, Eurasian watermilfoil, purple loosestrife, bighead and silver carp, rusty crayfish, New Zealand mud snail, spiny waterflea, and zebra mussels. The spread of these species has led to habitat alteration, ecosystem degradation, and a loss of bio-diversity due to intensified competition for resources. AIS typically have little to no natural predators in their new environment, reproduce very quickly, and are more aggressive than native species. Along with negatively affecting aquatic wildlife, AIS impede recreational opportunities and disrupt industrial use of public waters. Although great efforts are being made to eliminate invasive species entirely from a water body, history shows that it is nearly impossible to fully remove a population. As a result, it is illegal to possess, transport, and/or introduce any aquatic plants or animals within Minnesota that are designated as prohibited and regulated invasive species by the Minnesota Department of Natural Resources (DNR).

On May 20, 2014, Minnesota Governor Mark Dayton authorized the Aquatic Invasive Species Prevention Aid for counties [Chapter 308, HF3167: Omnibus tax bill. Article 1: Property Tax Aids and Credits. Section 11]. In July 2014, $5 million dollars was distributed to the 87 Minnesota counties. In 2015 and thereafter, that value will increase to $10 million. The distribution of funds

is based 50% on the number of watercraft trailer launches and 50% on the number of watercraft trailer parking spaces.

Currently, Murray County has two lakes designated as infested with aquatic invasive species. In the northern part of the county, Lake Sarah was designated as infested with zebra mussels in a press release from the DNR on October 25, 2018. On October 31, 2022, Lake Shetek was also designated as infested with zebra mussels after a couple of adult zebra mussels were discovered in two isolated locations. At this time, the population size and spread within Lake Shetek is still unknown. Additionally, Bloody Lake, Fremont Lake, Park Lake, Armstrong Slough and Webster Slough have all been listed as infested due to their connection to Lake Shetek. The spread of zebra mussels within the county is a serious concern due to the high amount of development and recreational use on these infested lakes.

This plan outlines the efforts that Murray County will undertake to help minimize the spread of harmful aquatic invasive species within the area.

RELATIONSHIP TO OTHER PLANS

Numerous studies, conducted in the last decade, illustrate the potential for economic and environmental harm caused by the infestation of aquatic invasive species. This AIS Prevention and Management Plan is consistent with goals and agenda established in the Murray County Local Water Management Plan. The complete plan will be reviewed annually and updated as needed.

MURRAY COUNTY BACKGROUND

Murray County is in southwestern Minnesota, adjacent to Cottonwood, Redwood, Lyon, Pipestone, Rock, and Nobles counties. The County encompasses 20 townships and 9 cities. The City of Slayton is the county seat **(see Map Plate 1**). Murray County's population in the 2020 census was 8,179 and the City of Slayton's population was 2,153.

Murray County is typical prairie environment, with variation in land elevation from 1,900 feet above sea level atop the Coteau de Prairies (Buffalo Ridge) to 1,250 feet in the northeast corner of the County, with nine generalized soil areas. Murray County contains the headwaters of four major watersheds, including the Cottonwood and Redwood Rivers which drain into the Minnesota River, the Rock River which drains into the Missouri River, and the Des Moines River which eventually drains into the Mississippi River.

ACTIONS

The following five elements provide a structure of organizing action items to address aquatic invasive species.

Element 1 – Education/Awareness

Implement procedures and practices to prevent new introductions and/or spread of AIS.

A. Communications Plan

Conduct an annual local communications plan including radio, TV, newspaper, billboard and other media ads implementing the Stop Aquatic Hitchhikers campaign and/or similar prevention and management messages or campaigns. Pursue new opportunities or alternative avenues to promote the Stop Aquatic Hitchhikers campaign or similar messages/campaigns and continue to expand the audience for public education literature and strengthen awareness of AIS issues within the County.

Develop a specialized campaign to help inform lakeshore owners on uninfested lakes how they can help prevent the spread of AIS from an infested to an uninfested lake within the County. Additional information could also be included about what to watch for related to early detection of new infestations and how to report potential sightings to the DNR.

Create packet of AIS information to send to new lakeshore property owners to increase AIS awareness.

With the help of local printing companies, create colorful and attractive promotional items that can be distributed at various events and locations to help inform the public about AIS issues.

Continue to update the AIS webpage on the Murray County website to better engage and inform residents on AIS related issues.

Identify additional areas that could benefit from supplemental AIS signs and/or banners and partner with those landowners to spread the message about preventing the spread of AIS.

Continue to inform residents and nonresidents on how zebra mussels can be spread to other uninfested lakes and how they can help prevent it.

Consider repairing/updating kiosks at landings/County Parks to include new AIS information.

B. Inform businesses

Inform appropriate lake related businesses how they can help prevent the spread of invasive species. Additionally, offer promotional items that they can handout to their customers to further expand the public's knowledge of AIS issues

Explore partnership opportunities with businesses and existing outreach efforts developed by the DNR and Sea Grant. One of the keys to successfully preventing AIS from spreading is to fully inform the public of the issues at hand and the importance of their actions in limiting this spread.

Collaborate with economic development and/or tourism groups to include AIS material in packets for individuals visiting the area. It is very important to help educate these individuals on AIS issues and laws to help prevent the transport of AIS into county waters.

Join forces with campground/marina owners to help educate their guests on local AIS issues to ensure compliance with state law. Also, supply campground/marina owners with informational material and/or promotional items for their guests. A key concern for Murray County is the transfer of AIS by nonresidents visiting the area.

C. Identify known and additional nonnative pathways of concern

Understand the variety of pathways of introduction to local waters by identifying nearby infested areas using the DNR's Infested Waters List. Investigate barriers and natural routes of migration that may provide avenues for AIS to enter county waters.

Work with local partners to determine additional nonnative pathways at risk of transporting AIS into County waters and to neighboring counties.

Explore the University of Minnesota's AIS Explorer application to help identify the introduction risk and pathways of infestation for area lakes.

Continue to use new tools to investigate the introduction risk and pathways of infestation of zebra mussels to uninfested lakes within the County and to neighboring counties.

D. Reduce risk of introductions through business and government operations

Work with businesses, like lake service providers, to make sure they are certified by the DNR. Use local training sessions or other actions to reduce risk of invasive species introduction through business or local unit of government operations.

E. Support youth education

Support K-12 and informal youth education through development and use of existing and new lesson plans and curriculum and through special events.

Fund and work with the Prairie Ecology Bus Center so they can offer presentations to the area children on aquatic invasive species prevention.

Continue to develop educational materials such as coloring books, coloring sheets, or similar items to be distributed to children at AIS events.

F. Raise awareness of priority species of concern as well as 'watch' species

Obtain and distribute Watch ID cards. Information from the cards can be used on other possible products such as informative placemats at restaurants, lake maps with an AIS message, shoreland owner's guide, drink coasters, fishing lures, rulers, etc.

Collaborate with public organizations or other county departments to incorporate AIS messages and/or species information on other large-scale mailings or distributed materials. Aquatic invasive species information could be included on items such as the county highway map, parks brochure, lake maps, or similar materials.

Help inform the public about AIS issues through educational displays, posters, species quiz, item raffle, or other avenues at the Murray County Fair. Interactive presentations or demonstrations may also be included as fair events to help educate the public on AIS related issues. Also, continue to include events for children such as scavenger hunts, coloring contests, etc. to expand species awareness. Consider hosting presentations, demonstrations, or luncheons at the Murray County Fair to engage and inform a larger audience on AIS issues.

G. Develop partnerships to increase invasive species identification

Conduct informational presentations or workshops, when needed, for the lake associations, sportsman clubs, lake service providers or other groups on emerging issues or topics related to AIS and how they can help prevent the spread of AIS.

Promote the AIS detectors program run by the University of Minnesota & Minnesota Aquatic Invasive Species Research Center. Investigate and considering promoting any similar programs within the County.

Recruit volunteers to help inform boaters and lakeshore owners on how they can prevent the spread of AIS. Volunteers could visit landings to discuss AIS topics and/or associated laws with boaters or visit with individual landowners or groups to promote the Clean, Drain, Dry message or other AIS related topics.

Hire two interns to visit landings within the County to provide AIS information to users, discuss AIS topics and/or associated laws, and visual inspection boats over the summer months.

Train License Center staff on aquatic invasive species identification, issues, and topics to engage and discuss AIS information with landowners during the sale of fishing licenses and tab renewal of watercraft.

H. Provide notice of infested waters

Provide up-to-date information on local infested waters through local communication methods such as radio, newspapers, TV or other sources. Additionally, the County AIS contact(s) could meet with lake association members, sportsman club members, or other groups to help inform and clarify questions related to a new infestation.

I. Collaborate with partners to help coordinate invasive species related efforts

Foster the development and participation of local partnerships (e.g., Soil and Water Conservation Districts, lake associations, fishing groups, counties, municipalities, citizen groups) to address invasive species using landscape and watershed approaches.

Develop and maintain contacts with other organizations and government entities. Open lines of communication between federal, state, and local governments to encourage the sharing of up-to-date information on new AIS research, outreach and education methods, and monitoring/survey data for AIS on county lakes and rivers.

Develop and maintain connections with AIS contacts from neighboring counties and consider partnering on projects as opportunities arise.

Element 2 - Prevention

A. Inform buyers and sellers of plants and wild animals

Inform buyers and sellers of aquatic plants and wild animals of how they can help prevent the release or escape of invasive species and comply with state and federal laws.

B. Gather traffic information from the boat landings

Install traffic counters at select public accesses. This action will help Murray County determine which lakes are receiving the most pressure by tracking boat traffic that enters and exits lakes. It will also help evaluate the risks of aquatic invasion for lakes with no introduced AIS by quantifying recreational tendencies. This strategy will be very beneficial in understanding boat launch activity by hour and day; therefore, assisting in optimizing the times when inspectors are at watercraft launch sites. We will continue to expand this strategy to optimize the use of inspection funds.

C. Early detection monitoring of zebra mussels

Closely monitor uninfested lakes within Murray County for spread of zebra mussels from Lake Sarah and Lake Shetek.

Deploy and monitor settlement plates in uninfested lakes within Murray County to help detect new infestations of zebra mussels in previously uninfested lakes. Consider deploying settlement samplers to monitor lakes listed as infested due to their connection an infested lake to determine if zebra mussels are spreading into these lakes.

Keep informed of veliger sampling efforts by other entities within the county and considering continuing if others do not.

Consider determining the population size of zebra mussels or other invasive species on newly infested lakes. Recruit volunteer or landowner assistance, as needed.

Consider collaborating with the DNR or other entities on monitoring efforts for early detection of new infestations of AIS as opportunities arise.

Investigate alternative and emerging techniques or technologies related to determining the population size and/or infested areas, population control, or similar topics pertinent to newly infested lakes.

D. Identify gaps in prevention & monitoring

Identify and investigate gaps in current prevention and monitoring efforts that could potentially allow a new infestation to develop and spread prior to detection. This is critical for successful control and treatment of new infestations of AIS.

Once identified, work to address gaps in current prevention and monitoring efforts. This may include partnering with other entities or soliciting external funding depending on the gap to be addressed.

When an impaired and/or infested water body is delisted, identify and work to prevent said water body from future impairments and/or infestations. This may include partnering with other entities and/or soliciting funding to support projects responding to threats of lake degradation from AIS infestations.

E. Develop partnerships to improve AIS surveys and monitoring

Develop partnerships with local lake association members, sportsman's clubs and other similar organizations to help increase the number of searches conducted each year related to monitoring for new infestations of AIS. Examples include performing annual AIS searches or dock and lift searches. For rapid response to function properly, the county will need the help of these groups to monitor lakes on a seasonal basis and facilitate early reporting of new infestations of AIS in county waters.

Promote lake association involvement in AIS surveys and monitoring by offering funding assistance for related AIS projects. Project proposals for AIS work must address an action item(s) from this Plan and be approved by the AIS committee.

Element 3 - Watercraft Inspections

A. Conduct watercraft inspections

Investigate and identify possible options for certified watercraft inspectors at landings within the county. If a certified watercraft inspector is hired, try to enlist additional volunteers to support this effort and to educate lake users, particularly at high priority landings during peak usage times (holidays and weekends).

Continue to monitor and instruct users to inspect watercraft, trailers, and other water-related equipment using two Internet Landing Installed Device Sensors (I-LIDS) at landings on Lake Sarah and two Internet Landing Installed Device Sensors (I-LIDS) at landings on Lake Shetek in an effort to prevent the spread of zebra mussels to neighboring waterbodies.

Investigate tool station options for cleaning watercraft and gear. Identify landings that would benefit from the availability of tool stations and consider designing/installing tool stations for public use.

Investigate local options regarding creating a grant program to other groups for conducting watercraft inspections

Investigate and consider incorporating alternative technologies to encourage and/or enforce self-inspection of watercraft.

B. Investigate decontamination trailers/sites

Identify options for decontamination trailers/sites and consider offering lake users access to decontamination within the county. Consider alternative technologies such as the CD3 systems.

C. Law Enforcement

Partner with local law enforcement to educate the public on AIS laws and issues through the use of boat patrols and/or similar activities. Informational material, promotional products, or similar items may also be provided to law enforcement officers to help enhance the public's understanding of AIS laws and issues.

Element 4 – Emergency Response

A. Contact DNR for verification if new infestations are reported.

Submit samples to DNR for field checking. Reporting new infestations when they first become detectable is critical to the successful control of an infestation within a water

body. It is also critical in preventing the spread to other water bodies. An infestation that develops and spreads before detection will be difficult or impossible to control.

The DNR has the primary role to confirm the identity of a potential new AIS infestation, determine distribution, evaluate potential for further distribution and oversee the communication process relating to infested waters status, including making sure signage is up to date. The DNR may also be responsible for treatment actions including: determining treatment action, obtaining permits, arranging funding, and contracting for treatment.

B. Work to reduce the impacts caused by established invasive species to Minnesota's ecology, society, and economy.

If any County lakes become infested, use integrated pest management where appropriate to control populations of high priority aquatic invasive plant species (Eurasian watermilfoil, curly-leaf pondweed, flowering rush, purple loosestrife, etc.). The program budget will need to be adjusted at that time.

Investigate potential control and/or treatment options for new infestations of aquatic animals or diseases and collaborate with the DNR to determine if treatment would be effective and/or beneficial. Containment actions may also need to be implemented to prevent the infestation from spreading to other lakes/rivers.

C. Emergency Response Plan

Continue to update and maintain an emergency response plan detailing the Murray County's planned response to new infestations of AIS.

Use emergency response plan to help guide responses to emerging infestations.

<u>Element 5 – Program Administration</u>

A. Administration of the Murray County AIS Program.

Management and administration of the AIS program budget including wages, equipment, supplies, promotional items, volunteers, etc.

B. Administration of the project Elements.

Keep track of all activities related to Education/Awareness, Prevention, Watercraft Inspections, Emergency Response, and Program Administration.

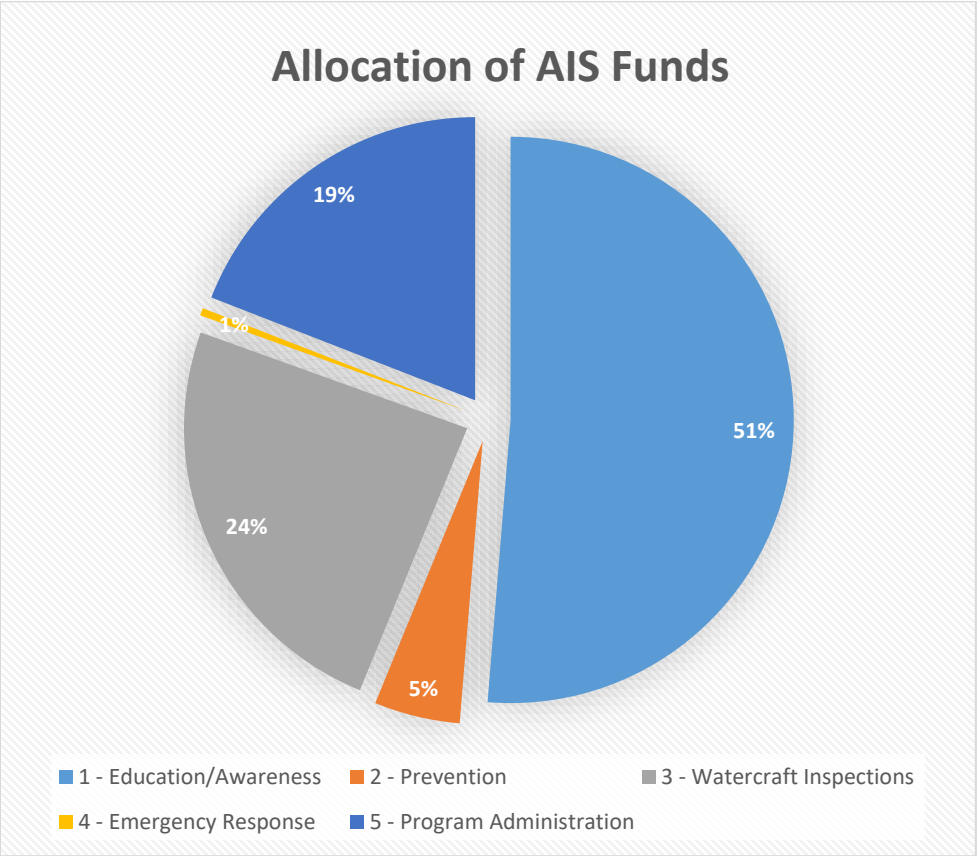
AIS PROGRAM SUMMARY

Table 1. AIS Prevention & Management Plan Summary

The table below outlines the major elements and activities for the AIS Prevention & Management Plan. Details for each element are discussed in the body of the report. Table displays total cost of AIS prevention and management in Murray County and identifies the allocation of state funds.

Element	Key Activities	2022 Funds	2023 Funds	2024 Funds	2025 Funds
1 - Education/Awareness					
	1.A Communications Plan	$25,000.00	$40,000.00	$40,000.00	$40,000.00
	1.B Inform Businesses	$3,500.00	$3,500.00	$3,000.00	$3,000.00
	1.C Identify Pathways	$250.00	$500.00	$200.00	$200.00
	1.D Reduce the Risk of Introductions	$300.00	$500.00	$200.00	$200.00
	1.E Support Youth Education	$5,000.00	$5,000.00	$8,600.00	$8.600.00
	1.F Raise Awareness of Species	$4,500.00	$12,500.00	$10,400.00	$14,600.00
	1.G Develop Partnerships	$1,000.00	$500.00	$500.00	$500.00
	1.H Provide Notice of Infested Waters	$250.00	$500.00	$200.00	$200.00
	1.I Collaborate with Partners	$3,500.00	$5,000.00	$5,000.00	$5,000.00
2 – Prevention					
	2.A Inform Buyers and Sellers of Plants	$0.00	$0.00	$0.00	$0.00
	2.B Gather Traffic Information	$1,000.00	$1,000.00	$1,500.00	$200.00
	2.C Early Detection Monitoring	$2,500.00	$2,500.00	$200.00	$1,500.00
	2.D. Identify Gaps	$200.00	$500.00	$200.00	$200.00
	2.E. Develop Partnerships	$15,000.00	$15,000.00	$5,000.00	$5,000.00
3 - Watercraft Inspections					
	3.A Conduct Watercraft Inspections	$50,000.00	$15,000.00	$24,000.00	$24,000.00
	3.B Investigate Decon Trailers/Sites	$5,000.00	$500.00	$250.00	$250.00
	3.C County Law Enforcement-Water Patrol	$10,000.00	$10,000.00	$10,000.00	$10,000.00
4 - Emergency Response					
	4.A Contact DNR for Infestations	$500.00	$500.00	$200.00	$200.00
	4.B Reduce Impacts of Invasive Species	$500.00	$500.00	$200.00	$200.00
	4.C. Emergency Response Plan	$500.00	$500.00	$200.00	$200.00
5 - Program Administration					
	5.A Administration of AIS Program	$10,000.00	$13,500.00	$14,300.00	$14,800.00
	5.B Administration of Project Elements	$8,000.00	$8,500.00	$11,700.00	$12,100.00
	Totals	$146,200.00	$136,000.00	$135,850.00	$140,950.00

Chart 1. Allocation of AIS Funds



IMPLEMENTATION

It is the intent of the plan development committee that at least in its first few years, development, administration, and oversight of this plan should require a reasonable portion of county full-time equivalents and possible funding from other sources. Currently, the Committee is being developed. Meetings need not be held more than once per year.

UPDATING AND AMENDING THE PLAN

This plan will be reviewed annually by the plan development committee and updated as needed.

APPENDICES

Appendix A: Plan Participants

Table 2. Possible Organizations Partnering with Murray County to Implement the AIS Prevention Plan.

Federal Government	US Fish & Wildlife	Todd Hauge
	NRCS	Cheryl Heard
State Government	Area Hydrologist	Tom Kresko
	Extension Educator	Melissa Runck
	MN Dept. of Ag	Monika Chandler
	MN DNR	Carli Wagner
	MN DNR	Doug Jensen
	MN DNR, Parks & Trails	Peter Hark
	Conservation Officer	Shawn Wichmann
Murray County Commissioners	District 1	Loy Woelber
	District 2	Mark Carlson
	District 3	Dennis Welgraven
	District 4	Jackie Meier
	District 5	Roger Zins
Neighboring Counties	Cottonwood County	Alex Schultz
	Lyon County	Brooke Kor & Spencer Kor
	Nobles County	Aaron Holmbeck & Mark Koster
Township Clerks	Belfast Township	Kelsey Bartosh
	Bondin Township	Donna Clarke
	Cameron Township	Linda Gunnink
	Chanarambie Township	Connie Post
	Des Moines River Township	Annalie Plaetz
	Dovray Township	Tracy Gunderman
	Ellsborough Township	Tami Nelson
	Fenton Township	Wendy Hartle
	Holly Township	Catherine Kassel
	Iona Township	Suz Gengler
	Lake Sarah Township	Trevor Humphrey
	Leeds Township	James York

Township Clerks	Lime Lake Township	Denise Schreier
	Lowville Township	Linda VanIperen
	Mason Township	Laurie Jensen
	Moulton Township	Pam Talsma
	Murray Township	Patricia Dold
	Shetek Township	James Reinert
	Skandia Township	Amy Perlenfein
	Slayton Township	Gail Johansen
Cities	Avoca	Karen Frisk
	Chandler	Kris Gunnink
	Currie	Annette Sievert
	Dovray	Janel Swenhaugen
	Fulda	Julie Burchill
	Hadley	Riley Engbarth
	Iona	Kari Carlson
	Lake Wilson	Melanie VanderSchaaf
	Slayton	Josh Malchow
Lake Associations	People Around Lake Sarah (PALS)	Tom Hey
	Shetek Area Lakes Association	Trevor Humphrey
	Shetek Area Sportsman's Association	Chris Diekmann
	Fulda Area Lakes Association	Marvin Isder
Resorts	Camp Summit	Colton Harthoorn & Peter VanVelzen
	County Parks Supervisor	Justin Hoffmann
	Edgewater Bay Campground	Jeff Barstad
	Lake Shetek Campground	Brenda Johnson
	Lake Shetek State Park	Rosann Schauer
	Lake Shetek Lodge	Brett Behrends & Steve Koch
	Schreier's on Shetek Campground	Kyle & Elizabeth Krzmarzick
	Valhalla Island Campground	Jayden King
Lake Service Providers	Shetek Marine	Randy Martin
	Lakes Marine & Sport	Jeff Barstad
Youth Groups	Murray County 4-H	Kim Hause
High schools	Fulda High School	Michael Pagel
	Murray County Central	Joe Meyer
Environmental Learning Centers	Prairie Ecology Bus	Alisha Paplow

Realtors	Aanenson Realty & Auction Company	Larry Aanenson
	RE/MAX Advantage Plus	Kathy Engler, Laura Deslauriers
	Creative Three, Inc.	Stacy Like
	Murrayland Agency	Jody Lehnhoff
	Edina Realty	Taylor Onken, Tara Onken
	Pavlis Auction & Realty	Dale Pavlis
Other Organizations	Currie Town and Country	Donna Kor
	Balaton Sportsmans Club	Mike Benson
	Fulda Fish & Game	Keith Hakeneis
	Shetek Area Water and Sewer District	Jamie Thomazin
	Lake Wilson Rod and Gun Club	Dave Johnson

Appendix B: County Water Resources

Table 3. Characterization of Lakes in Murray County.

Number of lakes more than 10 acres in size	**5**
Number of lakes designated as infested with aquatic invasive species	**2**
Total number of public water accesses	**32**
Number of public water accesses owned or operated by the MNDNR	**21**
Number of public water accesses owned or operated by MnDOT	**0**
Number of public water accesses owned or operated by the county	**13**
Number of public water accesses owned or operated by a township	**0**
Number of public water accesses owned or operated by a city	**3**
Estimated number of non-public water accesses	**650**

Map Plate 1. Murray County Public Water Accesses

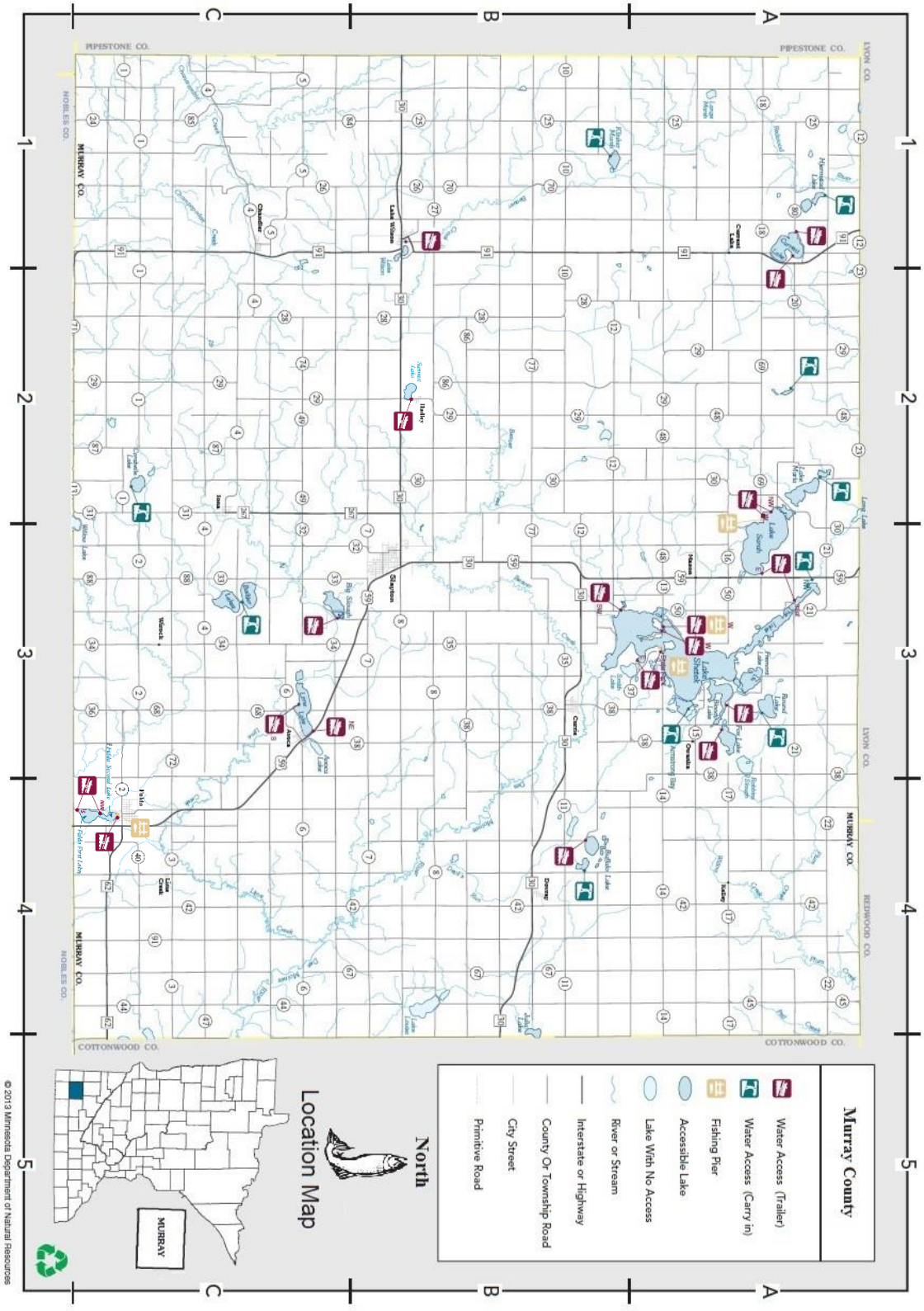


Table 4. Murray County Public Water Access List

Water Body Name	Map Grid Location	Ramp Type	Administrator
Badger Lake	C3	carry in	DNR
Big Slough	C3	concrete	DNR
Bloody Lake	A3	concrete	DNR
Buffalo Lake (E)	B4	carry in	DNR
Buffalo Lake (S)	B4	concrete	DNR
Corabelle Lake	C2	concrete	County
Current Lake (E)	A1	concrete	County
Current Lake (W)	A1	concrete	DNR
Fox Lake	A3	concrete	DNR
Fulda Second Lake (N)	C4	concrete	City
Fulda Second Lake (N)	C4	fishing pier	City
Fulda First Lake (W)	C4	concrete	County
Fulda First Lake (W)	C4	fishing pier	County
Fulda First Lake	C4	asphalt	DNR
Hjermstad Lake	A1	carry in	DNR
Iron Lake	A2	carry in	DNR
Klinker Marsh	B1	carry in	DNR
Lime Lake (NE)	C3	concrete	DNR
Lime Lake (S)	C3	concrete	County
Maria Lake	A2	concrete	DNR
Round Lake	A3	carry in	DNR
Lake Sarah (E)	A3	concrete	County
Lake Sarah (W)	A2	concrete	County
Lake Sarah (W)	A2	fishing pier	County
Lake Sarah (NW)	A2	concrete	DNR
Lake Shetek (NW)	A3	carry in	DNR
Lake Shetek (Inlet)	A3	concrete	DNR
Lake Shetek (State Park)	A3	concrete	DNR
Lake Shetek (State Park)	A3	fishing pier	DNR
Lake Shetek (Keeley Island)	A3	concrete	County
Lake Shetek (E)	A3	concrete	County
Lake Shetek (SW)	B3	concrete	DNR
Lake Shetek (W)	A3	concrete	County
Lake Shetek (W)	A3	fishing pier	County
Lake Shetek (Armstrong Bay)	A3	concrete	DNR
Summit Lake (NE)	B2	concrete	County
Lake Wilson	B1	concrete	City

Appendix C: Plan Details

Table 5. Tier 1 - Currently Infested or at Highest Risk of Infestation and/or Movement of Undocumented Infestation(s).

Lake	Use	Current MNDNR inspection & decontamination priority	Comments
Sarah	recreation	?	Contains campgrounds
Shetek	recreation	?	Contains campgrounds

Table 6. Tier 2 – Lakes Currently Listed as Infested due to their Connection to an Infested Waterbody.

Lake	Use	Current MNDNR inspection & decontamination priority	Comments
Bloody	recreation	?	
Fremont	recreation	?	
Park	natural	?	Within Lake Shetek State Park
Armstrong Slough	recreation	?	Contains campgrounds
Webster Slough	natural	?	Within Lake Shetek State Park

Table 7. Tier 3 - Lakes at High Risk of Infestation and/or Movement of AIS.

Lake	Use	Current MNDNR inspection & decontamination priority	Comments
Fulda First	recreation	?	
Fulda Second	recreation	?	Contains campgrounds
Big Slough	hunting	?	
Current Lake	recreation	?	Contains campgrounds
Lime Lake	recreation	?	Contains campgrounds
Lake Maria	hunting	?	
Lake Wilson	recreation	?	
Summit Lake	recreation	?	Contains campgrounds
Corabelle Lake	recreation	?	

Appendix D: Glossary of Acronyms Used in Plan.

BWSR:	Minnesota Board of Water and Soil Resources
MNDNR:	Minnesota Department of Natural Resources
MnDOT:	Minnesota Department of Transportation
MDA:	Minnesota Department of Agriculture
MPCA:	Minnesota Pollution Control Agency
NPS:	National Park Service
NRCS:	Natural Resources Conservation Service
SWCD:	Soil and Water Conservation District
USACE:	United States Army Corps of Engineers
USFWS:	United States Fish and Wildlife Service
USFS:	United States Forest Service

Appendix E: Prohibited and Regulated Invasive Species

Prohibited Invasive Species

Certain invasive species that can threaten natural resources and their use have been designated as prohibited invasive species in Minnesota. It is unlawful (a misdemeanor) to possess, import, purchase, transport, or introduce these species except under a **permit** for disposal, control, research, or education. The prohibited invasive species in Minnesota include the following, and any hybrids, cultivars, or varieties of the species listed below:

Aquatic Plants

- African Oxygen Weed (*Lagarosiphon major*)
- Aquarium Watermoss or Giant Salvinia (*Salvinia molesta*)
- Australian Stone Crop (*Crassula helmsii*)
- Brittle Naiad (*Najas minor*) *
- Curly-leaf Pondweed (*Potamogeton crispus*)*
- Eurasian Watermilfoil (*Myriophyllum spicatum*) *
- European Frog-bit (*Hydrocharis morsus-ranae*)
- Flowering Rush (*Butomus umbellatus*)*
- Hydrilla (*Hydrilla verticillata*)
- Indian Swampweed (*Hygrophila polysperma*)
- Purple Loosestrife (*Lythrum salicaria*, *Lythrum virgatum*, or any variety, hybrid, or cultivar thereof) *
- Starry stonewort (Nitellopsis obtusa)*
- Water aloe or water soldiers (Stratiotes aloides)
- Water chestnut (Trapa natans)
- The aquatic plants listed in Code of Federal Regulations, title 7, section 360.200, are also designated as prohibited invasive species except for Chinese Water Spinach (*Ipomoea aquatica*)

Fish

- Amur Sleeper (*Perccottus glenii*)
- Bighead Carp (*Hypophthalmichthys nobilis*)*
- Black Carp (*Mylopharyngodon piceus*)
- Crucian Carp (Carassius carassius)
- Eurasian Minnow (*Phoxinus phoxinus*)
- European Perch (*Perca fluviatilis*)
- Grass Carp (*Ctenopharyngodon idella*)*
- Largescale Silver Carp (*Hypophthalmichthys harmandi*)
- Northern Snakehead Fish (*Channa argus*)
- Oriental Weatherfish (*Misgurnus anguillicaudatus*)
- Prussian Carp (*Carassius gibelio*)
- Roach (*Rutilus rutilus*)
- Round Goby (*Neogobius melanostomus*)*

- Rudd (*Scardinius erythrophthalmus*)
- Ruffe (*Gymnocephalus cernuus*)*
- Sea Lamprey (*Petromyzon marinus*) *
- Silver Carp (*Hypophthalmichthys molitrix*) *
- Stone Moroko (*Pseudorasbora parva*)
- Tubenose Goby (*Proterorhinus marmoratus*)*
- Wels Catfish (*Siluris glanis*)
- Western Mosquitofish (*Gambusia affinis*)
- White perch (*Morone americana*)*
- Zander (*Stizostedion lucioperca*)

Invertebrates

- Faucet Snail (*Bithynia tentaculata*)*
- New Zealand Mud Snail (*Potamopyrgus antipodarum*)*
- Quagga Mussel (*Dreissena bugensis*)*
- Red Swamp Crayfish (*Procambarus clarkii*)
- Yabby (*Cherax destructor*)
- Zebra Mussel (*Dreissena spp.*) *

*** These species are known to be in Minnesota waters.**

Regulated Invasive Species

It is legal to possess, sell, buy, and transport regulated invasive species, but they may not be introduced into a free-living state, such as being released or planted in public waters. The regulated invasive species are:

Aquatic plants

- Brazilian Waterweed (*Egeria densa*)
- Carolina Fanwort or Fanwort (*Cabomba caroliniana*)
- Chinese Water Spinach (*Ipomoea aquatica*)
- Nonnative Waterlilies (*Nymphaea spp.*) *
- Parrot's Feather (*Myriophyllum aquaticum*)
- Water hyacinth (Eichhornia crassipes
- Yellow Iris or Yellow Flag (*Iris pseudacoris*)*

Fish

- Alewife (*Alosa pseudoharengus*)*
- Common Carp, Koi (*Cyprinus carpio*)*
- Goldfish (*Carassius auratus*) *
- Rainbow Smelt (*Osmerus mordax*)*
- Tilapia (*Oneochromis, Sartheradon, and Tilapia spp.*)

Invertebrates

- Banded Mystery Snail (*Viviparus georgianus*)*
- Chinese Mystery Snail, Japanese Trap Door Snail (*Cipangopaludina spp.*)*
- Rusty Crayfish (*Orconectes rusticus*)*
- Spiny Waterflea (*Bythotrephes longimanus*)*

*** These species are known to be in Minnesota waters.**

Appendix F: Minnesota State Statute 477 A.19.

477A.19 AQUATIC INVASIVE SPECIES PREVENTION AID.

Subdivision 1. **Definitions.**

(a) When used in this section, the following terms have the meanings given them in this subdivision.

(b) "Aquatic invasive species" means nonnative aquatic organisms that invade water beyond their natural and historic range.

(c) "Watercraft trailer launch" means any public water access site designed for launching watercraft.

(d) "Watercraft trailer parking space" means a parking space designated for a boat trailer at any public water access site designed for launching watercraft.

Subd. 2. **Distribution.**

The money appropriated to aquatic invasive species prevention aid under this section shall be allocated to all counties in the state as follows: 50 percent based on each county's share of watercraft trailer launches and 50 percent based on each county's share of watercraft trailer parking spaces.

Subd. 3. **Use of proceeds.**

A county that receives a distribution under this section must use the proceeds solely to prevent the introduction or limit the spread of aquatic invasive species at all access sites within the county. The county must establish, by resolution or through adoption of a plan, guidelines for the use of the proceeds. The guidelines set by the county board may include, but are not limited to, providing for site-level management, countywide awareness, and other procedures that the county finds necessary to achieve compliance. The county may appropriate the proceeds directly, or may use any portion of the proceeds to provide funding for a joint powers board or cooperative agreement with another political subdivision, a soil and water conservation district in the county, a watershed district in the county, or a lake association located in the county. Any money appropriated by the county to a different entity or political subdivision must be used as required under this section. Each county must submit a copy of its guidelines for use of the proceeds to the Department of Natural Resources by December 31 of the year the payments are received.

Subd. 3a. **Certification.**

On or before June 1 of each year, the commissioner of natural resources shall certify to the commissioner of revenue the number of watercraft launches and the number of watercraft trailer parking spaces in each county.

Subd. 3b. **Certification.**

On or before June 1 of each year, the commissioner of natural resources shall certify to the commissioner of revenue the counties that complied with the requirements of subdivision 3 the prior year and are eligible to receive aid under this section.

Subd. 4. **Payments.**

The commissioner of revenue must compute the amount of aquatic invasive species prevention aid payable to each county under this section. On or before August 1 of each year, the commissioner shall certify the amount to be paid to each county in the following year. The commissioner shall pay aquatic invasive species prevention aid to counties annually at the times provided in section 477A.015.

Subd. 5. **Appropriation.**

$10,000,000 each year is appropriated from the general fund to the commissioner of revenue to make the payments required under this section.