



Lake Service Provider Tagging Pilot Study Final Feasibility Report

As required by Minnesota Statutes, section 84D.108 subd. 2a-2c

September 10, 2020

Report to the Minnesota Legislature

Minnesota Department of Natural Resources

Invasive Species Unit

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Pursuant to Minnesota Statutes, Section 3.197, we estimate that it cost approximately \$2,090 to produce this report. This includes staff time for attending meetings, drafting, reviewing the report and compiling comments and recommendations. These costs do not include costs to prepare and implement the pilot study.

Upon request, this material will be made available in an alternative format such as large print, Braille or audio recording. Printed on recycled paper.

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DNR Lake Service Provider Tagging Pilot Study Feasibility Report

This report replaces the interim report submitted on January 15, 2019, fulfilling the reporting requirements of Session Laws 2016, chapter 189, article 3, section 48: *“LAKE SERVICE PROVIDER FEASIBILITY REPORT. The commissioner of natural resources shall report to the chairs of the house of representatives and senate committees with jurisdiction over natural resources by January 15, 2019, regarding the feasibility of expanding permitting to service providers as described in Minnesota Statutes, section 84D.108, subdivision 2a, to other water bodies in the state. The report must: (1) include recommendations for state and local resources needed to implement the program; (2) assess local government inspection roles under Minnesota Statutes, section 84D.105, subdivision 2, paragraph (g); and (3) assess whether mechanisms to ensure that water-related equipment placed back into the same body of water from which it was removed can adequately protect other water bodies.”*

The Minnesota Legislature authorized the Department of Natural Resources (DNR) to complete a 2-year pilot study with interested, eligible lake service provider businesses. The deadline for the pilot study described in Minnesota Statutes, section 84D.108 subdivisions 2a-2c was extended by the legislature to December 1, 2019 but the report deadline was unchanged and remained January 15, 2019. The DNR submitted an interim report on January 15, 2019. The DNR submits this final pilot study feasibility report following the completion of the pilot study.

Summary

The purpose of the pilot study was to evaluate the feasibility of allowing lake service provider (LSP) businesses to remove water-related equipment with zebra mussels attached from one of three designated lakes (Lake Minnetonka, Gull Lake, and Cross Lake) and reinstall the equipment into that same lake after the equipment had been seasonally stored, serviced or repaired, without first removing zebra mussels that are attached to it. The pilot study data was collected between 2017 and 2019 and the statute subdivision authorizing this study expired on December 1, 2019.

The DNR worked to recruit participating businesses from the pool of approximately 105 LSPs that were eligible based on statutory requirements to participate in the three pilot lake areas. The DNR called each of the 105 business, held local meetings for LSPs to provide feedback on the study design and learn how to participate, and followed up with calls, letters, and emails to share details and recruit participants. Three LSPs registered to participate and just two completed the study.

Over the course of the study, the two active participating businesses tagged and moved a total of 272 boats, lifts and docks from the pilot lake sites. Though a small study, the findings highlight the successes and challenges of running an effective permitting program while not increasing the risk of spreading zebra mussels. The DNR found that operating a program to remove and return equipment from zebra-mussel-infested waters without increasing the risk of zebra mussel spread is complex and costly. Because of these challenges and the low interest among LSPs in participating in the study, the DNR does not recommend expanding this pilot program. As

required by statute, this report includes recommendations for state and local resources that would be needed to implement the program, based on lessons learned during the pilot study.

Lake Service Provider Definition and Pilot Study Eligibility

Lake service providers (LSP) are businesses that are paid to install, remove, rent/lease or decontaminate water-related equipment. Over 1,000 LSP businesses are currently permitted by the Minnesota Department of Natural Resources (DNR) to ensure they know and follow aquatic invasive species (AIS) laws and best practices to prevent the spread of invasive species. This pilot study was open to permitted LSPs that met the eligibility requirements established in state law.

Eligibility Requirements

The following requirements are established in Minnesota Statutes, section 84D.108 subd. 2a, 2b, and 2c. To participate in the pilot study, an LSP business had to:

1. Be located in one of the following pilot study sites:
 - Lake Minnetonka (Public Waters basin 27-0133): The Minnetonka pilot study was open to businesses located within the Lake Minnetonka Conservation District (LMCD) boundary or in a municipality immediately bordering that boundary.
 - Gull Lake (Public Waters basin 11-0305): The Gull Lake pilot study was open to businesses located in Cass or Crow Wing counties.
 - Cross Lake (Public Waters basin 18-0312): The Cross Lake pilot study was open to businesses located in Cass or Crow Wing counties.
2. Procure a surety bond
 - Each participating business must provide a \$50,000 corporate surety bond, payable upon violation of the invasive species laws (Minnesota Statutes, chapter 84D). The violation terms are specified in the pilot study permit. See Appendix B
3. Obtain a tagging pilot study permit from the DNR
 - The DNR wrote each participating business a special pilot study permit that provides the conditions for the pilot study.

Methods

During this pilot study project, the DNR:

1. Discussed study design and planning with LSP businesses in the three pilot study lakes areas
2. Researched options for tagging and tracking equipment
3. Designed the pilot study permit, protocols, and logistics
4. Recruited participating LSP businesses
5. Trained and supported participating LSP and DNR staff on pilot study protocols

6. Regularly communicated with participating LSP businesses to share and verify data collection and trouble-shoot issues
7. Worked with participating LSP businesses to complete data collection
8. Gathered feedback from participating LSPs, DNR aquatic invasive species program staff and enforcement staff
9. Gathered feedback and watercraft inspection data from DNR and local watercraft inspection programs to help assess local government inspection roles and capacity, benefits and concerns associated with implementing this pilot at a larger scale
10. Analyzed final data and participant feedback to assess state and local resources needed to implement the program, local government inspection roles, and risk of spreading zebra mussels
11. Prepared interim and final pilot study reports to share findings with the Minnesota Legislature

Recruitment Process

Of the approximately 150 permitted LSP businesses in the Minnetonka area, 50 met the geographical eligibility requirement and were the type of business (marine shop, dock and lift company, etc.) that could benefit from participation in the pilot. Of the approximately 200 permitted LSP businesses in Cass or Crow Wing County, about 55 worked on or near the pilot study lakes and were the type of business that could benefit from the pilot study permit.

The DNR called each of these 105 businesses to introduce the project to them and invite the business owners to attend a meeting in Minnetonka or Brainerd to learn more about the study and to share suggestions for DNR to consider when developing the pilot study protocols. DNR followed up with businesses owners who expressed interest, including letters, sample permits and protocols, emails, phone check-ins and additional face-to-face meetings, as requested.

A total of three LSP businesses completed all of the steps to participate in the pilot study – one on Gull Lake and two on Lake Minnetonka. Although one of these three businesses obtained their pilot study permit, surety bond, and completed staff training for the tagging procedures, they did not participated in tagging, limiting the study results to one dock and lift company (Gull Lake) and one marina (Lake Minnetonka).

Pilot Project Implementation

To participate in the tagging pilot study, interested and eligible LSPs enrolled in the project by applying for a pilot study permit for one of the three pilot study lakes, sending proof of a \$50,000 surety bond to the DNR, and by attending training on equipment tagging protocols. See Appendix B for a sample permit and Appendix C for tagging pilot study protocols.

Tagging Method Options

For effective enforcement, the tagging methods needed to show chain of custody of the equipment being transported, include some form of unique tag and a method to track the tags and equipment. The DNR

investigated several tagging options including paper logbooks, smartphone apps, bar-code stickers, and locking tags. The most consistent, reliable, and affordable combination was a smartphone app paired with locking tags. DNR created a simple smartphone app to gather tagging data and efficiently track equipment entered into the pilot study.

Participating LSPs were offered two choices for logging tags during the pilot study: their staff directly using the smartphone app (see “Data Management” below) or their staff using DNR watercraft inspectors to log tagged equipment out of and back into the lake. Both participating businesses chose the staff-logging smartphone app option.

LSP staff using the smartphone app. Participating businesses were given a set number of tags with serial numbers, locking wire to attach tags to equipment, and a free app to download for either Android or Apple devices. When removing equipment from a pilot study lake that they were planning to return to the same lake, LSP employees used the app to record the equipment (take photos of equipment and tags at access, add in basic information with the app) and tag the equipment with a locking tag. LSP employees legally transported this tagged equipment to their work site for repair or storage. When transporting equipment back to the lake, LSP employees used the app to document returning the equipment to the water and cut the tag off, saving the tag to return to the DNR at a later date.

Data Management

Each time a piece of equipment was tagged and entered into the app, the data was automatically uploaded into a database and a copy of each tagging record was automatically emailed to the DNR. During the pilot study, DNR staff monitored the data collection and regularly sent electronic copies of the tagging records to each company for their records.

Storage Sites and Inspections

After the equipment was removed from a pilot study lake, tagged and entered into the app, LSPs transported it to storage sites listed on their pilot study permits. Before the next open-water season, DNR Conservation Officers visited LSP storage sites to inspect and verify that equipment was properly tagged and stored at locations registered on the LSP’s pilot study permit. Due to the large number of boats tagged and stored, an officer inspected and verified a sub-sample of the tagged equipment at the Lake Minnetonka storage sites. Due to the smaller number of lifts tagged and stored, an officer was able to check each piece of tagged equipment at the Gull Lake storage sites.

Data Results

Over the course of the study, the two active participating businesses tagged and moved a total of 272 boats, lifts and docks from the pilot lake sites. Both participating businesses used the tagging solely for equipment being moved to winter storage, not for any mid-season equipment maintenance. Though this was a small study with

limited data, the results show some key elements and challenges of running an effective permitting program while not increasing the risk of spreading zebra mussels.

The table below summarizes the types and numbers of equipment tagged, tagging error rates and the equipment storage and tag inspection data for the two seasons of the pilot study.

Type of Water-Related Equipment (WRE)	# WRE Tagged	# Tagging Errors	# Storage Sites Inspected	# WRE Inspected	# Inspection Hours
Watercraft	220	1 (0.5%)	2	20	2 hours
Lifts & Docks	52	8 (15%)	25	28	7 hours

Table 1: Pilot Study Tagging Data

Analysis

Following the completion of the tagging data collection, the DNR analyzed the data, procedures and feedback from all participants to identify successes and challenges.

Overall, participating businesses thought the tagging and app process was easy for staff to complete and did not greatly slow down operations. They also stated that it saved time overall by not having to decontaminate equipment. The marina estimated they saved 75% of the time needed per boat, translating to cost savings for their customers. The dock and lift company estimated they saved approximately 40 minutes per lift translating to cost savings which they passed on to customers. Both businesses reported that DNR staff communications, pilot study recruitment and training on the project went smoothly overall.

Challenges

Although the tagging proceeded smoothly overall, several challenges arose throughout the pilot study.

Enrollment Barriers. There were initial barriers to enrollment in study, including understanding, obtaining and paying for a surety bond, limited benefits to the approximately 30% of LSPs that were eligible to participate, and limits to which water access sites were available to use for the pilot study. This reduced LSP participation.

Tagging Errors. Photos documented that tags were often not fully locked into place, which is critical to ensure one-time use. Other tagging errors occurred, including logging the same tag twice, physically losing tags, losing track of which tagged equipment belonged to which customer and which storage location, and forgetting to remove the tag when installing lift back in the lake in spring. The tagging error rate was approximately 0.5% for the LSP that transported and stored watercraft and approximately 15% for the LSP that managed lifts and docks.

Enforcement. Enforcement challenges included efficiently tracking down the tagged equipment at multiple storage sites with tagged and un-tagged equipment stored together. In order to estimate the staff time that may be needed to expand the pilot statewide, we tracked the time it took for conservation officers to inspect LSP gear and extrapolated it across a larger assumed implementation area. This rough estimate showed it would take a minimum of 520 hours (65 work days) to complete inspections. Due to the scope of a statewide program, it would be challenging to maintain consistent inspections of tagged equipment due staffing capacity. This limitation could increase the risk of spread of AIS.

Equipment Type. Docks and lifts provided some unique challenges including: lack of registration numbers, which made it impossible to cross-reference tagging data entry errors; difficulty tagging docks that have many composite parts; and LSPs tagged lifts on different parts of the equipment, making it difficult for people to find the tags in a consistent location during outdoor winter inspections.

Technology limitations. The smartphone app was a cost-effective way to test tagging procedures, but would be an inadequate tool to use at a larger scale. The existing app does not allow the DNR or participating businesses to view and track a real-time inventory of equipment entered into the system. To be effective in a larger-scale tagging program, participating businesses would need access to look up their data records individually without the DNR manually backing up data and forwarding copies to each business every two weeks. The app also has limits to GPS accuracy for enforcement use.

Pilot Study Costs

Table 2 summarizes the development and implementation costs for the pilot study. See Appendix C for a detailed cost breakdown.

Pilot Study Costs	Amount
Development Costs	\$52,200
Implementation Costs	\$29,984
Total	\$82,184

Table 2: Pilot Study Costs

Recommendations

The DNR does not recommend expanding this pilot program because of the low demand among LSPs for participation in this pilot study, the high cost and complexity of operating a scaled-up program, and the inherent risks in spreading AIS with limited capacity for compliance inspections and enforcement.

1. State and local resources needed to implement the program

To create an effective tagging program at a larger scale, the state would need sufficient resources to:

1. Develop a customized app that meets needs for efficient management and enforcement effort.
2. Provide staffing to implement and coordinate the new program with existing state and local partners.
3. Increase enforcement and inspection staff hours to ensure compliance with the laws.

While the DNR does not recommend expanding this pilot due to the cost and complexity, if a permitting program like the pilot study moved forward at a larger scale, we recommend the following to address the challenges discovered during this pilot study:

1. Do not limit tagging sites to specific public water accesses.
2. Assess options other than a surety bond to support compliance with the program. While the bond can be a powerful motivator to ensure compliance, many LSPs were not familiar with how to obtain surety bonds.
3. Provide more enforcement staff hours for compliance checks at storage locations.
4. Limit the number of storage sites allowed per business.
5. Consider use of a weather-proof barcode label as an alternative to locking tags for identifying pieces of equipment.
6. Only allow LSPs to enroll water-related equipment that has an established registration number or unique identifier, such as watercraft registration, into the program. The study found that without a registration number, equipment such as docks with their many components, are very hard to track and cross reference.
7. Allocate dedicated funds for the DNR to bid out a customized application to manage equipment tracking. The customized application would need to provide: real time results viewable by DNR and authorized users to access the inventory of equipment entered into the system; data backup for all participants; a secure structure that does not allow users to modify the data; better ways to manage the data and data entry; and GPS fixing to provide use of only reliable GPS systems.
8. Provide consistent training on tagging protocols to all watercraft inspectors to ensure consistent application of new laws and regulations.

2. Assessment of local government inspection roles under Minnesota Statutes, section 84D.105

While none of the participating businesses in this pilot study tested the protocol using watercraft inspectors to complete the tagging, DNR was tasked with assessing local Watercraft Inspection Programs to help consider capacity, benefits and concerns associated with implementing a tagging program at a larger scale. This section gives a short summary of the scale and coverage for local and DNR Watercraft Inspection programs statewide.

2018 Watercraft Inspection Program	Number Watercraft Inspection Programs	Number Watercraft Inspectors	Number Accesses Covered	Number Inspection Hours	Approximate Number Inspections	Average Seasonal Duration
DNR Inspection Program	1	78	120	21,826	67,000	April 15-end of Oct
Authorized Local Inspection Programs	60	968	755	238,840*	403,000	May 11-Sept/Oct**
Totals	61	1,046	875	260,666	470,000	-

Table 3: Watercraft Inspection Statewide Summary

**The majority of local government programs started on 5/11 or 5/12, with the earliest starting on 3/29 (Lake of the Woods) and the latest starting on 6/18. Programs ended on a much wider range of dates. The earliest ended 8/17 and the latest ended 12/1 (Minneapolis Park and Recreation Board). Most programs end in September or October.

As can be seen in table 3, Watercraft Inspection Statewide Summary, Minnesota has a large distribution of watercraft inspectors with a total of 1,046 Inspectors who completed an estimated 470,000 inspections at 875 water accesses statewide. Despite this large number and distribution of watercraft inspectors, there are many accesses, parts of the state, and times of the season that do not have consistent coverage. As a result, it wouldn't be possible to use inspectors (either DNR or local government) consistently across the state to facilitate an equipment tagging program. Key logistical challenges include:

- Scheduling time for LSP staff and watercraft inspectors to meet to complete tagging would be difficult, as their work schedules do not always match up.
- Often docks, lifts and watercraft are installed for the season before inspection programs are fully staffed.
- There are many logistical issues with this model, including gaps in coverage for inspectors, hiring issues, attendance issues (such as illnesses), etc.
- Low potential interest in this option as neither of the LSPs participating in the pilot opted to test the protocols supported by inspection staff.

3. Assessment of mechanisms to ensure that water-related equipment returned to the same body of water from which it was removed can adequately protect other water bodies.

Moving water-related equipment is a high-risk pathway of spreading AIS. The State Management Plan for Invasive Species includes ‘preventing spread of aquatic invasive species on boats and equipment’ as the first high priority action. The regular LSP permit program was established to help address this risk with businesses engaging in movement of water-related equipment. Currently permitted LSPs must remove all the invasive species possible at the access when the equipment is removed from the water, before transport, transport equipment to their shop, and completely remove invasive species before returning the equipment to any waterbody. Watercraft users and riparian property owners follow the same rules; they can only transport equipment or watercraft with attached invasive species to a cleaning location, never to a waterbody. This pilot allowed participating LSPs to return equipment to the water without removing aquatic invasive species. The ability to transport water related equipment with attached aquatic invasive species meant:

1. Additional enforcement was needed to ensure the pilot requirements were met. These included appropriate tagging and tracking to ensure that equipment with attached invasive species was not put into a non-infested waterbody.
2. Additional enforcement was also needed to ensure anyone moving equipment with attached zebra mussels or other AIS was doing so legally.

The mitigation of that risk would require additional infrastructure, funding, staffing and enforcement to ensure that water-related equipment returned to the same body of water from which it was removed, without decontaminating it first, could adequately protect other water bodies.

A key factor in assessing risk of water-related equipment spreading AIS from one waterbody to another is the number of waterbodies and pieces of water-related equipment involved. There are currently 1,050 permitted LSPs in the state. Of those, the LSPs that work with boats, lifts or docks typically have hundreds of customers, use multiple water access points and work on multiple lakes and rivers.

Minnesota currently has:

- 1,050 permitted LSPs
- 445 water bodies listed as infested for zebra mussels (including confirmed listings and connected waters)
- 11,842 lakes and 6,564 natural rivers and streams
- Approximately 2,980 public water accesses and 1,722 private accesses
- 819,988 registered watercraft
- An estimated 240,256 shoreline properties and estimated 230,937 private docks

Challenges with Different Types of Water-Related Equipment

Zebra mussels are spread overland by people moving water or water-related equipment between water bodies. Different types of water-related equipment, from canoes and motorized boats to docks and lifts, come with varying levels of risk for spreading AIS. Docks and lifts pose a unique risk due to how they are used. Installed in lakes and rivers for the entire season, docks and lifts provide a higher risk of zebra mussels attaching on and inside their structures and being spread to new waters when equipment is moved. Minnesota law requires a 21-day dry time for docks and lifts when being installed in a different lake or river, to lower the risk of spread for this unique type of equipment.

In addition to docks being a high-risk type of equipment, this pilot study identified docks as a challenging type of equipment to enroll in a tagging program, due to the difficulties in keeping all components together for tagging, inspection and enforcement.

Tools to Ensure Compliance with AIS Laws and Pilot Study

Minnesota statute currently includes tools to ensure compliance with AIS laws, including warnings, civil citations, and criminal penalties (Minnesota Statutes, section 84D.13). Specific tools to ensure compliance with the tagging pilot study were created, including the pilot study permit and required surety bond. If participating LSPs were found to violate the pilot study permit, the State of Minnesota can claim the \$50,000 bond in full. The surety bond was found to be a barrier to participation in the pilot. Either a new tool would need to be identified or a pathway to greater acceptance of this method by LSPs would need to be found.

Final Recommendations

The DNR does not recommend expanding this pilot program. Operating a program to remove and return equipment from zebra-mussel-infested waters without increasing the risk of zebra mussel spread is complex and costly, and the interest among LSPs for participation in this pilot study was quite low.

Appendix A: Cost Details

Development Costs	Hourly Avg. FTE cost	Amount
Planning team meetings	120 hours @ \$116/hr.	\$13,920
Sub-team work meetings	156 hours @ \$116/hr.	\$18,096
Outreach meetings with LSPs	70 hours @ \$116/hr.	\$8,120
Communication planning	32 hours @ \$116/hr.	\$3,712
Outreach, communications and recruitment	24 hours @ \$116/hr.	\$2,784
Develop permit and tagging protocols	48 hours @ \$116/hr.	\$5,568
Implementation Costs		
Support to LSPs for permitting, surety bond questions	24 hours @ \$116/hr.	\$2,784
LSP staff and WIP/ENF staff attending trainings	54 hours @ \$116/hr.	\$6,264
DNR staff time preparing and leading trainings	72 hours @ \$116/hr.	\$8,352
Ongoing support and troubleshooting with participating LSPs	32 hours @ \$116/hr.	\$3,712
Tagged equipment inspections by DNR Conservation Officers	12 hours @ \$116/hr.	\$1,392
Contract for mobile device tagging app - development and hosting		\$5,812
5,000 printed tags and wire		\$1,668
Total		\$82,184

Table 4: Pilot Study Cost Details

Appendix B: Sample Permit

Lake Service Provider Pilot Study Permit

Gull Lake and zebra mussels

Minnesota Department of Natural Resources (DNR)
Division of Ecological and Water Resources
500 Lafayette Road, Box 25, St. Paul, Minnesota 55155

Who may apply for this permit

You are eligible to apply for this permit and participate in the Gull Lake pilot study (authorized by *Minnesota Statutes*, 84D.108 Subd. 2a.), if your businesses meets the following requirements:

- Have a current regular lake service provider permit,
- are located in Cass or Crow Wing Counties and using Gull Narrows State Water Access Site, Government Point State Water Access Site, and Gull East State Water Access Site on Gull Lake (DNR Division of Waters number 11-0305), and
- furnish adequate proof of a \$50,000 corporate surety bond, as required by *Minnesota Statutes*, 84D.108 Subd. 2a(d)

How to use this permit

You must sign this permit to make it valid, and keep a copy of this permit with you while doing any activity authorized by this permit. This permit is only valid in conjunction with a valid lake service provider permit.

Permittee information

1. Name of lake service provider business owner or manager: _____
2. Business phone number: _____
3. Name(s) of any other designees authorized to work under this permit – note that all designees must have a current lake service provider employee certificate:
4. Address(es) of any storage location(s) where you may transport equipment under this permit:
 - *You may append a separate list if you have a large number of storage addresses.*
 - *Changes to storage addresses need to be submitted to the DNR within 48 hours.*

Permit conditions

Definitions

In this permit:

- “You” refers to anyone working under this permit listed as a permittee or designee above.
- “Eligible equipment” is customer-owned water-related equipment that is a watercraft, dock or lift that you remove from Gull Lake (DNR Division of Waters number 11-0305). Eligible equipment must have a place to attach a tag as required by the permit. Equipment owned or used by your businesses, or types of water-related equipment not listed here, are not eligible for this pilot project (without prior approval from the DNR). Equipment that has been transported away from a Gull Lake access without being tagged is no longer eligible equipment.
- “Enrolling” equipment refers to the process of tagging eligible equipment and using a mobile application or a DNR watercraft inspector to document that the equipment has been tagged and to provide additional information about that equipment to the DNR. Equipment must be enrolled at an access of Gull Lake.
- “Enrolled equipment” is eligible equipment that has been tagged and that may be handled according to this permit.

Scope

This permit allows you to return eligible equipment to Gull Lake with zebra mussels attached after the equipment has been serviced, repaired or seasonally stored.

Required actions

- The business owner or manager must successfully complete DNR pilot project training and ensure that any designees listed on this permit have been trained either by DNR or the lake service provider permittee to follow all pilot study requirements and protocols.
- You must transport enrolled equipment with zebra mussels attached directly from Gull Lake to an address specified on this permit when you are removing the equipment from the lake. When you are returning the equipment to the lake, you must transport the equipment from an address on this permit directly to Gull Lake. If you have more than one storage location listed on this permit, you may transport enrolled equipment between those addresses.
- You may not transport any enrolled equipment with attached zebra mussels to a water body other than Gull Lake.
- You must use tags, mobile applications or documentation required by DNR for the pilot project.
- You must tag, mark, and/or enroll in a smartphone or tablet application all eligible equipment in accordance with this permit.
 - In the case of docks or other equipment that may be in more than one section, only one section must be tagged but all sections must be stored and transported with the tagged section at all times.

- If, for any reason, enrolled equipment needs to be removed from the pilot project (for example, the equipment is sold, or the equipment is going to be placed into a water body other than Gull Lake), you must
 - remove the tag from the equipment,
 - decontaminate the equipment before leaving your facility, and
 - comply with all state laws.
- Once the tag is removed from the equipment, it is no longer enrolled equipment and this permit no longer applies to that equipment.
- If, for any reason, eligible equipment is not enrolled in the pilot project before leaving an access of Gull Lake, that equipment is not eligible to be enrolled in the pilot project.
- You must comply with invasive species laws that are not covered specifically by this permit, including removing drain plugs from watercraft before transport and removing aquatic plants from equipment at the access.
- You are responsible for placing and removing tags from all equipment.
- Immediately report any lost tags or other concerns to the DNR.

Surety bond

- Your surety bond is payable upon violation of *Minnesota Statutes*, chapter 84D while acting under this permit. Examples of violations that would require paying the surety bond include:
 - Placing or attempting to place water-related equipment with attached zebra mussels into any water body other than Gull Lake,
 - violating the terms or conditions of this permit,
 - transporting enrolled equipment to a location not listed on this permit, or
 - transporting enrolled equipment to a location that is not on a route between one of the addresses listed on this permit or between one of those addresses and Gull Lake.

Inspections

Your facilities, records related to this permit, and any equipment transported under this permit are subject to inspection at any reasonable time by the Commissioner of Natural Resources or a designated employee.

Revocation

The DNR may revoke this permit if you do not comply with the conditions of this permit or, if necessary to protect the interest of the public, to protect native plant and animal populations in the state, or to otherwise protect the state's natural resources. Any violation of *Minnesota Statutes*, chapter 84D may result in revocation of this permit.

Transferability

This permit is not transferable.

Appendix C: Tagging protocols

Lake Service Provider App Tagging Protocol

This protocol is intended to be used by lake service providers (LSP) participating in the App option of the LSP tagging pilot study, created by the Minnesota Department of Natural Resources.

How to Install the Mobile Application

Device requirements

In order to participate in the mobile application tagging study, all staff placing or removing water-related-equipment must have access to an Android or Apple device. Compatible devices must have access to the Google Play® or App Store®, a camera, and Wi-Fi capabilities. Data plans are not required, but may make uploading results easier.

Downloading the survey

On the device, open Google Play or the App Store. For Android devices search and download DroidSURVEY; for Apple devices search and download iSURVEY. *DNR will notify you to download future updates, if needed.*

Name and authenticate your device

- Open the application once it has been downloaded
- Press the “device” button at the bottom of the screen.
- Create a user name following this format: LSP_ABCD_01 where ABCD is a unique 4 digit identifier for your business (e.g. LSP_BLUE_01).
 - If you are using multiple devices, number them in order starting at 01 (e.g. BLUE_01, BLUE_02)
 - Enter the authentication password: **164852**
 - If successful you will see a pop-up that says “now authenticated to the Minnesota Department of Natural Resources”
- Contact LSPstudy.dnr@state.mn.us to grant access to the survey. Improperly named devices will not be granted access.
 - Press the “admin” (home) button and press “download surveys”.
 - When successful you will see “LSP Pilot Project v1.3” listed as your current survey.
 - The admin page will be hidden by default once the survey is active. If you need to return to the admin page, press and hold the “start” button for 6 seconds.

Tagging Protocol Instructions

Tagging Protocol Instructions

New tags may only be placed on equipment being removed from the permitted lake *at the access*. Under no circumstances may tags be placed on equipment away from the immediate access location.

Attaching a new tag to equipment – removing equipment from the permitted lake

When removing a customer’s watercraft or equipment from the permitted lake, remove all aquatic plants from watercraft/equipment and trailer, pull plugs as required according to your regular Lake Service Provider permit.

Once the equipment is safely out of the water, press “start” within the smartphone application (droidSURVEY or iSURVEY).

- Select the type of equipment you are moving.
- Select “removing” for question 2. This will allow you to use a new tag.
- Select a new tag and record the tag number in the box (ignore the leading zeros on the tag – just enter the last 4 numbers.) Double-check the number for accuracy.
 - Take a photograph of the tag number – this is a safety feature in the event of a typo.
 - Attach the tag to the equipment with wire, and press the seal to close. You must attach the seal to the equipment in such a manner that the tag cannot be removed without cutting the wire.
- If the equipment has a registration number, record it in the space provided. If the equipment has no registration, select “equipment has no registration number”
- Fix GPS. **NOTE: This feature is only available on Android devices. Apple devices are currently not compatible with GPS.**
 - Users of Apple devices and users unable to get a good signal must select “No” to the next question (Did you get a good GPS signal?)
 - Take a photograph of the access. This photograph is used in place of a GPS signal to verify your location. It is important to take a clear photograph that identifies your location.
- Take a photograph of the attached tag. It should be clearly visible that the tag is pushed and locked.
- Record how long the equipment will be out of the water. Select the option that fits your timeframe closest. Do not use the longest timeframe as a default. This question will be used when evaluating the pilot study.
- Press “Finish” to complete the survey and upload within 24 hours.

Removing a tag from equipment – placing equipment back into the permitted lake

This pilot covers attached zebra mussels only. Always be sure to follow all requirements of your Lake Service Provider permit.

- Select the type of equipment you are moving.
- Select “placing” for question two.
- Record the tag number of the attached tag in the box. Double-check the number for accuracy.
 - Take a photograph of the tag number – this is a safety feature in the event of a typo.
- If the equipment has a registration number, record it in the space provided. If the equipment has no registration select “equipment has no registration number.”
- Fix GPS. **NOTE: This feature is only available on Android devices. Apple devices are currently not compatible.**
 - Users of Apple devices and users unable to get a good signal must select “No” to the next question (Did you get a good GPS signal?)
 - Take a photograph of the access. This photograph is used in place of a GPS signal to verify your location. It is important to take a clear photograph that identifies your location.
- Remove the tag, and take a photograph of the tag. It should be clearly visible that the tag has been cut and can no longer be re-used.
- Press “Finish” to complete the survey and upload within 24 hours.

Removing a tag from equipment – tagged equipment that will not be returning to the permitted lake

Special circumstances may arise where tagged equipment will no longer be returned to the permitted lake. **All tagged equipment not returning to the permitted lake must be decontaminated and free of all AIS before releasing the equipment to a customer.**

- Select the type of equipment.
- Select “this equipment is leaving the pilot study”
 - A text box will appear. Type in the reason the equipment is leaving the pilot study. Be as specific as possible. This will help the DNR evaluate the study.
- Record the tag number of the attached tag in the box. Double-check the number for accuracy.
 - Take a photograph of the tag number – this is a safety feature in the event of a typo.
- If the equipment has a registration number, record it in the space provided. If the equipment has no registration select “equipment has no registration number.”
- A decontamination reminder will pop-up; press “next.”
- Press “Finish” to complete the survey and upload within 24 hours.