Carver County Water Management Organization Aquatic Invasive Species Program Description and Evaluation Plan

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Aquatic Invasive Species Program Description

Overview
The Carver County Aquatic Invasive Species Program's mandate is to stop the spread of Aquatic Invasive Species (AIS) and create awareness. AIS are species not native to the surrounding aquatic ecosystem that are able to reproduce easily and rapidly. In Minnesota, AIS such as zebra mussels, invasive carp species, Eurasian milfoil, and others cause significant harm to the economy and the health of public waterways by altering the natural environment. In the last decade zebra mussels have been found in Minnesota lakes. In 2005 they were discovered in Lake Milacs and in 2012, Lake Minnetonka. It was not possible for the Minnesota Department of Natural Resources (DNR) to manage effective programs in all counties, and in 2012, the state began administering funding through DNR to have each Minnesota County to develop their own AIS programs. In 2014, the Carver County Water Management Organization (CCWMO) was given approximately $50,000 from the state to run the AIS program. In 2015, the organization was given over $100,000. The CCWMO has developed a program to combat AIS in the county through three primary programmatic areas: inspection, monitoring and education.

Program Goals and Objectives
CCWMO has developed a program to prevent the spread of AIS in all 33 lakes in Carver County through three primary programmatic areas: inspection, monitoring and education. At this time, there are no eradication efforts; the programmatic focus is prevention. A secondary goal is to increase awareness of AIS issues among residents and stakeholders. Success in meeting these goals is anticipated to result in healthier bodies of water in Carver County.

Setting and Context
The program is implemented at 12 of 33 lakes in Carver County, and educational programming is conducted at multiple public venues. There are many factors that influence the program. It is important for CCWMO to maintain positive relationships with community members who use public waterways and to be effective in their programming. Staff feel that ensuring that boaters and others affected by the program are happy with how the program is operated is crucial to its success. However, the limited capacity and staff experience with AIS within the CCWMO creates challenges for managing the program effectively. There has been no evaluation of the program to date. The majority of other Minnesota counties have received funding and are also operating AIS programs to address this issue. The work is done independently by each county, however, there is some amount information sharing facilitated by the DNR.

Program Personnel
There are three primary staff members at the CCWMO that manage and implement the AIS program in Carver County- Madeline Seveland, Paul Moline, and Charlie Sawdey. Starting in 2012, staff were asked to take on the development and implementation of the AIS program on top of their existing workload. Seveland dedicates about five hours per week coordinating and conducting education and outreach to the public. Moline is an Administrator at the CCWMO and manages the entire program which takes approximately 5-10 hours per week. Sawdey focuses

on water monitoring including planning and implementation. This takes about 10-15 hours per week with the support of another CCWMO staff member Andy. In addition to these staff, there are certified AIS inspectors that work at public access areas to support the ongoing inspections of boats. In 2015 there were 40 inspectors, which is an increase from previous years. These inspectors are currently hired, trained, and managed by Sam Perez at Carver County Parks Department and Charlie Sawdey at CCWMO. Perez spends approximately 15-20 hours per week in this role. The CCWMO will be assuming this role completely in late 2015. This transition will coincide with the hire of a full-time AIS program coordinator who will lead the AIS project for CCWMO.

The Carver County Water Management Organization (CCWMO) is governed through a commissioner-led governing board and through a volunteer advisory committee made up of 13 people- 9 citizens and 4 city representatives. AIS program plans are developed by staff from the CCWMO and are first sent to the Advisory Committee, and then to the Commissioner's Governing Board for approval.

Beneficiaries or Participants
All of the citizens of Carver County benefit from and are affected by the success of the AIS program, particularly those that use or live on bodies of water in the country. By supporting this program, they are helping to maintain public waterways that can provide resources and recreation for the communities of Carver County. In addition, by slowing or preventing the spread of AIS in Carver County this can also support the prevention of spread throughout all Minnesota lakes. Therefore lake users statewide can benefit from this program if it is effective.

Activities
Inspections: Certified AIS inspectors are placed at selected Carver County public boat access. Each public access is staffed based on volume of use. Smaller or less frequented lakes may only be staffed on Saturdays, for example. Inspectors carry iPads and ask a series of questions to people bringing boats into the lake, as well as physically inspect the boat for signs of AIS. Any boats found to have zebra mussels or other AIS are recorded on the iPad, and owners are requested to have their boats decontaminated prior to launching. However, inspectors don't have authority to actually prevent people from going in the lake with a contaminated boat. Boats that have been decontaminated receive a 'clean' tag that can be shown to inspectors to facilitate easy access.
Education- CCWMO educates the public on AIS by providing information to citizens, K-12 students and local decision makers through newsletters, newspaper columns (printed in 5 local newspapers), and targeted letters to homeowners on lakes. They also conduct AIS educational events at county fairs and other public events.
Monitoring- The earlier AIS are detected in a body of water, the easier it is to prevent the spread. At this time, monitoring only occurs for zebra mussels. CCWMO perform plate monitoring in 5-10 lakes in the county. This consists of inserting plates in the lake and removing them on a bi-weekly to monthly basis to inspect for zebra mussels. Water samples from one lake, Waconia, are also analyzed for zebra mussel veliger (larva). In addition they request feedback from lake homeowners on AIS and have sent postcards to 250 lake homeowners for the last 3 years.

Program Resources
In addition to the staff and governing bodies previously mentioned that provide support for this program there are other resources available. The CCWMO AIS Program receives State funding through the DNR. In 2015 they were given approximately $100,000 from the state, and were provided an additional $30,000 for the program from county tax levy for an operating budget of

$130,000. Many of the funding decisions affecting the program are outside of program staff control, as they are appropriated by county and state government. There are also technological resources utilized. Program inspectors use iPads for recording inspection results and databases are available to track surveys and responses collected from county residents. In addition the CCWMO has access to the metro area AIS planner that is supported by the DNR, though they have not utilized this person up to this point.

Logic Model
A logic model providing a visual depiction of the complete AIS program is included in a separate document as an addendum to this evaluation plan.

Aquatic Invasive Species Program Evaluation Plan

Evaluation purpose:
The Carver County Water Management Organization (CCWMO) is interested in exploring the impact and success of their Aquatic Invasive Species (AIS) Program. Elements of the program began in 2012, while a finalized program model has been in operation since 2014. No evaluation of any component of the program has occurred during this time. During discussions with staff from CCWMO we collaboratively decided to focus this evaluation on one of the three components that comprise the AIS Program- inspections. CCWMO wants to conduct an evaluation in order to determine how boaters are responding to boat inspections, as well as determine ways in which inspections can be changed in order to improve their effectiveness and the perceptions of those involved with the program. CCWMO intends to use this information in order to make changes in program design and delivery with a focus on ensuring boaters have a favorable opinion of the boat inspection process and that the inspection is delivered effectively. Therefore this evaluation has been designed as a formative evaluation.

Evaluation questions:
Four primary questions will guide this evaluation. They were decided upon jointly between the evaluation team and staff at the CCWMO. These evaluation questions focus on two primary stakeholders: Boaters using Carver County public water accesses and inspectors staffing these accesses. Questions 1 and 2 will be answered with feedback and data collected from boaters. Question 4 will be answered using insight gathered from inspectors. Data from both of these groups will be used to address question 3.
Q1. How do boaters' feel about the inspection process?
Q2. What are boaters' perceptions of the inspection process' ability to slow the spread of AIS?
Q3. What changes can be made to improve the inspection process for the boaters?
Q4. What changes can be made to improve the inspection process for the inspectors?

Data Sources and Collection Strategies
In this section, we describe the sources of data to be used in the evaluation. We have identified some of the key stakeholders able to help the organization answer its questions regarding the inspection process. We have also identified several tools we suggest using to gather information from the key stakeholder groups and the evaluation questions each tool seeks to answer.

In Table 1, we have identified different strategies for conducting basic analysis of the collected data, as well as recommendation for next steps, once the data has been compiled and made ready for analytical purposes.

We have developed short survey as a tool for collecting evaluation data from boaters using public water accesses in Carver County. We recommend a wide dissemination of this survey in order to ensure a large sample size. This survey was developed to add onto the digital checklist each inspector runs through with each boater using an iPad.

In order to determine if the boater survey is user friendly and written clearly we have field-tested it with a small number of individuals. During this process we were also looking to ensure the qualitative (open-ended) questions were eliciting the type of responses we hoped to obtain. We edited some of the language in order to make the questions more easily understood. However, the individuals who took the survey were not boat owners. Therefore we recommend that you do additional field testing with a small group of actual potential survey respondents prior to using the survey on a large scale in the early summer. Make any changes necessary for clarity and ease of use and then have an additional review of the changes.

(See Table 1: Data collection strategies and sources of data for CCWMO Evaluation)

Sample Data Collection Tool
- ❏ **Instrument:** Survey - Conducted with boaters at Carver County public access waterways.
- ❏ **Equipment needed:** iPads to complete survey during or after the inspection process.
- ❏ **Training:** Training should be given to all boat inspectors on how to properly conduct the iPad boater survey prior to implementation. We recommend that be added to the spring orientation for all inspectors. This will ensure consistency in training, which will help with consistency in conducting the survey. Included in the training should be an explanation of why the survey is being conducted, how to introduce it to boaters, and a detailed description of how and when to conduct the survey as part of the boat inspection process.
- ❏ **Instructions for inspectors:** In order to help orient boaters to the survey inspectors should explain the survey process before giving boaters the iPads. Included in this introduction should be an explanation of why the survey is being conducted and how the results will be used. Emphasize that the information gained through the surveys will help the CCWMO improve the boat inspection process for boaters and help to ensure the program is successful in preventing the spread of AIS in local lakes. Also ensure them their responses will not be individually identifiable. Let boaters know if they have any issues with the survey you can assist them. When they are finished with the survey make sure to thank boaters for their input and give them the incentive.

Survey

Introduction: (This introduction will be included on the iPad) The purpose of this inspection process is to help prevent the spread of Aquatic Invasive Species (AIS) and increase public understanding about the damage that these invasive species do to lakes and rivers. AIS are non-native species, such as Zebra Mussels and Eurasian water milfoil. These pose a threat because they reproduce very fast and can take over lakes and rivers causing economic, environmental and ecosystem damages.

1. Gender: ▢ Male ▢ Female
2. Age: ▢ 18-25 years ▢ 25-35 years ▢ 35-60 years ▢ 60+ years
3. Why are you here today? ▢ Family outing ▢ Fishing ▢Water recreation

For questions 3-5 and 7 please select the response that most accurately reflects your experience today.

4. I feel the inspection process was completed quickly today.

Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree

5. I am satisfied with my interaction with the inspector today.

Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree

6. Boat inspections are an effective measure to prevent the spread of AIS.

Strongly agree	Somewhat agree	Neutral	Somewhat disagree	Strongly disagree

7. Briefly share why or why not:

8. After going through the AIS inspection process, I feel more knowledgeable about:

What AIS are	Strongly agree	Somewhat agree	Neutral	Somewhat disagree	Strongly disagree
How AIS spread in Minnesota	Strongly agree	Somewhat agree	Neutral	Somewhat disagree	Strongly disagree
What I can do to prevent AIS from spreading	Strongly agree	Somewhat agree	Neutral	Somewhat disagree	Strongly disagree

9. If you had $10,000 to improve this program how would you use it?

10. Would you be willing to be contacted about participation in a focus group to improve the inspection process?

        Yes ___   No ___

        If yes, please share your name, phone number, and email.

        Name: _____

        Phone number: _____

        Email: _____

Thank you for your time and feedback!

Additional information on other data collection strategies:

Focus Groups

We recommend utilizing focus groups as a follow-up to the boater survey because focus groups can provide a deeper level of understanding and context to the breadth of survey responses. Focus groups would allow you to further explore how boaters have been impacted by the inspection process, as well as their level of awareness and contribution to existing efforts to prevent the spread of AIS.

We recommend selecting a diverse group of 18-24 out of the recruited boaters; this can be done using a random number generator, with numbers assigned to each boater who indicated interest in participating in focus groups. It will be important to ensure boaters with both positive and negative inspection experiences are included in the sample. When conducting focus groups participants within a single group should have shared characteristics. This improves the level of comfort among participants and typically enables more open and honest feedback. For this reason we suggest breaking the pool of 18-24 into 3 smaller groups of 6-8 participants from each of the three boater types: fishing, family outing, and water recreation. Alternatively, the groups could be divided based on participant demographics.

Having 3 different focus groups will allow the evaluator to compare similar themes across groups. Information gained will also help understand what, if any, differences exist between groups which can inform future programmatic changes for inspections and education.

Web-based Survey

Inspectors interact with boaters on a daily basis and may receive a lot of informal feedback. Inspectors may also have insight into what works well for boaters, and ideas about how to improve the inspection process for both inspectors and boaters alike.

We recommend all hired inspectors participate in a web-based survey at the end of their employment period, either in August or October. Survey questions should inquire about the inspector's overall impression of the process and their perceptions of the boater's experience at different points in the inspection process. The survey should also offer an opportunity for inspectors to comment on what is going well, and what could be improved. We feel it could be interesting to ask the inspectors the same question as number 9 on the boater survey. If there is interest in gathering information about inspectors' practices we suggest asking direct questions about behavior instead of more abstract questions in order to ensure you are gathering the desired data.

We recommend the survey be conducted anonymously, with the option for inspectors to leave their name and contact information if desired. In addition, we suggest that you share key findings from these surveys with the inspectors, especially recognizing any improvements being made to the inspection process as a result. This emphasizes the importance of the feedback given by inspectors and can create buy-in from them for future evaluation measures.

If desired and feasible this survey could be conducted throughout the season to provide feedback to CCWMO and allow for the program managers to continuously evaluate and make necessary changes in operating procedures throughout the boating season.

Table 1: Data collection strategies and sources of data for CCWMO Evaluation

Data collection methods:	Data Sources:	Evaluation Questions Addressed:	Method of Delivery:	Context:	Timing for data collection:	Strategies for data analysis:
Survey	Boaters (group 1)	Q1, Q2, Q3	In-person survey using iPads- given by inspectors	Boaters at public water accesses will be asked to respond to a brief survey related to AIS during or after going through the inspection process. This seeks to gather data from boaters during their interactions with staff members. Surveys provide direct insight to the boaters' own experiences with the inspection process. Keep in mind that completing a survey takes time, and a long survey may detract from a positive perception of the inspection as a whole. For this reason, we suggest keeping the survey reasonably short.	Data will be collected throughout the summer months (May-October of 2016). It will be important to collect data over entire period because the boaters' experiences may change depending on the staff's level of familiarity with the inspection process, peak demand times, and other seasonal factors. Data should be collected after each inspection has taken place unless a boater refuses to participate. If desired the number of times a person has taken the survey can be collected and used for data analysis. We recommend conducting the survey at all boat accesses, but data can be collected with a smaller sample of lakes if desired. For a smaller sample we suggest including a variety of lake sizes, known uses, and level of use. This will help obtain data that accounts for the variety that exists.	If possible analyze data gathered to-date multiple times throughout the summer. Feedback obtained through the surveys may be able to be used to make changes to the inspection process or additional training for inspectors that can be instituted quickly. Obtain descriptive statistics such as average age of participants, female/male ratios, reason for visiting lake, participation rates, etc. For questions 4-6 and 8 determine the frequency of each answer. If possible, use a table with answers on one axis and a category/group on the other, and use a test of independence to see if one type of group is more likely to respond in a certain way. Common tests include Pearson's Chi-squared or Fisher's exact test. For questions 7 and 9 identify key themes, if any, and quantify the frequency of key themes. Try to obtain percentages as well, in order to better visualize the data. Compare results with expected outcomes/hypotheses about the way the program works. If any patterns appear counterintuitive or deviate from the anticipated outcomes these will be used to develop questions for the focus group. Revisit data after the focus group has taken place, and perform comparative analysis (compare and contrast) between the information from the different sources.

Data collection methods:	Data Sources:	Evaluation Questions Addressed:	Method of Delivery:	Context:	Timing for data collection:	Strategies for data analysis:
Focus Group	Boaters (selected volunteers from group 1)	Q1, Q2, Q3	Focus groups with boaters identified during survey process	The main rationale behind conducting focus groups are: 1) Corroborate the information gathered via the surveys. 2) Probe most relevant issues in greater depth. This will serve as an excellent platform to understand in greater detail the boaters' perspectives of the program. Participants should be divided into groups with similar demographics or lake use to encourage open dialog. One potential concern is that boaters will self-select into the focus group's participant pool, so their responses may not be representative of the entire boater population. We recommend providing some type of incentive to boaters who participate, keeping in mind that too much of a positive incentive may bias the participants' responses. We suggest a boating-related incentive because incentives tied to the purpose of an evaluation are most effective.	We suggest conducting the focus groups after having gathered and analyzed the survey data, early in the fall of 2016. Early fall is recommended because the experience of taking part in the inspection process should still be recent. Focus group participants will be selected from among the boaters recruited throughout the summer. Evaluators should rely on the survey data and its findings in order to design an appropriate focus group discussion that addresses the most relevant issues arising from the survey.	Regardless of survey's outcome (i.e. boaters are satisfied or not satisfied with the inspection process), a focus group will allow evaluators to delve deeper into the way in which the program is having an impact among the target population. The facilitator should take notes (or record, if participants agree to it) in order to capture the most salient ideas stemming from the discussion. Compile answers to questions based on notes and recordings and proceed to analyze the content. Identify and categorize recurring themes and patterns in people's responses. Be sure to note any unanticipated or incongruent findings that may require further exploration. Compare responses between the groups based on demographics or lake uses. This can identify key differences between groups that could help inform future changes in inspection. It may also help tailor future education and outreach efforts to particular groups. Compare the answers arising from the focus group to the findings from boater surveys and inspector surveys, and look for corresponding themes and/or any type of differences across data samples.

Data collection methods:	Data Sources:	Evaluation Questions Addressed:	Method of Delivery:	Context:	Timing for data collection:	Strategies for data analysis:
Web-based survey	Inspectors	Q3, Q4	Web-based survey	Surveys of this type are cost-efficient and enable us to reach as many of the agents implementing the program as possible in order to obtain their input on the program and its implementation. Surveys should be conducted with new and returning inspectors. Involving inspectors with varying levels of experience can provide new perspectives, as well as reduce the potential for biased responses obtained only from inspectors who have worked with the program in the past. We suggest sending the survey to all inspectors via email. The inspectors will be able to access and complete the survey on an online survey platform (Survey Monkey, Qualtircs, Google Forms, etc.). The survey should be anonymous with the option for the inspector to provide contact information if s/he would like to provide additional context to any suggestions they provide.	Surveys will be administered online in August (to accommodate college student workers) and October of 2016. This timing will allow for all surveyed inspectors to have at least one full season of experience conducting inspections and interacting with boaters. Reminder emails will be sent to increase survey participation rates. This survey can be conducted throughout the summer in order to incorporate feedback during the boating season, if desired.	Again, compile data and obtain descriptive statistics for quantitative data. For qualitative information, codify responses by key themes. Use data gathered through these surveys to provide context and triangulate data gathered from the boater's survey and the focus group. Revisit data after focus groups have taken place and perform a comparative analysis (compare and contrast) between the information from the different sources. Results from the survey should be shared with the participants along with any immediate next steps the county is planning to take in response to the results. This should help recognize the importance of inspector feedback and create buy-in for future evaluation efforts.

Carver County Aquatic Invasive Species Program Evaluation Logic Model

			OUTCOMES	
INPUTS	ACTIVITIES	OUTPUTS	SHORT TERM	LONG TERM
	INSPECTION			
* $130,000 in program funding- $100K from DNR + $30K from levy * Staff time from 1 employee at Carver County Water Management Organization (CCWMO), Paul, to oversee all aspects of the AIS program * Office space and technology	* Staff time from 2 employees- Sam (Parks and Rec) and Charlie (CCWMO) to hire, train, and oversee inspectors * Staff time from 40 certified AIS inspectors (Parks and Rec staff in 2015, CCWMO staff in 2016) * Technology- iPads for surveys at inspection sites * Volunteers to perform inspections at public access points in some lakes	* Inspectors at public accesses look for signs of invasive species to prevent infested boats from entering lakes; days and hours vary by lake * Inspectors refer users to the decontamination unit. Clean tagging system facilitates easy access after decontamination	* Database of data collected from previous boat inspections * Interactions between boaters and inspectors	* Prevent boats infested with AIS from entering non-contaminated lakes * Create better relations between inspectors and users	Prevent long-term spread of AIS
	MONITORING			
	Staff time from Charlie and Andy (CCWMO) to plan and implement monitoring for water quality and AIS presence	* Monitoring for zebra mussels using plates, May through October on 5-6 lakes * Monitoring for veligers (ZM larva) through water sampling on Lake Waconia * Postcards to Waconia homeowners with a request to help monitor the lake	* Database from returned postcards from homeowners * Data and results from monitoring	* Knowledge of spread or prevention of spread of AIS in Carver County * Homeowners report and evidence of AIS	Prevent long-term spread of AIS
	EDUCATION			
	Staff time from Madeline (CCWMO) to plan and conduct education and outreach to the general public	* Write newspaper articles * Write monthly newsletter articles * Write and mail targeted letters to lakeshore homeowners in Waconia * Provide irregular education to youth and adults * Inspectors provide informal person to person education during inspections * Signs at public access points to encourage desired behavior * AIS focused educational activities at Carver County Fair * Letters to lake service providers informing/reminding them of certification requirements * Postcards to Waconia homeowners with education information	* AIS information shared with public through publications * Interactions between community members and CCWMO staff * Participation by kids and their parents in education activities * Tailored letters received by lakeshore homeowners * AIS Public Service Announcements- YouTube video contest * Press Release	* Raise awareness about AIS and how to prevent spread * Ensure homeowners hire AIS certified lake service providers * Boaters follow recommended AIS prevention procedures	* Raise widespread awareness about AIS and their impact (environmental, economic) in the area * Widespread use of recommended AIS prevention procedures by Carver County residents and boaters

(rightmost column, spanning all outcome rows) Create partnerships with other counties to share AIS prevention resources (e.g. information, best practices, monitoring and evaluation tools, etc.)

POTENTIAL AND/OR FUTURE INPUTS	ASSUMPTIONS
AIS Project Coordinator for Carver Country (to be hired in Dec/Jan)	Inspections are the best way to combat the spread of AIS, coupled with, secondarily, education
DNR employed AIS Plan Coordinators	If AIS are detected early you can prevent their spread
Promising practice plans from other countries available on DNR website	Resources are not available for effective eradication of zebra mussels in lakes, so preventative measures are only feasible option
EXTERNAL FACTORS	Without preventative measure AIS will spread
Counties all over MN have received state funding for AIS projects, all counties work independently	Program consumers (especially boaters & residents) need to be happy in order for the program to be effective
Most education on AIS focus on negative aspects of AIS (in both county and state), however, <1% of lakes are contaminated by zebra mussels	Creating awareness among citizens about AIS and their impact will lead citizens to support the containment of AIS
All plans developed by Carver Country WMO must be approved first by the Advisory Committee and then by the Governing Board	