

Background:

Florence County is located in northeast Wisconsin. There are five major watersheds in Florence County: Pine River, Popple River, Menominee/Brule River, and small portions of the Pike and Pemebonwon Rivers. According to the Wisconsin Department of Natural Resources, the county holds 265 lakes and 165 miles of rivers. Two of the rivers in Florence County are designated State Wild Rivers.

Florence County lakes and rivers are subject to various types of boater traffic throughout the year. Nearly half of Florence County's residents, including waterfront residents, are seasonal. The county is also a destination for tourists and anglers. Within Florence County, there are approximately 35 boat landings and 20 carry-in/canoe access areas. Migratory residents, tourism, and access are factors that make the county's surface water resources susceptible to new aquatic invasive species (AIS) introductions.

In 2006, Florence County recognized preventing the spread of aquatic invasive species as a priority. The objectives of the second goal in the 2006 Florence County Land and Water Resource Management Plan are:

1. *Slow the spread of invasive species and lessen their impacts to local land and water resources.*
2. *Support seeking grant funding and sharing information in cooperation with the state's efforts to control the spread of invasive species.*

In accordance with these objectives, Florence County applied for and was awarded a grant for Project Number AEPP-151-06. Project activities included coordinating Clean Boats, Clean Waters watercraft inspections, lake monitoring, and educational outreach.

In 2008, Florence County applied for this AEPP grant to build upon the 2006 grant project. The county was awarded funding for Project Number AEPP-131-08, *Florence Countywide AIS Programming*, in May 2008.

The original contract agreement stated an end date of December 31, 2008. A requested amendment extended the project deadline to June 30, 2009.

A Progress report (Appendix A) and partial payment request were submitted and approved in April 2009.

This report describes the AEPP-131-08 grant project, *Florence Countywide AIS Programming*. The project will be complete by June 30, 2009.

Project Goals:

1. To implement a county-wide invasive species program that will work toward preventing any further introduction of AIS into Florence County lakes and rivers.
2. Organize and lead a volunteer water monitoring team that can identify pioneer infestations of AIS and report any findings to the Wisconsin Department of Natural Resources.
3. Develop management strategies that will limit the spread of established populations of AIS into neighboring clean waters, including educational news articles, workshops, watercraft inspections and presentations.
4. Educate area landowners and lake organization members about the proper procedure and approved treatments used as AIS control methods and encourage long term lake management planning.
5. Promote the state's Clean Boats/Clean Waters watercraft inspection program that educates and utilizes volunteer efforts as a public outreach tool used to minimize the vulnerability to the spread of AIS.

Project Activities:

1.) Recruit volunteers and implement a CBCW program at the Florence County boat landings

Watercraft Inspection Coordinator, Katie Malinowski trained and organized volunteers and entered their watercraft inspection data into the Surface Water Integrated Monitoring System (SWIMS) database.

Katie conducted three Clean Boats, Clean Waters trainings throughout the summer and trained a total of thirty seven individuals. Clean Boats, Clean Waters volunteers donated a total of 477 in-kind hours at boat landings. Volunteer hours were concentrated at high traffic landings on the Fourth of July and Labor Day weekends. Watercraft inspections were performed at the following boat lands:

- Brule River Flowage
- Emily Lake
- Fay Lake
- Halsey Lake
- Keyes Lake
- Lake Ellwood
- Long Lake
- North Lake (Spread Eagle Chain)
- Patten lake
- Twin Falls Flowage

Volunteers contacted 830 boaters and 347 watercrafts. 367 of the 477 CBCW hours were associated with data entered into SWIMS. 110 hours were not associated with data entered into SWIMS because no boaters were present to survey. CBCW boater survey results can be found in SWIMS.

2.) Hire an Invasive Species Program Manager and a CBCW Program Coordinator.

The positions were advertised in the Florence Mining News newspaper (Appendix B). Watercraft Inspection Coordinator, Katie Malinowski, and Invasive Species Program Manager, Maureen Ferry, were hired in June.

Due to county policy, grant funds allocated for benefits did not accompany the Invasive Species Program Manager position and were reallocated for other project expenses. Significant expenditures of reallocated grant funds will be explained in this report.

3.) Conduct AIS Citizen Lake monitoring following Dept/UW Ext guidelines.

Maureen Ferry and Conservation On the Land Intern, Dane Gagnon, divvied up 43 publicly accessible lakes and 9 publicly accessible river sites. They were accompanied by a volunteer at each location and conducted water quality and AIS monitoring using the volunteer's watercraft. Volunteers and their watercrafts spent a total of 167 hours assisting LCD staff with lake monitoring. Maureen sent thank you letters to all of the lake monitoring volunteers (Appendix C).

Parameters examined were general weather conditions, boat landing sign presence and condition, presence/absence of invasive species, Secchi visibility, temperature at intermittent depths, and dissolved oxygen, pH, phosphorus, and nitrate at 1 meter below the surface.

Comments regarding weather conditions and boat landing signs were entered in SWIMS.

No new populations of aquatic invasive species were found, but new populations of the riparian invasive species, purple loosestrife were documented throughout the county. Populations were found both in lakes and wetlands. Populations on lake shores were reported on Forms 3200-

124 and entered in SWIMS. Both populations on lakes and in wetlands were reported on Forms 3200-125 and 3200-119 and sent to the DNR Purple Loosestrife Control Coordinator.

Secchi visibility was measured following Dept/UW Extension guidelines. Results were entered into SWIMS. Secchi results can be found in Appendix D.

Temperature at intermittent depths was determined using a Koch Measurement Devices, Inc. Fish Finder. This data was not entered into SWIMS because it was often incorrect and assumed unusable.

Dissolved oxygen, pH, phosphorus, and nitrate tests were performed with a LaMotte Low Cost Water Monitoring Kit, Code 3-5886. Due to the method, chemistry data was assumed unusable and not entered into SWIMS, but is available in Appendix D.

Maureen sent letters to the current Citizen Lake Monitoring Network (CLMN) volunteers (Appendix E) to introduce the county's AIS program and organize a Quality Assurance/Quality Control (QAQC) workshop. A copy of the introductory and follow-up letters can be found in Appendix F. The QAQC Workshop was held on Friday, May 11th.

4.) Disseminate AIS information at boat landings, public areas, resorts, businesses, tournaments, and news articles.

Katie provided AIS materials to CBCW volunteers and to boaters at boat landings. CBCW volunteers and signage provided AIS information at boat landings.

Maureen distributed AIS information to the following bait dealers in the county: Florence Sport and Bait, The Store in Long Lake, and Keyes Lake Campground and Mini Golf.

AIS materials were also distributed at the following major events: Fourth of July Keyes Lake boat parade; Keyes Lake Ice Fishing Derby, February 14; Florence County Fair, August 22-24 (Appendix G); and the North Star Garden Conference, April 25 (Appendix H).

LCD staff distributed 17 articles throughout the grant period. For a detailed list and copies of all articles see Appendix I.

LCD staff conducted several presentations throughout the grant period. See Appendix J for a detailed list of presentations and accompanying presentation materials.

Due to the number of new purple loosestrife populations, Maureen initiated an interagency effort to implement a purple loosestrife biological control rearing station at the Florence Natural Resources and Wild Rivers Interpretive Center. Maureen coordinated the project with the following entities: Americorps, Clean Kill Pest Control, Florence County Forestry and Parks, Florence County Lakes and Rivers Association, the Wild River Interpretive Center, University of Wisconsin-Extension, Wisconsin Department of Natural Resources, and the United States Forest Service. Meeting minutes and discussion materials are available in Appendix K. This project will serve as an educational tool and potentially an insectary for biological control agents.

Maureen sent letters to all landowners with purple loosestrife on their property to inform them of the presence of the purple loosestrife, the biological control project, and upcoming presentations about the biological control (Appendix L). The biological control rearing program will continue under Project Number AEPP-176-09.

5.) Develop/distribute a healthy shoreland living packet.

An already existing packet had been a cooperative effort among Florence County Lakes and Rivers Association, Florence County Land Conservation Department, Florence County Schools, Florence County Zoning, Keyes Lake Improvement Association, UW-Extension, Wild Rivers Realty, WDNR, and Wisconsin Master Gardeners. With approval of these entities, Maureen updated the existing healthy shoreland living packet. Materials contained in the healthy shoreland packet can be found in Appendix M. A packet was submitted as a deliverable with this grant report.

Maureen distributed the packets to Wild Rivers Realty and made them available at the courthouse and the Florence Natural Resources and Wild Rivers Interpretive Center.

Discussion/Recommendations:

1.) Recruit volunteers and implement a CBCW program at the Florence County boat landings

Data collected by Clean Boats, Clean Waters watercraft inspectors from the past four years illustrates boater behavior and awareness and can be used to identify relationships. Some recommendations can be made based on these observations.

Boater awareness of regulations related to aquatic invasive species is growing (Figure 1.). Figure 2 illustrates that many boaters are becoming aware of these regulations through watercraft inspectors. Promoting awareness of aquatic invasive species and their regulations is the best prevention method. Prevention, rather than treatment, is the most effective management tool for aquatic invasive species.

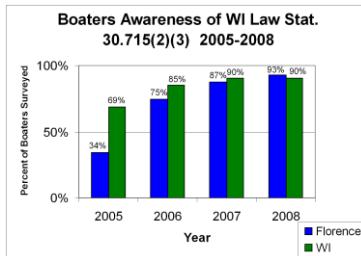


Figure 1. Boater Awareness of Regulation.

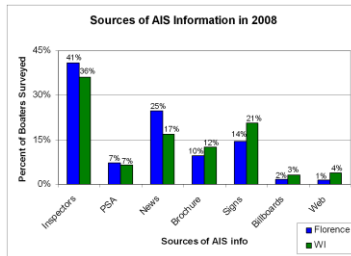


Figure 2. Source of AIS Information.

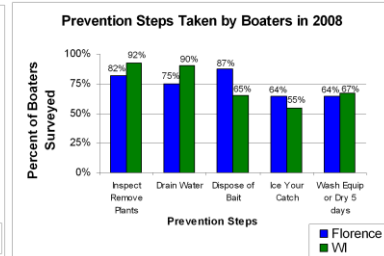


Figure 3. Prevention Steps Taken By Boaters.

Figure 3 illustrates prevention steps that boaters are taking in Florence County versus the State of Wisconsin. Boaters in Florence are disposing bait and icing their catch more frequently than in the rest of the state. This could be accredited to education provided by the bait shops in the county. Bait shops provide customers with information about Viral Hemorrhagic Septicemia and the regulations regarding the use of minnows. The data also show that boaters in Florence are not removing plants and draining water as frequently as the rest of the state. Florence County could provide information about the importance of removing plants and draining water in the bait shops and at boat landings.

Time spent on water, boats inspected, and people contacted during inspections are all linearly related (Figures 4, 5, and 6.). More time spent at the boat landing will result in a greater number of boats inspected and a greater number of contacts. More contacts mean more people becoming aware of AIS issues. Florence County should continue to work with the Wisconsin Lakes Partnership to provide training and tools for volunteers to conduct watercraft inspections.

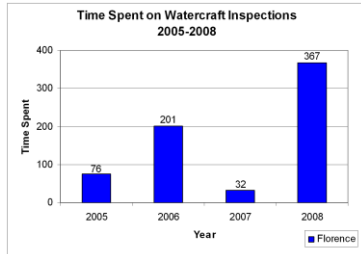


Figure 4. Time Spent on Watercraft Inspections.

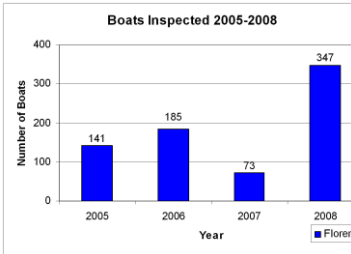


Figure 5. Boats Inspected.

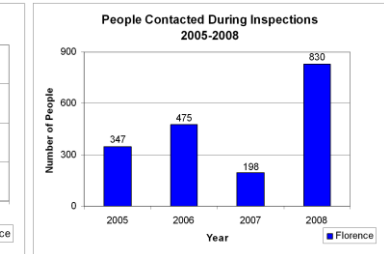


Figure 6. People Contacted.

There could be a relationship between receiving grants and time spent conducting CBCW. Since DNR control grants can be matched with CBCW in-kind, a grant award often results in an increase in hours spent at boat landings and more contacts made. In 2008 and 2006, the county received DNR AEPP grants and used volunteer in-kind hours as a grant match. More boaters were contacted in these years than years the county did not receive grants. The reason for

a relatively large number of educated boaters in 2005 is probably because the first CBCW workshop was held in the county in 2005, so the program was new and “exciting”. Therefore, it could be concluded that receiving grants and meeting the match through CBCW in-kind hours will result in educating more boaters. Florence County should continue applying for and implementing DNR AEPP grant projects.

There could also be a relationship between receiving grants and new lakes with Eurasian water milfoil. Oneida and Vilas Counties are good examples because they each have a large number of lakes (i.e. large sample size) and differ in grant activity. Vilas County lakes have received a large number of grants and Oneida County lakes have received much less by comparison. In addition, Vilas County has fewer new lakes with Eurasian water milfoil than Oneida County. This illustrates that receiving grants and performing prevention activities can prevent new introductions of Eurasian water milfoil. This is another reason the county should continue implementing grant projects and promote lake associations to apply for DNR AEPP grants.

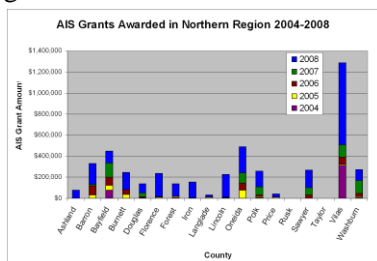


Figure 7. AIS Grant Awards in Northern Region.

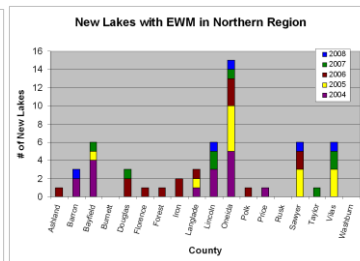


Figure 8. New Lakes with EWM in Northern

Source waters are defined as waters that are known to contain Eurasian water milfoil, rusty crayfish, spiny water flea or rainbow smelt. In 2008, CBCW volunteers sat at 50% of source waters (Figure 9.). Since containment is more effective than shielding lakes without aquatic invasive species, Florence County should recruit volunteers from source waters and encourage CBCW volunteers to guard source waters in the future. Florence County could also have staff guard source waters during high traffic events.

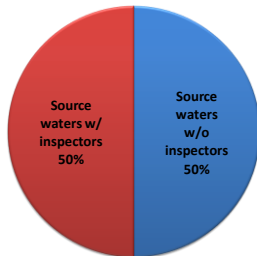


Figure 9. Watercraft Inspections on Source Waters.

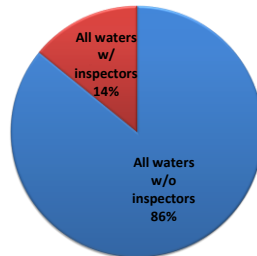


Figure 10. Watercraft Inspections on Public Access Waters.

In 2008, Florence County had CBCW volunteers at 14%, or 11 of the 78, water bodies with public access (Figure 10.). Florence County should develop a strategy to recruit volunteers at the remaining 67 water bodies with public access, focusing on source waters.

2.) Hire an Invasive Species Program Manager and a CBCW Program Coordinator.

While the county successfully filled the positions, it may be beneficial to advertise positions more widely in the future. It may also benefit this developing program to seek candidates with a background in aquatic ecology. It may also be beneficial to seek funding for Watercraft Inspectors for source waters. Such funding could come from WE Energies’ Menominee Watershed Mitigation Enhancement Fund.

3.) Conduct AIS Citizen Lake monitoring following Dept/UW Ext guidelines.

Although Maureen inventoried several new populations of purple loosestrife, it is difficult for one or two individuals to monitor all water bodies during the appropriate phenology times. The county should recruit and train volunteers in the Citizen Lake Monitoring Network (CLMN) Aquatic Invasive Species program. This will ensure that a capable individual is monitoring for new aquatic invasive species and will provide more time for the Invasive Species Manager to focus on education.

The county currently has 6 volunteers enrolled in the CLMN AIS program (Figure 11.). Recruitment should be focused on source waters with public access.

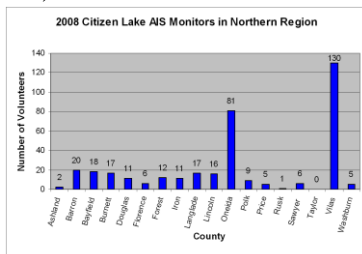


Figure 11. CLMN Monitors in Northern Region.

Ideally, clarity readings would be taken four times a year and it is not feasible for county staff to meet this goal. Enrolling volunteers in the CLMN Clarity program should be a secondary program of focus for volunteer recruitment. The primary focus for recruitment should be water bodies with public access and then all others.

For more meaningful chemistry data in the future, Maureen initiated the purchase of a Hach HQ40d multi-parameter meter with probes for dissolved oxygen, pH, and conductivity. This purchase was made through reallocated grant funds. Data collected with this meter will be entered into SWIMS in conjunction with Project Number AEPP-176-09. This meter should be made available to any CLMN volunteer to collect additional baseline data.

In order for the county to map invasive species populations, such as purple loosestrife, grant funds were reallocated to purchase ArcGIS 9.3. This data will be created and shared with the DNR in conjunction with Project Number AEPP-176-09.

4.) Disseminate AIS information at boat landings, public areas, resorts, businesses, tournaments, and news articles.

Land Conservation Department staff successfully disseminated AIS information throughout the county. Since the county currently has only eleven lake associations, it is feasible and recommended for staff to conduct presentations to at least every lake association's annual meeting. Since the county has a relatively low population with minimal businesses and resorts, it would be feasible for staff to distribute information to all relevant businesses in the county and potentially those in adjacent counties.

5.) Develop/distribute a healthy shoreland living packet.

Packets that were made available at the resource center and the courthouse had to be restocked often, indicating a high level of interest. If this pre-existing packet is used in the future, including costs for materials and time to work with the original stakeholders to update the packets would be beneficial.

Appendix List:

- Appendix A – Progress Report
- Appendix B – Position Advertisement
- Appendix C – Monitoring Volunteer Thank You Letter
- Appendix D – 2008 Florence County Lake Monitoring Results
- Appendix E – Current Florence County Citizen Lake Monitoring Volunteers
- Appendix E – Letters to CLMN Volunteers
- Appendix F – Letters to CLMN Volunteers
- Appendix G – Florence County Fair Ad
- Appendix H – North Star Garden Conference flyer
- Appendix I – Publications
- Appendix J – Presentations
- Appendix K – Biological Control Planning Materials
- Appendix L – Letter to Purple Loosestrife Landowners
- Appendix M – Healthy Shoreland Living Packet Materials