



Minnesota DNR Rapid Response Summary

Zebra Mussel report in Lake Irene, Douglas County, Minnesota

DRAFT 12-7-12 by Nathan Olson and Michele Hanson

Introduction

This is a summary of the Minnesota Department of Natural Resources planning and implementation of the rapid response to the report of zebra mussel population in Lake Irene, Douglas County, Minnesota on October 7th 2011.

Description of Rapid Response Actions

1. Detection and Surveillance

1.1 Reporting Aquatic Invasive Species (AIS) Discoveries

Details of Report - A boat lift was removed from Lake Irene on Friday, October 7, with large numbers of (1 cm-2.5 cm) zebra mussels attached. On October 8, 2011 DNR Staff observers went out to location. The size of the mussels suggested they were reproducing, but only a handful of mussels were found that were less than 1 cm in size. Most of the zebra mussels were attached to the feet of the lift, but other mussels were found in the tubing of the lift and at other random locations. Four to five zebra mussels were also found on the foot of a dock that was closest to the lift.

Historical movement of structure - It was reported that the Lake Irene homeowner bought the boat lift from someone that lived on Lake Le Homme Dieu and hired a company to transport the lift to Lake Irene in June 2011. The company claims that the boat lift was pressure-washed with hot water prior to being placed in Lake Irene. The previous owner of the boat lift stated that the lift was out of the water all winter, but was placed in Le Homme Dieu in the spring of 2011.

Who was notified – DNR conservation officers were the first staff called to the lakeshore property on Lake Irene on Saturday, October 8, 2011. The conservation officers then notified the Invasive Species Specialist for the area to help with the investigation of the presence of zebra mussels on the boat lift.

1.2 Observers

Nathan Olson, Invasive Species Specialist

Justin Swart, Level II Inspector

Mike Shelden, District 3 Enforcement Supervisor

1.3 Reporting (Watch) information & Reporting Forms

The MN DNR website provides information on the identification and current distribution of zebra mussels and other aquatic invasive species (AIS).

http://www.dnr.state.mn.us/invasives/index_aquatic.html

Sightings of AIS should be reported to an invasive species expert.

<http://www.dnr.state.mn.us/invasives/contacts.html#aquatic>

1.4 Investigate Reports and Incidents

1.4.1 Species

On October 8th staff further searched the property shoreline but no zebra mussels were found. Staff also attempted to search nearby properties for zebra mussels but none were observed due to murky water and cold temperatures hindering the search. Staff also searched lake equipment that had been removed from the water at approximately 27 different properties around the lake. A total of 74 pieces of equipment were searched, with no additional zebra mussels being found.

1.4.2 Violations

The case is currently pending in the county judicial system.

1.5 Field Surveying

The Minnesota DNR relies on observations from DNR staff, other agency staff and citizens to report discoveries of AIS. A volunteer zebra mussel monitoring program has been established. Volunteers can provide important help in tracking the distribution of zebra mussels in Minnesota by spending a few minutes monitoring the lake or river where they live without any specialized equipment. Early detection for zebra mussels is important in protecting their property and Minnesota's water resources. The volunteer reporting form can be found at: http://www.dnr.state.mn.us/volunteering/zebramusel_monitoring/report.html



Figure 1. Picture of one of the feet of a boat lift pulled from Lake Irene after being transported there from Lake Le Homme Dieu.



Figure 2. Zebra mussels inside the tubing and at other locations on a boat lift pulled from Lake Irene after being transported there from Lake Le Homme Dieu.



Figure 4. All of the rocks removed by the diver that had zebra mussels attached (Top).
Picture of one of the smallest zebra mussels found on rocks by the diver (Bottom).



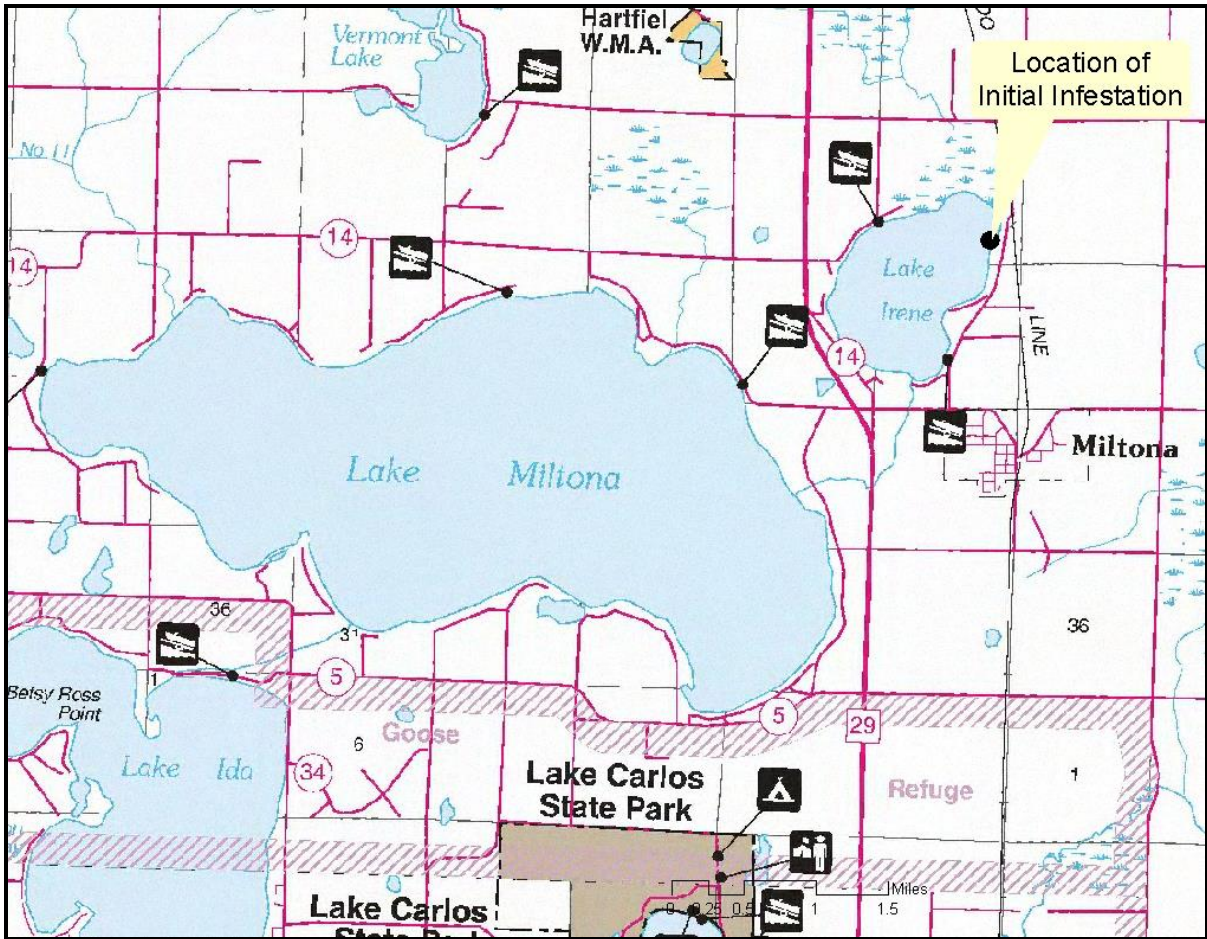
Figure 3. Picture of one of the smallest zebra mussels found on a rock at the property (Top) and a picture of the four different sizes of zebra mussels found (Bottom). Although four different sizes were found, very few were less than 1 cm.

1.6 Confirmation

Staff returned on Sunday, October 9, with a diver to help search the bottom of the lake where the boat lift was located. The diver found many zebra mussels attached to rocks (Figure 4). Average size of the zebra mussels found was 1 cm, with some being larger than 2 cm. Only a few zebra mussels were less than 1 cm. Zebra mussels were only found in the area where the boat lift was located. The diver could not locate any zebra mussels in deeper water or at other locations away from the boat lift.

2.

AIS Locations



Location of Infestation on Lake Irene

Current listings of infested waters can be found at:

<http://www.dnr.state.mn.us/invasives/ais/infested.html>

New infestations are listed in the monthly Minnesota State Register publication.

<http://www.comm.media.state.mn.us/bookstore/mnbookstore.asp?page=archives>

3. Rapid Assessment of Species and Distribution

On October 9, 2011 the diver could not locate any zebra mussels in deeper water or at other locations away from the original discovery at the boat lift. Seventy-four pieces of docks and lifts were searched around Lake Irene, with no zebra mussels being found.

Inspection by the Invasive Species Program

Division of Ecological Resources
Minnesota Department of Natural Resources

Lake: Irene **DOW Number:** 21-0076 **Date[s] of Inspection:** October 8, 2011

County: Douglas **Observer[s]:** Nathan Olson, Invasive Species Specialist
Justin Swart, Level II Inspector

Time - On water: 1230 **Off water:** 1730 **Secchi:** N/A
0820 1100

Author[s] of report: Nathan Olson, Invasive Species Specialist **Date of report:** 10-9-11

Type of Inspection: Investigation of zebra mussel population in Lake Irene.

Reporting AIS Discovery

- DNR staff were notified of and potential infestation on Saturday, October 8, 2011.
- Staff observers went out to location on October 8, 2012.
- The boat lift had been removed from Lake Irene on Friday, October 7, with large numbers of (1 cm-2.5 cm) zebra mussels attached.
- The size of the mussels suggested they were reproducing, but only a handful of mussels were found that were less than 1 cm in size.
- Most of the zebra mussels were attached to the feet of the lift, but other mussels were found in the tubing of the lift and at other random locations. Four to five zebra mussels were also found on the foot of a dock that was closest to the lift.
- No zebra mussels were found during the shoreline search of the property.
- Staff searched nearby properties for zebra mussels were not observed on but murky water and cold temperatures hindered the search.

Narrative:

Staff were called to a lakeshore property on Lake Irene on Saturday, October 8, 2011 to investigate the presence of zebra mussels on a boat lift that had recently (on Friday) been removed from the water.

An inspection of the boat lift found the feet of the boat lift to have the largest cluster of mussels (Figure 2). Zebra mussels were also found inside the tubing of the lift and small numbers were scattered at other random locations (Figure 2). Primarily, the zebra mussels were large (1 cm-2.5 cm), but two small (approximately 5 mm; Figure 3) zebra mussels were also found on rocks that were dragged up with the boat lift. After the inspection of the boat lift was completed, four different sizes of zebra mussels had been found (Figure 3). Staff attempted to search the water near the property where the boat lift was found, but murky water and cold temperatures hindered the search.

Because zebra mussels have an average growth of 1 cm per year, it was surprising to find such large zebra mussels. Nonetheless, some reports indicate that zebra mussels can have a maximum growth rate

of 1.5 to 2 cm per year. If that is the case, then Lake Irene has optimal conditions for zebra mussel growth. Unfortunately, since zebra mussels can become sexually mature once they reach 1 cm, it is likely a large number of these zebra mussels were reproducing during the summer of 2011.

After inspecting the boat lift, staff searched other pieces of docks and lifts around the lake. Seventy-four pieces of equipment were searched, with no zebra mussels found.

Historical movement of structure:

- The boat lift was moved from Lake Le Homme Dieu to Lake Irene, both in Douglas County.
- The boat lift was supposedly out of the water during the winter, but was placed into Le Homme Dieu in the spring of 2011.
- In June 2011, the boat lift was sold to another private individual, but a company stated it had been pressure washed with hot water before moving it to Lake Irene.

Narrative:

It is reported that the homeowner bought the boat lift from someone that lived on Lake Le Homme Dieu and hired a company to transport the lift to Lake Irene in June. The company claims that the boat lift was pressure-washed with hot water prior to being placed in Lake Irene. The previous owner of the boat lift stated that the lift was out of the water all winter, but was placed in Le Homme Dieu in the spring of 2011.

Rapid Assessment by the Invasive Species Program

Division of Ecological Resources
Minnesota Department of Natural Resources

Lake: Irene **DOW Number:** 21-0076 **Date[s] of Inspection:** October 9, 2011

County: Douglas **Observer[s]:** Nathan Olson, Invasive Species Specialist
Justin Swart, Level II Inspector
Diver Jeff Bozek, Diver's Clubhouse, Alexandria

Time - On water: 0820 **Off water:** 1100 **Secchi:** N/A

Author[s] of report: Nathan Olson, Invasive Species Specialist **Date of report:** 10-9-11

Type of Inspection: Investigation of zebra mussel population in Lake Irene.

Assessment

- DNR Staff observers and a diver went back out to site of infestation and found many zebra mussels attached to rocks near the area where the boat lift was located, but did not find any zebra mussels outside of the area where the boat lift resided. Also, seventy-four pieces of docks and lifts were searched around the lake, with no zebra mussels being found.
- All pictures can be found at I:\FAW\SHRDATA\EXOTICS\Nathan\Lake Irene\Pics

Narrative:

Staff returned on Sunday, October 9, with a diver to help search the bottom of the lake where the boat lift was located. The diver found many zebra mussels attached to rocks (Figure 4). Average size of the zebra mussels found was 1 cm, with some being larger than 2 cm. Only a few zebra mussels were less than 1 cm. Zebra mussels were only found in the area where the boat lift was located. The diver could not locate any zebra mussels in deeper water or at other locations away from the boat lift.

On October 10, 2011, Peter Buessler, Northwest Region EWR Regional Manager, initiated a meeting to decide what actions should be taken at the lake Irene infestation site.

4. Decision for Action

On October 10, 2011, Peter Buessler, Northwest Region EWR Regional Manager, initiated a meeting to decide what actions should be taken at the Lake Irene infestation site.

The following is the text from the email Peter Buessler sent:

“I will call Nathan and Luke’s phones and assume that Gary and Luke will be together. Kristi and I will meet in my office. If I need to add additional or different phone numbers, let me know. Sorry for the lunch time meeting... Please confirm your availability.

Nathan, please ask the appropriate Enforcement staff to participate and let me know if this requires additional phone numbers.

Draft Agenda:

- *Situation Report – Nathan*

- *Treatment Response plan – all*
 - *What is the appropriate strategy?*
 - *What is needed from whom to implement?*
 - *Budget?*
 - *Approvals?*

- *Media plan – Nathan/Kristi*
 - *Immediate*
 - *Notify appropriate DNR staff - who?*
 - *Contact local Lakeshore association/County/others?*
 - *General news release*
 - *Issues?*
 - *Treatment activities*
 - *Media advisory, when?*

- *Infested Water designation – Luke?*
 - *Which waters?*

- *What else do we need to cover?”*

Advisory Team members:

*Olson, Nathan W (DNR) EWR-Invasive Species Specialist
Buessler, Peter (DNR) EWR Northwest Regional Manager
Skinner, Luke C (DNR) EWR Invasive Species Program Supervisor
Montz, Gary R (DNR) EWR Research Scientist/Aquatic Invertebrates
Coughlon, Kristi (DNR) R1 Bemidji Regional Information Officer
Dunn, James R (DNR) Enforcement Northwest Region Manager*

Hirsch, Steve A (DNR) EWR Division Director
Shelden, Mike D (DNR) District 3 Enforcement Supervisor
Paurus, Jon (DNR) Area Conservation Officer
Beck, Dean (DNR) Area Fisheries Supervisor
George, Leslie (DNR) Fisheries APM Specialist

[NWO1]

The situation was reviewed and the team felt the field survey indicated that the zebra mussel population was reproducing but likely was still isolated to the property where the infested boat lift was discovered.

It was then decided that the area where the zebra mussels were found would be treated to attempt eradication.

5. Implementation

Rapid Response Actions:

Treat the area where the zebra mussels were found with Cutrine®-Ultra (a copper-based liquid algaecide) similar to the action taken at Rose Lake, Otter Tail County.

- Installed a floating silt curtain around the area where the boat lift was located and treated inside the silt curtain.
- Also treated a buffer area outside the silt curtain for a total treatment area of 10 acres.
- Apply three treatments (one every seven days) in an attempt to keep a high concentration of copper in the area where the zebra mussels were found.

6. Information Sharing/Communication

- Contacted the lake association president, the Douglas County Lakes Association president, and the Douglas County Land and Resource Department Director to inform them of the discovery. Also contacted the Minnesota Department of Agriculture (John Sierk) to discuss and approve the use of Cutrine®-Ultra for the project.
- Prepared a news release that went out on Tuesday, Oct 11
- Designated Lake Irene as an infested water and installed signs at the public accesses.

7. Assessment of Actions/Evaluation

Staff conducted additional monitoring for the presence of zebra mussels during the open water season in 2012 to evaluate the results of the treatment. Monitoring consisted of collecting monthly water samples throughout the summer to look for veligers (larval stage of zebra mussels), snorkel/dive surveys in September, and dock and lift searches in October.

The following Response Plan was developed:

DNR Rapid Response meeting re: Zebra Mussels found in Lake Irene, 10/10/11

Participants:

EWR - Nathan Olson, Luke Skinner, Peter Buesseler, Gary Montz, Steve Hirsch;

ENF - Mike Shelden, Jim Dunn, Jon Parus;

F&W – Dean Beck, Leslie George; OCO – Kristin Coughlon

Situation Update:

- A boat lift was removed from Lake Irene, Douglas County last week, with large numbers of large (1 cm-2.5 cm) zebra mussels attached (Figures 1 and 2).
- The lift had been moved onto Lake Irene earlier this summer from a nearby infested lake.
- The details regarding how and when the boat lift was transported to Lake Irene is still under investigation.
- The sizes of the mussels suggest they were reproducing, but only a handful of mussels found that were less than 1 cm in size (Figure 3). The low number of small zebra mussels suggests reproduction.
- Most of the zebra mussels were attached at the bottom of the lift, but other mussels were found inside the framing of the lift and at other random locations (Figure 2). Four to five zebra mussels were also found on the support pole of a dock that was closest to the lift.
- A diver working with DNR staff found zebra mussels attached to rocks near the area where the boat lift was located, but did not find any zebra mussels outside this area
- Staff searched 74 pieces of docks and lifts around the perimeter of the lake. No additional zebra mussels were found.
- It appears the zebra mussel population in Lake Irene is isolated to the property where the boat lift was located.

Immediate Response Actions:

1. Contact lake association president and Douglas County Environmental Services Director to inform them of the discovery (*done*)
2. Prepare a news release to go out on Tuesday, Oct 11 (*ready for release*)
3. Treat the area where the zebra mussels were found with Cutrine®-Ultra (a copper-based liquid algaecide) similar to the action taken at Rose Lake, Otter Tail County.
 - install a floating silt curtain around the area where the boat lift was located and treat inside the silt curtain (*installation occurring Oct 11*)
 - treat a buffer area outside the silt curtain for a total treatment area of 10 acres.
4. Three treatments (one every seven days) will be completed in an attempt to keep a high concentration of copper in the area where the zebra mussels were found. (**contractor lined up, approval forms signed and going to Admin. Treatment estimated by end of week pending chemical delivery*)
5. Designate Lake Irene an infested water (*process initiated*)
6. Conduct additional monitoring for the presence of zebra mussels. may consist of larval zebra mussel surveys, snorkel/dive surveys, dock and lift searches, or the installation of artificial substrate to capture any zebra mussel settlement (*work being planned & scheduled*)

Implementation

Cost Estimate for Treatment:

LAKE RESTORATION, INC. (763) 428-9777 Ph.

12425 Ironwood Circle Toll Free 877-428-8898

Rogers, MN 55374 (763) 428-1543 Fax
www.lakerestoration.com lrmal@lakerestoration.com

2011 SIGN UP FORM

Lake: Irene Lake County: Douglas County

Mailing address: Billing Address:

Dept. of Natural Resources (If Different than Mailing)

Attn: Brenda Johnson

1509 1st Ave North, Fergus Falls, MN 56537

Please sign at the bottom and return to us.

Information:

Treatments will be made for: Zebra Mussels

The treatment area includes: as determined by the MN DNR.

Treatments to be made during October 2011. Three treatments, each treatment will be 7 days apart.

The product used will be Cutrine Ultra (EPA Reg. No. 8959-53) at 1.0 ppm.

Pricing & Terms:

The value of this program is dependent upon size and depth. The price is based off of treating at an average depth of up to **7 ft** and covering **10 acres**. Cost: **\$18,240.00 for the project**. Subject to change if fewer acres are to be treated than size noted above.

An invoice will be sent out upon completion of project. Net 30

The treatment area must be pre-determined using GPS coordinates by the MN DNR and supplied to Lake Restoration.

Coordination of treatment dates will be coordinated with Nathan Olson, DNR Invasive Species Specialist.

Lake Restoration will supply a summary of the treatments which will include the amount of product applied and a GPS track file of the boat from each treatment.

Total area to be treated: _____ Number of sites: _____

Home phone: _____ E-Mail address: Brenda.L.Johnson@state.mn.us Work phone: 218-739-7576 ext. 260 Lake phone: _____

Signature: _____ **Date:** _____

Please sign & return completed form to Lake Restoration



ACQUISITIONS REQUEST FOR EMERGENCY AUTHORIZATION

Instructions: This form must be signed by the agency head or assistant agency head with delegated authority. Submit this form to the Materials Management Division, 112 Administration Building, 50 Sherburne Avenue, St. Paul, MN 55155, or by fax to 651.297.3996; Attn: Kent Allin, or Brenda Willard.

This request to authorize the purchase of goods and/or services pursuant to Minnesota Statute 16C.10, Subd. 2.

Agency Name: MN Department of Natural Resources, Ecological & Water Resources		Date: 10/10/11
Agency Contact: Nathan Olson, Invasives Species Specialist, nathan.olson@state.mn.us		Phone: 218-739-7576 x 259
Contractor Name: Lake Restoration, Inc. 12425 Ironwood Cir, Rogers, MN 55374, Phone 763-428-9777, Fax 763-428-1543; Chad Hadler chad@lakerestoration.com		
Minnesota Statutes 16C.10, Subd. 2 defines emergency as A...a threat to public health, welfare, or safety that threatens the functioning of government, the protection of property, or the health or safety of people.@		
Description of Emergency (part 1): (Check all that apply - at least one is required) <input type="checkbox"/> Threat to public health <input type="checkbox"/> Threat to public welfare <input type="checkbox"/> Threat to public safety	Description of Emergency (part 2): (Check all that apply - at least one is required) <input type="checkbox"/> Threatens function of government <input type="checkbox"/> Threatens protection of property <input type="checkbox"/> Threatens health or safety of people	
Describe the emergency, how it meets the above criteria, and the circumstances leading to the emergency: Zebra mussels have been found in a small area of Lake Irene (21-0076) in Douglas County near Miltona, MN. In an attempt to eradicate zebra mussels from a small area in the lake, it is imperative that treatment commences immediately to prevent spread throughout the lake.		

Description of Work:

Commercial aquatic herbicide application to conduct three separate treatments, with each treatment to be conducted seven days apart, using Cuterine-Ultra herbicide (EPA registration #8959-53), with a target concentration of 1 ppm and a treatment area of 10 acres with an average depth of 7 feet (70 acre-feet total). No aquatic plant or waters permits are required. The applicator must work with the Nathan Olson to schedule treatments. Upon completion of all the treatments, the applicator must complete a summary of the treatments conducted, which should include the amount of product applied and GPS track file of the boat that was used to conduct the treatments.

Did agency's lack of planning contribute to the need to begin work without a fully executed contract in place?

Yes No

AGENCY AUTHORIZED SIGNATURE: I acknowledge the risks associated with allowing the vendor to begin work without a fully executed contract, and I understand it is my responsibility to have a fully executed contract in place within 15 working days.

Signature:

ADMINISTRATION DEPARTMENT

Approved without qualifications

Approved with qualifications

Emergency could have been prevented

Other _____

Disapproved

Not an emergency

Other _____

Work began prior to request – 16C violation

Signature:

Title:

Date Received in Admin:

Date:

Date Action Taken by Admin:



[NWO2]



[NWO3]

Aquatic herbicide application.



[NWO4]

Containment area.

Communications

DNR NEWS - FOR IMMEDIATE RELEASE

October 10, 2011

Media contacts: Luke Skinner, DNR aquatic invasive species unit supervisor, 651-259-5140;

Nathan Olson, DNR invasive species specialist, 218-739-7576, ext. 259.

Zebra mussels found in Lake Irene in Douglas County

Minnesota Department of Natural Resources (DNR) biologists have determined the presence of zebra mussels in a localized area on the northeast corner of Lake Irene in Douglas County. DNR staff was called to a lakeshore property on Lake Irene on Oct. 8 to investigate the presence of the zebra mussels on a boat lift that had recently been removed from the water.

An inspection revealed clusters of mussels on the feet and inside the tubing of the boat lift. No additional zebra mussels were found after inspections of 74 additional boat lifts and docks around the lake nor were any found on properties near the infected boat lift.

On Oct. 9, a diver searched the bottom of the lake where the boat lift was located and found zebra mussels attached to rock. The mussels were found only in the immediate area where the boat lift was located.

“Once again, we are very disappointed that zebra mussels found their way to another lake,” said Nathan Olson, DNR invasive species specialist in Fergus Falls. “We can’t stress it enough to the public that everyone needs to take extra precautions to avoid transporting these pests to other state waters.”

In response to this new infestation, the DNR is planning to treat the small area with copper sulfate, a common chemical used to treat snails that cause swimmers itch. The treatment could be conducted by a licensed aquatic pesticide contractor as early as next week.

“As with Rose Lake, we are hoping that early detection and rapid response to the zebra mussel discovery might prevent an infestation,” said Luke Skinner, DNR aquatic invasive species unit supervisor. “We won’t know for sure if the treatment was successful until next summer.”

The DNR will designate Lake Irene as an infested water until determined otherwise next summer following an evaluation of treatment efforts. This designation prohibits the transport of water from the lake and prohibits bait harvest on the lake. It also means that there will be increased enforcement and watercraft inspections efforts in this area.

The introduction of the invasive mussels into Lake Irene is under investigation by area DNR enforcement officers. It is illegal to possess, import, purchase, sell, propagate, transport or introduce invasive species into Minnesota waters. Violators can receive civil and criminal penalties.

More information about aquatic invasive species is available on DNR [website](#).

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DNR NEWS - FOR IMMEDIATE RELEASE

NOVEMBER 8, 2011

Media contacts: Nathan Olson, invasive species specialist, Fergus Falls, 218-739-7576, ext. 259; Peter Buesseler, northwest region manager, Ecological and Water Resources Division, 218-308-2626.

Zebra mussel treatments on Rose Lake and Lake Irene completed

On Nov. 4, the Minnesota Department of Natural Resources (DNR) biologists completed the zebra mussel treatments on both Rose Lake and Lake Irene. Beginning in early October, each area of the lake received three separate copper sulfate treatments from a licensed aquatic pesticide contractor.

In late September at Rose Lake in Otter Tail County and in early October at Lake Irene in Douglas County, zebra mussels were discovered on boat lifts when they were removed from the water. The DNR responded by coordinating efforts to treat the areas surrounding where the boat lifts had been submerged and immediately designated Rose Lake and Lake Irene as infested water bodies.

“We are hoping that the early detection and rapid response to the zebra mussel discoveries might prevent an infestation,” said Nathan Olson, DNR invasive species specialist in Fergus Falls. “We will be monitoring these lakes over the next few years to determine whether the treatments were successful.”

The treatment of both areas was a cooperative effort between the DNR, the landowners and several local businesses. The DNR would like to thank Delzer Construction in Fergus Falls for donating the silt screen for the Rose Lake treatment and Sherbrooke Turf in Pelican Rapids for donating the labor and silt screen for the Lake Irene treatment.

“The assistance we received from these businesses made it possible for us to respond and act as quickly as we did to the potential infestations,” stated Olson. “The cooperation of the landowners also helped tremendously.”

The DNR strongly recommends that all boat lifts and docks be cleaned thoroughly by pressure washing with hot water and dried for a minimum of two weeks before putting the equipment into a body of water. Boat lifts and docks are of particular concern because they sit in the water for extended periods, giving adult zebra mussels a greater opportunity to attach themselves.

More information about aquatic invasive species is available on DNR website at: www.dnr.state.mn.us/invasives/index_aquatic.html.

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Note to media: Image attached

Evaluation

Veligers were not found in any of the water samples nor were large zebra mussels found during the scuba searches. However, during the dock and lift search in October, an adult zebra mussel attached to a native mussel was found approximately one mile away from the treatment area. Because monitoring efforts did not produce any veligers or juvenile zebra mussels, it is unknown whether zebra mussels have reproduced in Lake Irene. Nonetheless, the recent find of an adult mussel outside of the treatment area indicates that despite early detection and a rapid response, efforts to kill the zebra mussels in Lake Irene were not successful. Invasive Species Program staff will continue to monitor Lake Irene to evaluate the zebra mussel population.