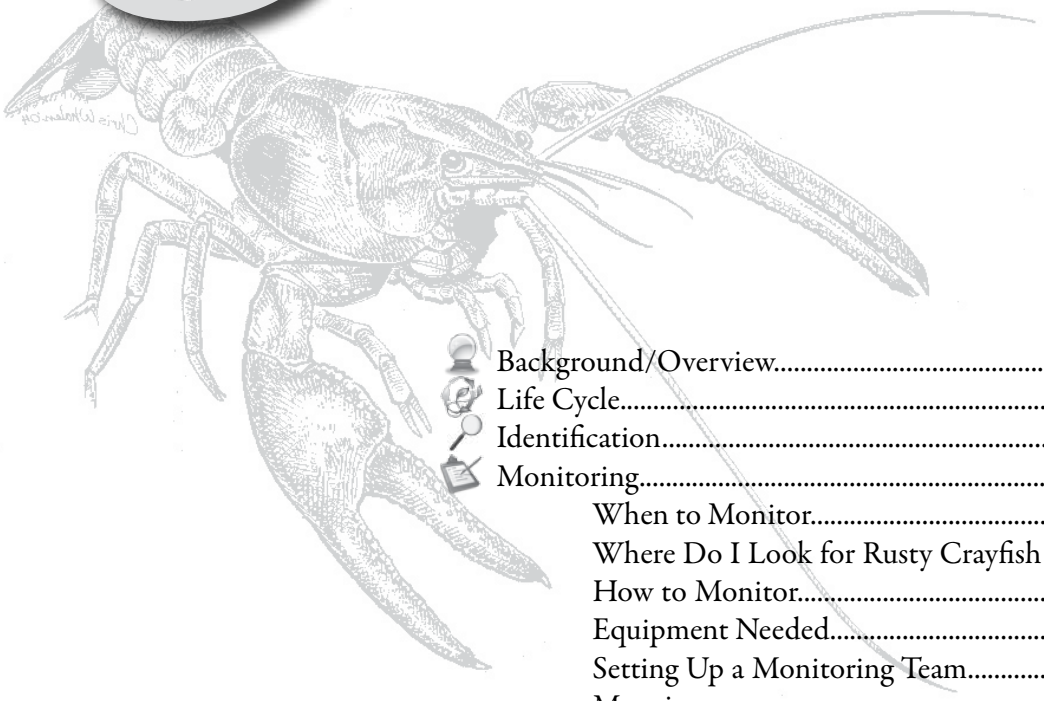
5 Rusty Crayfish

Monitoring Protocol



Special thanks to the UW- Madison Center for Limnology and the Wisconsin Water Action Volunteer program for assistance with protocol development.

Background/Overview

Rusty crayfish are native to streams in the Ohio River Basin states of Ohio, Kentucky, Illinois, Indiana and Tennessee. They were likely introduced to Wisconsin waters primarily by anglers who used them as live bait.

In Wisconsin lakes, rusty crayfish can impact native crayfish populations, aquatic plant communities, and consequently entire lake ecosystems. Rusty crayfish are aggressive and will "chase" native crayfish from their prime habitat. When native crayfish are chased out into the open, they are more susceptible to predation by large fish. The rusty crayfish consequently displace the native crayfish, and often reach higher densities.

Rusty crayfish eat small fish, insects, fish eggs and aquatic plants. They eat about four times the amount of food a native crayfish eats. They are considered messy eaters because when they snip off a plant to eat, they often only eat small pieces of the plant and the remainder of the plant floats away. If rusty crayfish are eating Eurasian water-milfoil, they can actually spread the water-milfoil with their eating habits.

There are 330 native crayfish species in the United States, of which 111 species are in peril or believed to be extinct. Native crayfish are important members of aquatic ecosystems in Wisconsin. They perform many functions, including processing detritus and serving as food for game fish (Hobbs and Jass, 1988).

The Citizen Lake Monitoring Network (CLMN) volunteers monitor native crayfish populations as well as rusty crayfish populations when and where they monitor. Please do not sort or "select" only rusties to send in for identification. The Center for Limnology looks at native crayfish on lakes where rusty crayfish monitoring is taking place. For lakes with rare crayfish, we would not want multiple years of collection as this trapping could kill off these rare crayfish. CLMN volunteers only need to monitor on lakes not known to have rusties. The list of waterbodies in Wisconsin where rusty crayfish have been verified can be found at http://dnr.wi.gov/lakes/invasives/ .

Life Cycle

Mature rusty crayfish mate in late summer, early fall, or early spring. The male transfers sperm to the female, which she then stores until her eggs are ready to fertilize, typically in the spring (late April or May) as water temperatures begin to increase. The stored sperm are released as eggs are expelled and external fertilization occurs. The eggs attach to swimmerets (small, leg-like appendages under the tail). Just prior to egg laying, white patches will appear on the underside of the female's abdomen ("tail section"), especially on the tail fan. These white patches are glair, a mucus-like substance secreted during egg fertilization and attachment. Rusty crayfish females lay from 80 to 575 eggs.
Eggs hatch in three to six weeks, depending on water temperature. Once hatched, young crayfish cling to the female's swimmerets for three to four molts (molting is when crayfish

shed their old shell to allow growth). Young crayfish may stay with the female for several weeks. She offers them protection during this vulnerable life stage. Eventually, the young leave the female. They undergo eight to ten molts before they mature (Hobbs and Jass 1988).

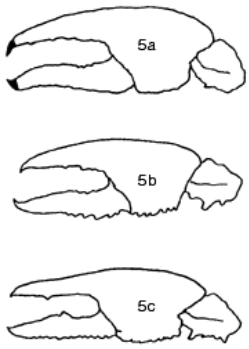
Identification

In your packet is the Rusty Crayfish Watch card. This card, along with the characteristics listed below will help you in the identification of rusty crayfish.

Rusty crayfish, *Orconectes rusticus* (pronounced or-kon-NEK-teez RUS-ti-kus) identification can be difficult. Positive identification requires looking at a number of characteristics and having enough experience to interpret them. Here are some general, easily-observed characteristics that can be used to help you identify mature rusty crayfish adults.

Rusty Crayfish Characteristics

- Bigger, more robust claws than native crayfish species
- Black bands at claw tips
- Rusty spots on each side of their carapace (the shell covering the first major body section). The spots are located on the carapace as though you picked up the crayfish with paint on your forefinger and thumb (see photo below). The spots may not always be present or well developed on rusty crayfish from some waters.



Rusty crayfish claw (5a) compared to some other species. Note the black bands at the claw tip.

Rusty Crayfish

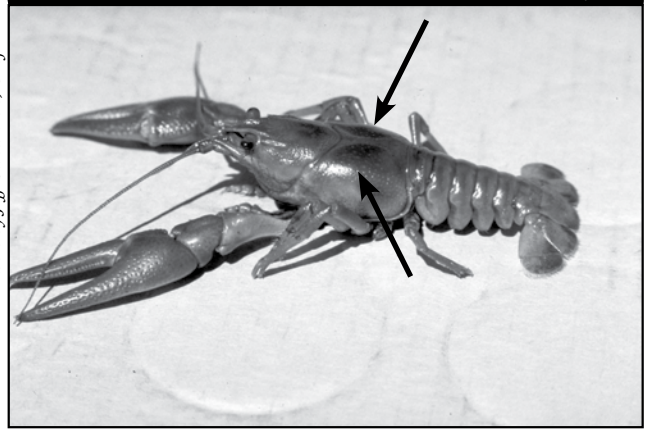


Photo by Jeff Gunderson, U. of MN

Rusty crayfish showing the "rust-colored" spots on the carapace.

Rusty Crayfish Monitoring

The goal of the Citizen Lake Monitoring Network is to find out which lakes have rusty crayfish. If you or your group is interested in monitoring for rusty crayfish densities and removal, refer to http://limnology.wisc.edu/personnel/jakevz/pubs.html.

The methods used in this manual are for crayfish collection in lakes. Stream and river sampling have different sampling protocols and trap restrictions. Please refer to the current Wisconsin fishing regulations for restrictions on crayfish collection.

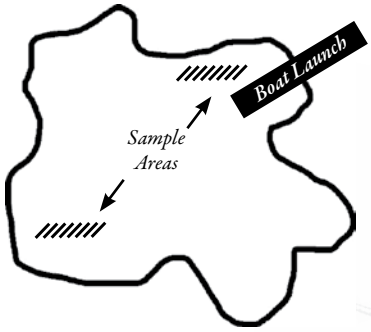
When to Monitor

In Wisconsin, crayfish are most active from late June through mid-August, so this is the best time to trap crayfish. **Only sample your lake one time/summer**. Endangered crayfish can be easily trapped out of a lake.

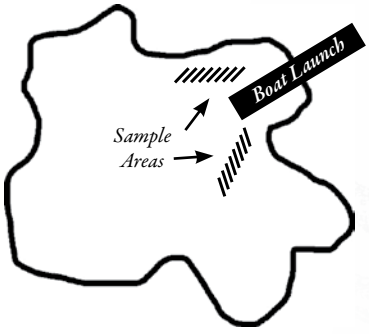
Where Do I Look for Rusty Crayfish?

Crayfish reside in a variety of habitats including rocky substrates, sand flats and aquatic plant beds, so please sample a variety of ecosystem types.

The preferred method of sampling in lakes is to collect crayfish along two transects on opposite sides of the lake.



For large lakes, this may be unrealistic, so collect crayfish along the shoreline in each direction from the boat launch, beach and/or other high use area.



If the sites you use do not produce crayfish, you may want to sample several other locations on the lake – focus the additional monitoring efforts on areas with cobble. If the original sampling location produces crayfish, no further monitoring is necessary.

How to Monitor

There are two methods of monitoring for the presence of rusty crayfish – trapping and hand/net collection. Both methods entail collecting crayfish, preserving individuals from all crayfish species present, and delivering them to your local CLMN contact.

Trapping is an effective way to collect crayfish. It entails a visit to the sampling site on two consecutive days. If sampling over a two day period is not possible, please collect the crayfish using a net and hand collection. Trapping is best for catching adult crayfish – especially adult males. They are aggressive and defensive of food and will eat juvenile crayfish in the trap.

Hand or net collection can be done in one visit to the site. Crayfish can be collected by hand (mask and snorkel) or with a dip nets or seines. Use a collection technique that suits the conditions of your lake. Hand or net collection is best for sampling juvenile crayfish.

A combination of trapping AND hand/net collection provides the best information on crayfish distributions.

Make sure that the water temperature is above 54° F (12° C) before you sample. Crayfish are less active (and less able to be trapped) when water temperatures are below 54° F (12° C).

You will need a fishing license or small game license to trap crayfish. Before initiating any monitoring, verify that your license is valid. No person may possess live crayfish and angling equipment simultaneously on any inland water (except the Mississippi River), so please do **not** take your fishing equipment with you when doing the crayfish monitoring.

Trapping

1. **Expand the trap opening to 4-5 cm (1.5 – 2 inches) in diameter** (information on traps can be found in the Equipment section on page 112). This can be done by pushing an oar handle into the opening. If the holes are too large, you may trap and kill mink which may swim in to eat the bait.

2. **Put bait (about 1/4 pound) into a standard wire-caged minnow trap.** Beef liver works well for crayfish trapping. Some trappers put a can of cat food in the trap – open the can part way so the juices escape, but the crayfish cannot eat the entire contents – this will keep the crayfish coming into the trap.

With the presence of Viral Hemorrhagic Septicemia (VHS) in Wisconsin, baiting requirements have changed. Parts of fish, by-products including fish meal or prepared parts of such fish may not be used for bait unless: the fish were caught from the water being trapped, were obtained from a bait dealer, or were used with written authorization from the WDNR. Other meats (e.g., chicken and beef livers) may be used for bait for crayfish.

3. **Label and tag the trap.** Floats and markers used to locate the traps must be less than 5 inches in diameter and cannot be orange or fluorescent. Traps must be tagged or marked with a contact name, street address, city, and phone number.

4. **If you have minnow traps at home, it is ideal to set more than one trap at each site. Ideally you would set 5-10 traps at each sample site. If you only have one trap, you can sample 5- 10 days in one site and then move the trap from site to site.** Traps should be at least 10 meters (30 ft.) apart from each other at water depths of 0.5 to 3.0 meters (2-10 feet). Select your sample sites so that you are monitoring both rocky areas (preferred) and other habitats (as available).

5. **Leave the trap(s) overnight and empty it/them the next day. Legally the traps have to be emptied within 24 hours** so if you only have one trap, you can reset the trap in the same location several days in a row. If overnight sets are not possible, please use the hand or net collection techniques described below.

6. **Collect until you have retrieved a maximum of 30 crayfish.** If you collect more than 30 crayfish, only keep 30 crayfish to preserve. When doing this, you want to select crayfish from each species collected, so you would select crayfish that have different characteristics (color, shape, size etc) from each other.

7. **If you do not catch any crayfish at your original sample sites, please feel free to trap in other areas around the lake.** Crayfish tend to hold on cobble areas as it offers a hiding place for the crayfish. You may want to focus your monitoring on these sites if the original sites are not productive.

8. **Stop collection efforts if no crayfish are trapped after several days of effort.** Note how many days of effort on the data form.

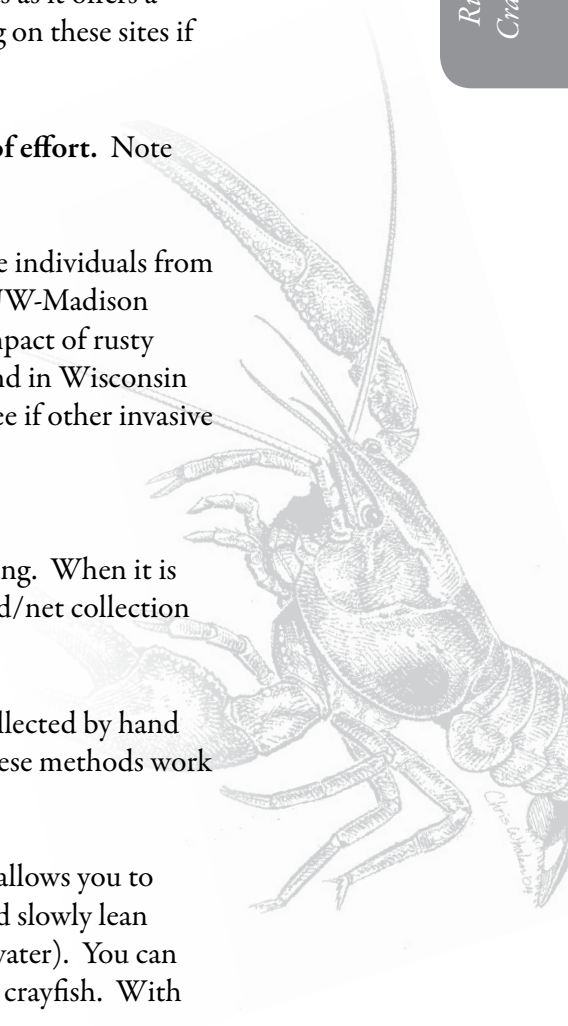
Do NOT try to target one crayfish species. Be sure to collect and preserve individuals from **ALL crayfish species** present. The information will be analyzed by the UW-Madison Center for Limnology to track native crayfish species and monitor the impact of rusty crayfish on the native species. Other invasive crayfish have also been found in Wisconsin lakes in the past. The Center for Limnology will identify all crayfish to see if other invasive or rare crayfish were caught.

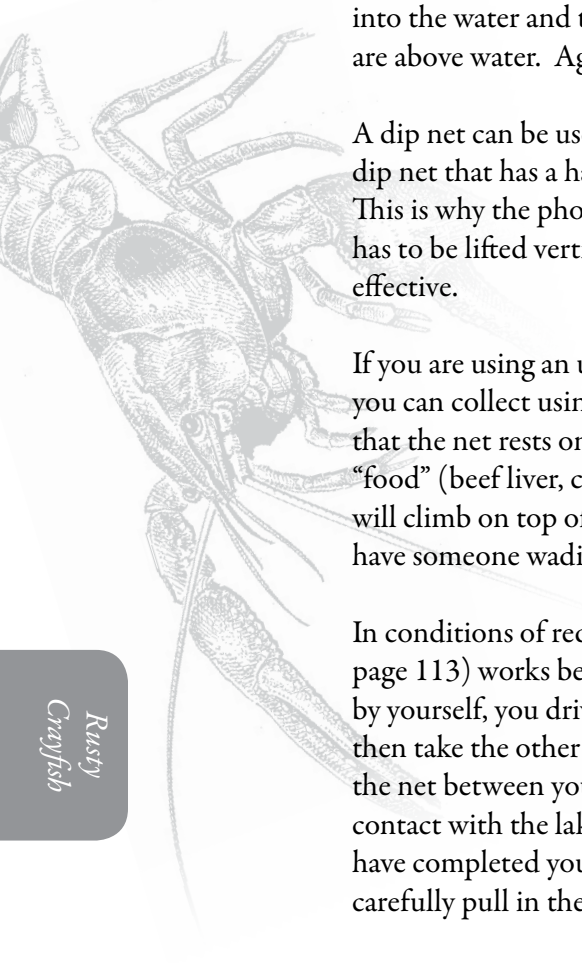
Hand/Net Collection

When possible, this technique should be used *in combination* with trapping. When it is not possible to return the following day to pick up crayfish traps, use hand/net collection alone.

Use a collection technique that suits the conditions. Crayfish can be collected by hand (mask and snorkel), with a dip net or through use of a minnow seine. These methods work well in lakes.

Collecting crayfish by hand is easiest if you use a mask and snorkel. This allows you to collect the crayfish in a little bit deeper water. Walk up to the crayfish and slowly lean over (mask and snorkel work great as now you can have your face in the water). You can distract the crayfish with one hand by moving your fingers in front of the crayfish. With





your other hand slowly come up behind the crayfish and pinch it around the area directly behind the head. This definitely takes some practice and gloves are recommended as crayfish will "pinch" back. If the crayfish "pinches" you and stays on, put your hand back into the water and the crayfish will let go. Crayfish will stay pinched on your finger if they are above water. Again you may want to wear gloves for this collection method.

A dip net can be used in shallow water areas. There are some legal restrictions with using a dip net that has a handle. You can only "lift" the dip nets. You cannot sweep with the nets. This is why the photo in the Equipment section (page 113) shows a bent handle. The net has to be lifted vertically through the water column. With practice, this method is quite effective.

If you are using an umbrella style net (pictured in the Equipment section on page 113), you can collect using several different methods. If you have time, you can lower the net so that the net rests on the lake bed. The crayfish will crawl onto the net. You can also place "food" (beef liver, canned tuna or canned cat food) in the center of the net and the crayfish will climb on top of the net so they can get the food. If you want to speed this process up, have someone wading next to the net, driving the crayfish onto the net.

In conditions of reduced water clarity, a seine net (pictured in the Equipment section on page 113) works best. A seine net can be used by one or two people. If you are netting by yourself, you drive one of the end posts into the sand/ground at the shoreline. You then take the other end of the seine and "walk" out into deeper water while stretching the net between you and the end post. Make sure the weighted edge of the seine stays in contact with the lake's substrate. Keep walking in a semi-circle around the post. Once you have completed your semi-circle, you will be standing next to the end post. You can then carefully pull in the net, trapping the crayfish.

1. **Distribute your collection efforts over a variety of habitats, including rocks, vegetation, and sand.** Try not to concentrate your sampling effort in one small area.

2. **Collect until you have retrieved a maximum of 30 crayfish or when 40 minutes of "total search time" has elapsed, whichever comes first.** If you collect more than 30 crayfish, only keep 30 crayfish to preserve. When doing this, you want to select crayfish from each species collected, so you would select crayfish that have different characteristics (color, shape, size etc) from each other.

Do NOT try to target one crayfish species. Be sure to collect and preserve individuals from **ALL crayfish species** present. The information will be analyzed by the UW-Madison Center for Limnology to track native crayfish species and monitor the impact of rusty crayfish on the native species. Other invasive crayfish have also been found in Wisconsin lakes in the past. The Center for Limnology will identify all crayfish to see if other invasive or rare crayfish were caught.

Preservation

All crayfish collected (a maximum of 30) are to be preserved and later identified by employees of the UW-Madison Center for Limnology. Please follow these guidelines when preserving crayfish:

1. Place the collected crayfish into the Whirl-Paks (specialized plastic bags) provided to you. Preserve up to 30 total crayfish for the site; using approximately 1-3 whirl-paks. If you are using a combination of sampling methods, include a variety of sizes and crayfish from both nets and minnow traps. If less than 30 crayfish were collected, preserve all of them.

> **NOTE**
>
> *Do not overfill the pack with crayfish* – to prevent decay, each Whirl-Pak should only be ¼ full of crayfish.
>
> - Use new Whirl-Paks at each site and be sure they are **well labeled**.
> - If you do not have Whirl-Paks, freezer bags will work.
> - Do not mix crayfish from different sites.

2. **Fill the pack with minimum 70% alcohol (rubbing alcohol) if you have it.** There should be approximately three parts alcohol to one part crayfish. Larger size bottles of alcohol can be purchased at hardware stores in the paint/refinishing sections of the stores. If you do not have alcohol, you can place the crayfish in a cooler that contains ice and then take the crayfish back to your house where you can freeze the Whirl-Paks and crayfish (see step 5).

3. Liquid-proof labels have been provided for your use. **Be sure to USE A PENCIL to fill out the labels**, and place them inside the Whirl-Paks. DO NOT label the outside of Whirl-Paks with a permanent marker; alcohol leakage makes the ink disappear!!! *SAMPLES WITH UNCLEAR LABELS CANNOT BE USED!!!* **Place a label *inside* the whirl-pak with:**

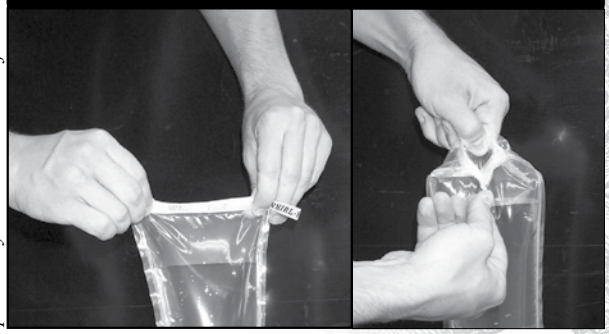
a. Date
b. Site # (*Use the same number as the data sheet*)
c. Lake name
d. Water Body Identification Number (WBIC)
e. County
f. Whirl-Pak # of total.

4. **Seal the Whirl-Pak.**

5. **Store the whirl-pack bags with crayfish in a freezer.** Even if you have alcohol in the bags, freezing will help slow the rotting process even further. If you cannot freeze the sample(s), finish the reporting and deliver the crayfish to your local DNR CLMN contact. They can place the samples in their freezer.

Photos provided by UW-Madison Center for Limnology

Whirl-Pak



Step 1: Fold the top of the Whirl-Pak 4-5 times.

Step 2: Fold the wire tabs in front and twist together 4-5 times to seal the pack.

Transportation

Take your samples to your local DNR CLMN contact. **Please phone your contact ahead of time to ensure they are in the office on the day you plan deliver the samples. Try to get your crayfish to your DNR contact by early September.**

DNR offices will arrange for transportation of the samples to the UW-Madison Center for Limnology, where all of the preserved crayfish will be cataloged at the end of the summer sampling season.

Equipment Needed

- ☐ Minnow or crayfish traps (for trapping)
- ☐ Bait (for trapping)
- ☐ Buoys (for trapping)
- ☐ Rope (for trapping)
- ☐ Pencil
- ☐ Nets (for net/hand sampling)
- ☐ Whirl-Pak bags
- ☐ Whirl Pak labels
- ☐ Sharpie marker
- ☐ Preservation alcohol* (optional)
- ☐ Crayfish Report Form #3200-129 (found at the end of this section and at http://dnr.wi.gov/lakes/monitoring/forms.aspx).
- ☐ Map for marking crayfish collection locations

*Larger size bottles of alcohol can be purchased at hardware stores in the paint/refinishing sections of the stores.

Traps

Traps used in the training sessions were purchased through http://www.frabill.com. Other companies also sell traps. You can locate vendors by conducting a Google search on crayfish traps. The trap style is not important for presence / absence monitoring.

Most traps sold meet the trout stream size requirements which are:

- Traps must not be longer than 24" in a designated trout stream.
- Traps must not be wider than 16" in any stream.

By using traps that meet these requirements, you can ensure that all proper size restrictions are followed.

Crayfish Trap

Photo by Robert Korth

Minnow trap version of the crayfish trap.

Nets

Nets can be the umbrella style dip nets (vertical lift net often used in sucker and smelt fishing). If the dip net has a handle, the net has to be at a 90 degree angle to the handle so that the net is raised vertically in the water. There is not minimum net size restriction, but the maximum net size is 8 feet in diameter for the umbrella style. In conditions of reduced water clarity, a seine net works best.

Rusty Crayfish Nets

Photos by Misty Rood

Umbrella style net

Photos by Lawra Herman

Dip net with 90 degree bend to handle

Photos by John Kubisiak

Seine style net

Setting up a Monitoring Team

If you are doing hand/net collections, it may be helpful to have a team of monitors. Designate a team leader who is willing to coordinate the group. The team leader can also be the person who enters the monitoring results on the CLMN website at http://dnr.wi.gov/lakes/clmn, takes the samples to the local CLMN DNR contact, and the person to whom other volunteers can bring suspect species. All crayfish should go to your local CLMN DNR contact by September so that the crayfish get transported to the Center for Limnology. Be creative and most importantly, do not burn out your team leaders!

Consider having a mini-crayfish training session for your team. The Citizen Lake Monitoring Network Coordinator (page viii) for your area may be able to assist you with a training session. If not, contact your local CLMN contact to see if an Aquatic Invasive Species training session will be scheduled for your area. These sessions are often set up in conjunction with local lake fairs and conventions. AIS workshops/training sessions are also listed at http://www.uwsp.edu/cnr/uwexlakes/CLMN/training.asp.

Mapping

It is beneficial to mark on a map where you collected your samples. This will help you document where the samples were taken. Make sure the locations on your map match with the station names on the data sheets.

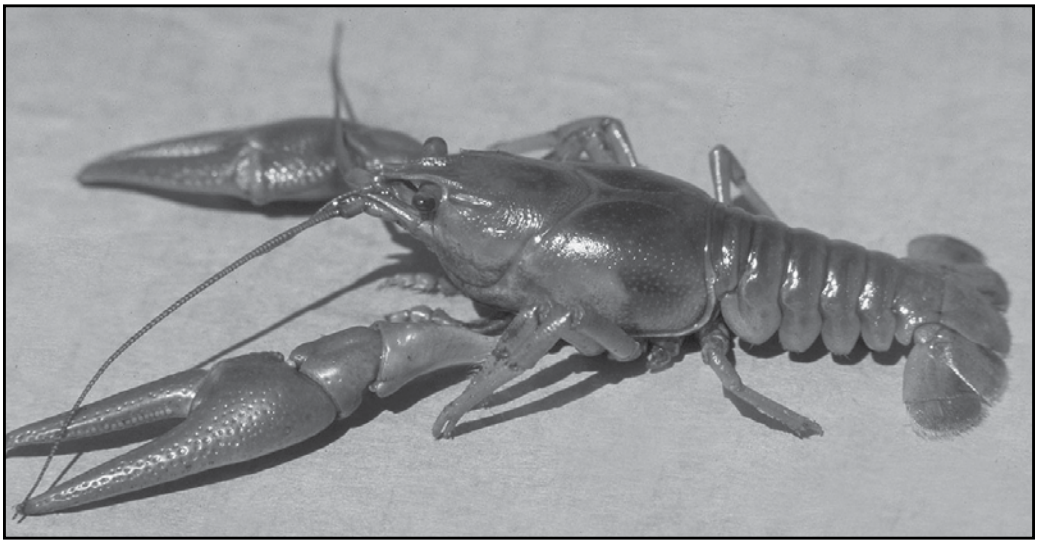
If you have a team of monitors doing hand/net collections, a map will also assist your team in deciding who will collect crayfish where. Once you have your "team" together, print out a map so that you can mark the areas where crayfish were collected.

You can get maps from your local DNR office, Fishing Hot Spots, fishing map books, etc. Basic lake maps can also be generated through the DNR web site: http://dnr.wi.gov/lakes/lakepages/search.aspx. Type in the name of the lake and choose the county, then click "search." Click on the lake name (if there are two or more lakes with the same name in the same county, select the lake you are after). This site will give you a plethora of information about your lake, but to find a map, scroll down to the map section and either click on "Contour (Bathymetric) Map" for a printable version, or click on "Interactive Map." The interactive map (in the Surface Water Viewer) allows you to add in "layers" such as invasive species or monitoring sites.

Use a map source that is most convenient for you. Make sure the following information is on your lake map: lake name, county, sites monitored, date(s), volunteer(s), and any additional observations.

If you have a GPS unit, you may want to mark locations where crayfish were collected and then load this data into a mapping program and print out the collection locations.

Photo by Jeff Gunderson, University of MN



Reporting

What would all the work that goes into gathering accurate information be worth if others could not read, review and act on it? Reporting is one of the most important parts of monitoring for invasive species. Knowing where species are not, as well as where they are, is extremely important in being able to track and understand their spread. Knowing how often monitors are looking for species and what they are finding is very important information.

The DNR, lake managers, researchers, and others use the data that is reported through the Citizen Lake Monitoring Network to study lakes and better understand aquatic invasive species. The information reported by volunteers is also provided to the state legislature, federal, tribal and local agencies/organizations who in turn may use this data to help determine funding for invasive species grants and programs.

You can enter your monitoring results on the CLMN website: http://dnr.wi.gov/lakes/CLMN (click "Enter Data" on the left side bar). If you don't yet have a user id and password, click 'Request a Wisconsin User ID and Password', then email Jennifer at jennifer.filbert@wisconsin.gov with your User ID and what monitoring you are involved in. Jennifer will set up your accounts and email you back. Once you receive a confirmation email, you can log in. Once you're logged in, go to the Submit Data tab and click "Add New" to start entering data. Choose the AIS monitoring project for your lake in the *Project* dropdown box.

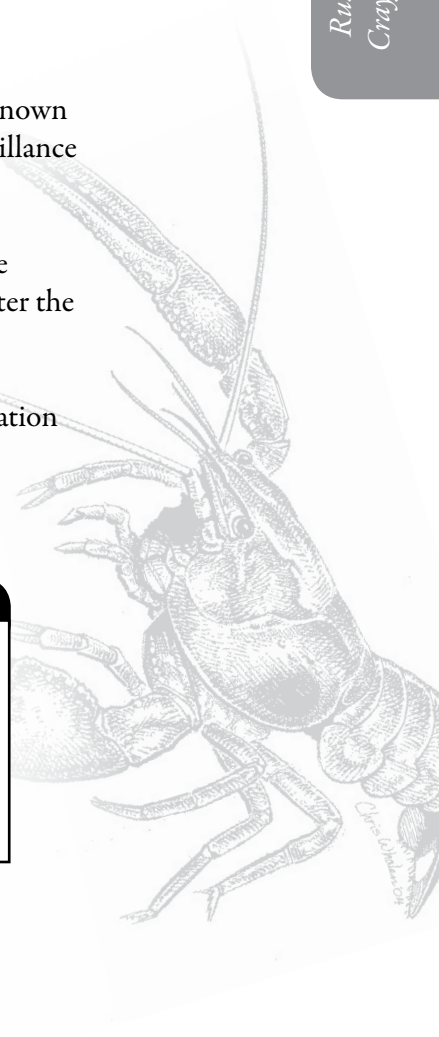
- Report your results using the Crayfish Report, Form 3200-129
- If you believe you found a rusty crayfish and your lake has not been previously known to have rusty crayfish, report the information using the: Aquatic Invasives Surveillance Monitoring Report, Form 3200-133.

Be sure to report your results after you sample. You can print out a paper copy of the reporting form off the website so you can fill it in during or after sampling. Then enter the information on http://dnr.wi.gov/lakes/CLMN.

You should also provide your local CLMN contact with a lake map showing the location of the monitoring site(s). The crayfish monitoring site(s), along with the names and addresses of the monitors, are maintained and updated periodically.

NOTE

Remember, for tracking the movement of rusty crayfish infestations, a report of '0 crayfish' at a location is just as important as finding crayfish. One cannot confidently state that rusty crayfish are not present in an area if no one has looked.



What to do with Suspect Specimens

If you believe you found a rusty crayfish and your lake has not been previously known to have rusty crayfish, fill out the Aquatic Invasives Surveillance Monitoring Report (Form 3200-133) (found at the end of this section and at http://dnr.wi.gov/lakes/monitoring/forms.aspx) and deliver it with the suspect specimen to your team leader, local DNR office, or the UW Center for Limnology.

Prevention Starts With Us

If your child brings home a crayfish from school, a lake or river, please do not release the crayfish into the environment. The crayfish could be an invasive species. Remember, females store sperm until they are ready to release their eggs. So, even adding one crayfish may cause problems.

- Do not use live crayfish for bait as it may escape.
- Do not transfer crayfish to your lake in the hopes that they will kill plants. Crayfish prefer native plants over invasives and, by their eating habits, can spread invasive plants causing more problems.

Photo by Paul Skawinski

Additional Materials and Supporting Documentation

Legal Information about Crayfish Harvesting

References

Reporting Forms

Aquatic Invasives Surveillance Monitoring Report

- Single Location, Multiple Dates

- Multiple Locations, One Date

Crayfish Report

Legal information about crayfish harvesting

2008-2009 Crayfish Fishing Regulations (http://dnr.wi.gov/fish/regulations/)
(from *Guide to Wisconsin Hook and Line Fishing Regulations*)

- A fishing or small game license is required to take crayfish.
- No person may possess live crayfish and angling equipment simultaneously on any inland water except the Mississippi River
- No person may place, deposit, throw or otherwise introduce live crayfish or crabs into any water of the state unless a permit authorizing introduction has been issued.

There are no bag or size limits on crayfish and no closed season except on the Wisconsin/Minnesota boundary waters where the open season is from May 1 to the following March 1, both dates inclusive.

Crayfish scoops may be used in the Wisconsin/Minnesota boundary waters provided the scoops do not exceed 4 feet in length, 3 feet in width and 18 inches in depth attached to a handle not to exceed 4 feet in length.

Crayfish may be taken in all waters by the following means only:

- By hand
- By use of minnow seines and minnow dip nets, where the same are permitted for the taking of minnows, and
- By crayfish traps (other than in trout streams) with the entrance of the trap not to exceed 2-1/2 inches at the greatest diagonal measurement.

  Traps must bear the name and address of the owner and must be raised and emptied at least once each day following the day set.

With the presence of Viral Hemorrhagic Septicemia (VHS) in Wisconsin, the laws on crayfish baiting have changed. Parts of fish, by-products including fish meal or prepared parts of such fish may not be used for bait unless: the fish were caught from the water being trapped, were obtained from a bait dealer, or were used with written authorization from the WDNR. Other meats (e.g., chicken and beef livers) may be used for bait for crayfish. For the most current information on VHS, please refer to http://dnr.wi.gov/fish/vhs/.

Floats or markers used to locate traps may not exceed 5 inches in size, may not extend more than 4 inches above the water surface and cannot be orange or fluorescent in color.

References

Hobbs, H.H. and J. P. Jass. 1988. The crayfishes and shrimp of Wisconsin. Milwaukee Public Museum: Milwaukee, Wisconsin.

Rusty Crayfish: A Nasty Invader. Sea Grant, Minnesota-University of Minnesota. Pub # 34. Revised August 2002.

State of Wisconsin
Department of Natural Resources
Wisconsin Lakes Partnership

Aquatic Invasives Surveillance Monitoring
End of Season Report

Form 3200-133 (02/10)
Previously Form 3200-124

This monitoring is designed to help detect new invasive species on your lake, so DNR can be alerted and lake residents and/or professionals can respond appropriately. The purpose of the DNR collecting this data is to let us know what methods trained citizens and professionals use when actively looking for aquatic invasive species. You are often the ones to alert us of new invasives in our waters. Remember for surveillance monitoring, a report of "no invasive" at a location is just as important as finding an invasive. One cannot confidently state that the invasive is not present in an area if no one has looked and reported their findings. Knowing where invasives are not, as well as where they are, is extremely important in being able to track and understand their spread. Knowing how often monitors are looking for species and what they are finding is very important information.

Notice: Information on this voluntary form is collected under ss. 33.02 and 281.11, Wis. Stats. Personally identifiable information collected on this form will be incorporated into the DNR Surface Water Integrated Monitoring System (SWIMS) Database. It is not intended to be used for any other purposes, but may be made available to requesters under Wisconsin's Open Records laws, ss. 19.32 - 19.39, Wis. Stats.

Data Collectors

Primary Data Collector Name	Phone Number	Email

Additional Data Collector Names

Total Paid Hours Spent (# people x # hours each)	Total Volunteer Hours Spent (# people x # hours each)

Monitoring Location

Waterbody Name	Township Name	County	Boat Landing (if you only monitor at a boat landing)

Dates Monitored

Start Date (when you first monitored this season)	End Date (when you last monitored this season)

Did at least some data collectors monitor in... May? June? July? August? (circle all that apply)

Did you monitor…	Did you…
All Beaches and Boat Landings? Frequently Some of the Time Not Often/Never	Walk along the shoreline? Frequently Some of the Time Not Often/Never
Perimeter of whole lake? Frequently Some of the Time Not Often/Never	Observe entire shallow water area (up to 3 feet deep)? Frequently Some of the Time Not Often/Never
Docks or piers? Frequently Some of the Time Not Often/Never	Use rake to extract plant samples? Frequently Some of the Time Not Often/Never
	Check underwater solid surfaces (boat hulls, dock legs, rocks)? Frequently Some of the Time Not Often/Never
Other: _____	Other: _____

Did you find…(even if not a new finding for the lake or stream)

Banded Mystery Snail?	Yes	No	Did not look for	Hydrilla?	Yes	No	Did not look for
Chinese Mystery Snail?	Yes	No	Did not look for	Purple Loosestrife?	Yes	No	Did not look for
Curly-Leaf Pondweed?	Yes	No	Did not look for	Rusty Crayfish?	Yes	No	Did not look for
Eurasian Water Milfoil?	Yes	No	Did not look for	Spiny Waterfleas?	Yes	No	Did not look for
Fishhook Waterfleas?	Yes	No	Did not look for	Zebra Mussels?	Yes	No	Did not look for
Freshwater Jellyfish?	Yes	No	Did not look for	Other?: _____			

If you find an aquatic invasive	*If you don't find an aquatic invasive*
If you find an aquatic invasive and it is not listed at http://dnr.wi.gov/lakes/AIS fill out an incident report for the species. Then bring the form, a voucher specimen if possible, and a map showing where you found it to your regional DNR Citizen Lake Monitoring Coordinator as soon as possible (to facilitate control if control is an option).	**If you submit your data online, that is all you need to do. Otherwise, please mail a copy to your regional DNR Citizen Lake Monitoring Coordinator. http://dnr.wi.gov/lakes/contacts**

State of Wisconsin
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Wisconsin Lakes Partnership

Aquatic Invasives Surveillance Monitoring
Multiple Locations, One Date

Form 3200-130 (R 2/10)

This monitoring is designed to help you detect new invasive species on your lake, so you can then alert the DNR and so lake residents and/or professionals can respond appropriately. The purpose of the DNR collecting this data is to let us know what methods trained citizens and professionals use when actively looking for aquatic invasive species. You are often the ones to alert us of new invasives in our waters. Remember for prevention monitoring, a report of "no invasive" at a location is just as important as finding an invasive. One cannot confidently state that the invasive is not present in an area if no one has looked and reported their findings. Knowing where invasives are not, as well as where they are, is extremely important in being able to track and understand their spread. Knowing how often monitors are looking for species and what they are finding is very important information.

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Data Collectors		
Primary Data Collector Name	Phone Number	Email
Additional Data Collectors		

Date and Time		
Date	Start Time	End Time

			Record one of the following: Y=Yes N=No N/A = Didn't Look For																			
			Did you monitor?				**Did you?**				**Did you find?**											
Waterbody	**County**	**Township**	Boat Landing (if you only monitor at boat landings)?	All Beaches and Boat Landings?	Perimeter of Whole lake?	Docks or piers?	Walk along the shoreline?	Observe entire shallow water area (up to 3 feet deep)?	Use rake to extract plant samples?	Check underwater solid surfaces (boat hulls, dock legs, rocks)?	Banded Mystery Snail?	Chinese Mystery Snail?	Curly-Leaf Pondweed?	Eurasian Water Milfoil?	Fishhook Waterfleas?	Freshwater Jellyfish?	Hydrilla?	Purple Loosestrife?	Rusty Crayfish?	Spiny Waterfleas?	Zebra Mussels?	Other?: _____

If you find an aquatic invasive
If you find an aquatic invasive and it is not listed at http://dnr.wi.gov/lakes/AIS fill out an incident report for the species. Then bring the form, a voucher specimen if possible, and a map showing where you found it to your regional DNR Citizen Lake Monitoring Coordinator as soon as possible (to facilitate control if control is an option).

If you don't find an aquatic invasive
If you submit your data online, that is all you need to do. Otherwise, please mail a copy to your regional DNR Citizen Lake Monitoring Coordinator. http://dnr.wi.gov/lakes/contacts

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Aquatic Invasive Animal Incident Report

Form 3200-126 (R 02/10)

The purpose of this form is to notify DNR of a new species of AIS in a waterbody. Only use if you found an aquatic invasive species on a lake where it hasn't been found previously.

To find where aquatic invasives have already been found, visit: http://dnr.wi.gov/lakes/ais.

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Primary Data Collector

Name	Phone Number	Email

Monitoring Location

Waterbody Name	Township Name	County	Boat Landing (if you only monitor at a boat landing)

Date and Time of Monitoring or Discovery

Monitoring Date	Start Time	End Time

Information on the Aquatic Invasive Animal Found (Fill out one form for each species found.)

Which aquatic invasive did you find? ☐ Zebra Mussel ☐ Quagga Mussel ☐ Spiny Waterflea ☐ Freshwater Jellyfish
☐ New Zealand Mud Snail ☐ Banded Mystery Snail ☐ Chinese Mystery Snail ☐ Rusty Crayfish ☐ Red Swamp Crayfish

Where did you find the invasive animal?

Latitude:	Longitude:

Measurements from where the invasive was found (optional)

Water Temperature Degrees F / Degrees C (circle one)	Dissolved Oxygen (mg/l)

Estimated percent cover in the area where the invasive was found (optional)

Substrate cobble, %	Substrate muck, %	Substrate boulders, %	Substrate sand, %	Bottom covered with plants, %

If you found Zebra Mussel(s)

Water depth where Zebra Mussels were found _____ Feet / Meters (circle one) | Total Number of Zebra Mussels Found _____

What were the Zebra Mussels attached to?

☐ Dock/pier ☐ Dam ☐ Rocks ☐ Plants ☐ Boats or Gear ☐ Plate Sampler(s) ☐ Logs, acorns, pine cones or other woody structure
☐ Other: _____

Size of Largest Zebra Mussel Found	Size of Smallest Zebra Mussel Found (individual measurements on back of page)

Voucher Sample

Did you collect a sample (voucher specimen) and bring it to your local DNR office? If so, which office?

☐ Rhinelander ☐ Spooner ☐ Green Bay ☐ Oshkosh ☐ Did not take sample to a DNR office
☐ Fitchburg ☐ Waukesha ☐ Eau Claire ☐ Superior ☐ Other Office: _____

Please collect up to five specimens and bring a copy of this form, along with the sample and a map showing where you found the suspect invasive species to your regional AIS or Citizen Lake Monitoring Coordinator at the DNR.

While field collecting, specimens can easily be kept alive in a bucket or other container with just about 1/2 inch of water in the bottom. Freeze specimens at the end of the day in a ziploc bag without water. If freezing is not possible for a long period of time preservation in rubbing alcohol (except for Jellyfish - leave fully in water) is sufficient.

For DNR AIS Coordinator to fill out

AIS Coordinator or qualified field staff who verified the occurrence: _____

Statewide taxanomic expert who verified the occurrence: _____
(for list see http://dnr.wi.gov/invasives/aquatic/whattodo/staff/AisVerificationExperts.pdf)

Was the specimen confirmed as the species indicated above? ☐ Yes ☐ No	If no, what was it?
Museum where specimen is housed: _____	Museum Specimen ID:

Have you entered the results of the voucher in SWIMS? ☐ **Yes** ☐ **No**

AIS Coordinator: Please enter the incident report in SWIMS under the Incident Report project for the county the AIS was found in. Then, keep the paper copy for your records.

Length of Zebra or Quagga Mussels from Sample (if applicable)

If more than 20 zebra or quagga mussels are found, measure 20 mussels chosen randomly from the sample. If less than 20 mussels are found, measure all mussels.

Number	Length (mm)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Note: All initial discoveries should be placed in rubbing alcohol until verification by an expert is obtained.

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Crayfish (Quantitative) Monitoring Report

Form 3200-129 (R 02/10)

The purpose of this form is to track the presence/absence and abundance of crayfish in lakes as part of AIS surveillance monitoring.

If you used traps, use one form for each area of the lake trapped.

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Primary Data Collector

Name	Phone Number	Email

Monitoring Location

Waterbody Name	Station Name	WBIC	County

Latitude of approx. center of traps at site	Longitude of approx. center of traps at site

Method of obtaining Latitude and Longitude: ☐ GPS ☐ Online Surface Water Data Viewer ☐ Other Mapping Software ☐ Other _____

Date and Time of Monitoring

Start Date	Start Time	End Date	End Time

If you used a net, the Start Date and End Date are the date you monitored. If you used traps, Start Date = Date minnow traps deployed, or since you last removed crayfish from the traps. End Date = Date you pulled up the minnow traps. NOTE: Traps must be pulled every 24 hours.

Equipment Used

Equipment (check all that apply)	Type of trap or net used:
☐ Minnow Trap ☐ Net ☐ Other	

If you used traps

Number of traps used	Average Water Depth where you put traps Feet / Meters (circle one)

If you used a net

Total search time (minutes x # of people)

Average water depth where looked Feet / Meters (circle one)

Estimated percent cover in the sample area

Substrate cobble, %	Substrate muck, %	Substrate boulders, %	Substrate sand, %	Bottom covered with plants, %

Monitoring Results

Species	Total Number of Crayfish Caught at Site
Calico Crayfish (*Orconectes immunis*)	
Devil Crayfish (*Cambarus diogenes*)	
Northern Clearwater Crayfish (*Orconectes propinquus*)	
Prairie Crayfish (*Procambarus gracilis*)	
Red Swamp Crayfish (*Procambarus clarkii*)	
Rusty Crayfish (*Orconectes rusticus*)	
Virile Crayfish (*Orconectes virilis*)	
White River Crayfish (*Procambarus acutus*)	

Voucher Sample

Number of voucher specimens collected at this site:

If you found what you suspect are rusty crayfish or red swamp crayfish, did you collect a voucher specimen and bring it to your local DNR office? If so, which office?

☐ Rhinelander ☐ Spooner ☐ Green Bay ☐ Oshkosh ☐ Other Office: _____

☐ Fitchburg ☐ Waukesha ☐ Eau Claire ☐ Superior

Additional Comments

For DNR staff to fill out

Did you get sample to a crayfish identification expert? ☐ Yes ☐ No

http://www.dnr.wi.gov/lakes/ais/whattodo/staff/AisVerificationExperts.pdf

If yes, who verified it?

Was the sample confirmed as including rusty crayfish? ☐ Yes ☐ No Red swamp crayfish? ☐ Yes ☐ No

DNR staff: Please enter voucher information for new AIS findings into SWIMS under the Incident Report Project for your county (Choose Incident Report Form in SWIMS). Enter date of sampling for "Start Date", Person who identified specimen as "Data Collector", and Monitoring location as "Station".