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.

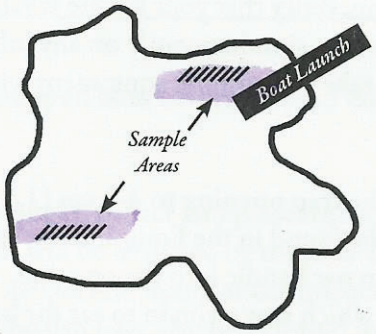
When to Monitor

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.

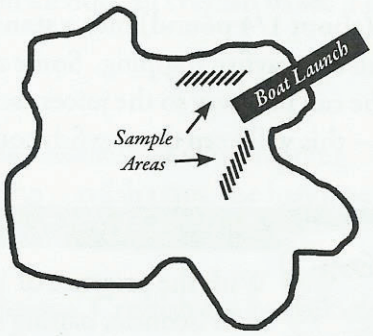
Where Do I Look for Rusty Crayfish?

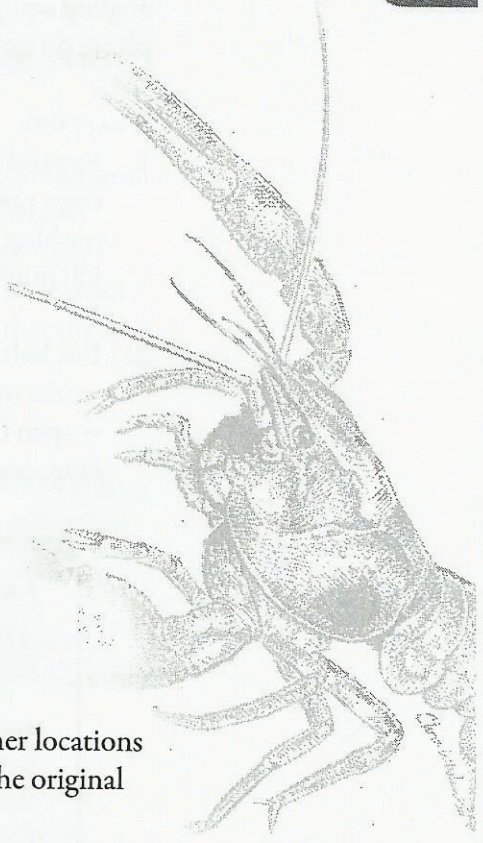
Crayfish reside in a variety of habitats including rocky substrates, sand flats and aquatic plant beds, so please sample a variety of ecosystem types.

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.

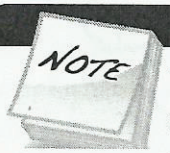
Make sure that the water temperature is above 54° F (12° C) before you sample. Crayfish are less active (and less able to be trapped) when water temperatures are below 54° F (12° C).

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.