

One common way of catching turtles is to set No. 4 steel traps in shallow, weedy areas, or to nail them on posts at or just above water line. These are baited with fish, fish heads, chicken entrails, watermelon rind, or meat wired to the trigger. A bad problem with this method is that the traps also catch ducks and other desirable—or even protected—animals.

There are other methods which are effective on turtles but safer for other wildlife. Floating turtle traps are one. These have a wire or net cage suspended below a square wooden frame with spikes pointing inward from the frame's inner edge. Turtles fall in when they reach for bait hung above the trap or when they tip a board balanced on the edge. Another trap is the so-called bob-funnel.

A set line having a treble hook baited with materials previously listed may be used if a state permit is obtained. For best results, attach set lines to limber poles driven into the pond bank. Turtles often break set lines attached to firm objects.

When you catch turtles, don't throw them away. They're delicious.

## Snakes

Sometimes fish-eating water snakes take up residence near a pond, and most often when a stream is nearby. Water snakes usually pose problems only for trout and minnows.

Mowing pondbank vegetation and removing logs, tree roots, branches, and large stones from the shoreline reduces habitat for water snakes. The mowing, however, will eliminate the advantages of having a vegetational buffer strip to filter nutrients and silt out of runoff water. Persistent killing can reduce watersnake populations.

## Swimmer's Itch

Swimmer's itch is caused by a minute free-swimming parasite that burrows into and irritates the skin. This parasite develops only in certain kinds of snails before it attacks humans.

Ridding a pond of swimmer's itch means controlling the snails. To control snails with least harm to the pond's fish, remove plants and pondbed debris. These are the snails' habitat. Sowing pea-sized copper sulfate crystals onto the pond bed (2 lb/1000 sq ft or 87 lb/acre) poisons snails—but also kills many other fish food organisms, and possibly some fish, especially trout.

## Mosquitoes

Mosquitoes don't generally thrive in fish ponds. If much of a fish population exists, the mosquito larvae will be eaten. Moreover, mosquitoes need calm water surfaces for development. Any parts of a pond that wind ripples will be unsuitable. Only very shallow, protected pond edges will support them. Small fish usually dispose of most larvae in these places.

Most kinds of mosquitoes that cause problems for people come from temporary puddles that lack fish. Keeping a stable pond water level prevents the frequent flooding of shoreland which would make isolated puddles for mosquito breeding. Don't try to control mosquito breeding unless you have found exactly where they're breeding. Then confine control efforts to those sites.

Beware of using insecticides near ponds to control mosquitoes. These chemicals are very likely to kill the fish.

A safe, effective, and pleasant mosquito control is to install a purple martin house near the pond or at the area of human activity. One colony of martins will usually keep mosquitoes at a tolerable level during daytime and early evening.

Another biologic way to control mosquitoes is with gambusia fish. These small warm-climate fish can be stocked in marshes, swales and seasonal puddles where our native mosquito-eating fishes are frozen out in winter. Gambusia also die in cold weather, but it's easy to recapture a few and keep them indoors during the winter, then stock them again in late spring. A few in each separate water area will multiply

fast and keep mosquito larvae cropped down.

## Leeches (Bloodsuckers)

Michigan has about 50 species of leeches, of which only four attach to humans. Most kinds of leeches feed on other animals, such as turtles, or on dead matter. Therefore, the first thing to determine is whether leeches are attaching themselves to people—or whether leeches have merely been sighted in the water. No control is needed unless the leeches are definitely causing a problem.

Often, the most effective way to reduce leech populations is to reduce the amount of organic debris on the pond bed. Leeches dwell in accumulations of twigs and leaves at the bottom of the pond and swim up or reach out to attach to host animals. Some leeches attach to aquatic plants and stretch to amazing lengths in search of passing food. Preventing or controlling beds of dense vegetation may also help to control leeches.

Another method for controlling leeches is to have plenty of bass in the pond—or trout, if it is a cold-water pond. Such fishes are avid predators on most of the troublesome leeches. In fact, some kinds of leeches are highly effective fishing baits, and they are a hot-selling item at bait shops. Stocking 25 to 50 yearling (6-8-inch) bass per acre should reduce leech populations so that they are no longer a problem.

Leeches are subject to poisoning with copper sulfate ( $\text{CuSO}_4$ )\*, but this method is generally unsuccessful in ponds for a number of reasons. A tremendously heavy dosage is needed—3 pounds of granular copper sulfate applied to each 100 square feet of pond bed. This is supposed to form a bottom layer of water which contains 40 parts per million dissolved  $\text{CuSO}_4$ , toxic to leeches—and probably to all other bottom-dwelling fish food, as well. A major problem with this procedure is that leeches are good swimmers and can move upward to escape the poisonous layer. **Never use  $\text{CuSO}_4$  in a trout pond!**

\*Contact nearest DNR office (Appendix) to secure permit for this procedure.