



Common Pond Problems

Marley Beem

Area Aquaculture Specialist

Few things are as relaxing as making a few casts into a picturesque pond, letting yourself slow down, and getting in tune with nature. It is no wonder that landowners who place high value on their ponds are upset when problems occur. This publication offers some solutions to common problems, but does not discuss everything that you need to know in order to manage a pond. Like a garden, there are no easy shortcuts to a good pond—good planning and regular management is required. To better understand what it takes to manage your pond, you will need to read one or both of the pond management booklets listed at the end of this publication. The Oklahoma Department of Wildlife Conservation can also provide limited assistance.

Have a Specific Problem?

You may wish to go directly to the heading that describes your particular situation—aquatic vegetation, fish kills, muddy water, poor fishing, sick fish, turtles, or wormy fish. Other fact sheets may be recommended for your problem, so pick them up now if it is convenient to do so.

Correcting Pond Problems

Aquatic Vegetation

Pond plants are generally beneficial, providing feeding areas for fish, refuge for small fish from bass, and protecting shorelines from wave erosion. However, when plant growth becomes a nuisance, several approaches can be used to manage the problem.

The problem plant must be identified before correct management steps can be taken. Herbicides or other control measures that work on one plant may have no effect on another plant, or even make the problem worse. Collect a fresh sample of the plant and make a sketch of your pond. Take both to your county Extension office for assistance in identification and advice on management options.

There are two common reasons that plants get out of control in ponds. First, too many nutrients may be getting into the pond from sources such as livestock or overfertilized yards. This often leads to excessive growth of algae. **Filamentous algae** is stringy, lacks any type of leaf, and often resembles green fiberglass insulation. **Planktonic algae** is visible only under the microscope, but when overly abundant it gives the water a thick green color, making it difficult to see a shallow submerged object.

Another reason for excessive plant growth is that there may be too many shallow areas in the pond. Areas with less than three to four feet of water are ideal for aquatic plant growth. Many ponds are built with improper shoreline slopes. Livestock around a pond can also trample banks and dams, creating shallow, weed-prone edges.

Herbicides offer quick results, but if the underlying cause of the problem is not corrected, plant growth will reoccur. Grass carp offer an option for controlling most rooted aquatic plants, but if overstocked these fish can completely clean out a pond and leave no feeding or refuge areas for forage fish. Before choosing between grass carp, herbicides, and other control options, pond owners should read

Oklahoma Cooperative Extension Fact Sheets
are also available on our website at:
<http://osufacts.okstate.edu>

the following fact sheets available through Cooperative Extension Service offices:

- SRAC-360, "Aquatic Weed Management—Control Methods."
- SRAC-361, "Aquatic Weed Management—Herbicides."
- CR-9202, "Grass Carp for Pond Weed Management."

Fish Kills

When large numbers of fish show up dead within the period of a day, a fish kill has occurred. Smaller numbers of fish dying over a period of several days indicates a disease-related problem. (See the section entitled "Sick Fish.")

Oxygen depletion is the leading cause of fish kills in Oklahoma ponds. Because low oxygen kills are usually sudden and massive, many pond owners mistakenly jump to the conclusion that a pesticide must be responsible. The following signs point to low oxygen as the cause of a fish kill:

- Fish gulping at the water's surface.
- Bass die first.
- Large fish die before small fish of the same species.
- Pond water changes color.
- Light scum or a film is visible on the water.

If you see fish gulping at the surface and not too many have died, it may be practical to try saving the rest by aerating the water. This can be done by backing a boat into the water and running the outboard motor with the propeller near the surface to maximize splashing. A pump can be set up to allow water to cascade over boards or a roll of fencing to break it up into as many drops as possible. Some pond owners report success in using a tractor-mounted bush hog to aerate the pond. Aeration should continue at least until fish are no longer at the surface and possibly for as long as several days to allow oxygen levels to recover.

Pesticides do occasionally cause fish kills. Some or all of the following signs can indicate a pesticide fish kill:

- Animals other than fish are dead.
- Small fish die sooner than large ones.
- Fish may be seen swimming convulsively.
- Fish with fins flared out.

Testing for pesticides is expensive and will not certify that remaining fish are safe to eat. A short list of the names of suspected pesticides is needed if testing fees are to be kept affordable. If you believe the expense is justified, collect samples as soon as possible for testing. Most labs require at least a gallon of pond water in clean glass jars. Since waxy lid liners can contaminate samples, place aluminum foil over the mouth of the container before screwing on the lid. Water samples must be kept under refrigeration. Fish or other animals should be wrapped in aluminum foil and frozen. Labels, written in pencil and listing date, time and place collected, and your name and phone number, should be securely attached to jars and placed inside the wrappings around the animals. Contact

the Oklahoma Department of Health, Water Quality Lab at 405-271-5240 for advice on pesticide testing. If the fish kill is in public waters, contact your local game ranger for an on-site inspection. Rangers can be reached by calling the law enforcement division of the Oklahoma Department of Wildlife Conservation (ODWC) at 405-521-3719.

Muddy Water

Before attempting to clear muddy water, determine if any areas are actively eroding in the pond watershed or the pond itself that will continue to muddy the pond. Your county Soil Conservation Service office is an excellent source of practical advice on controlling erosion. If it is not practical to stop the erosion, then a check dam built above the pond may still be able to keep the pond clear by allowing sediment to settle before water enters the pond.

Muddy water can be of two different types. To determine which type you have, fill a glass jar with pond water and allow it to sit undisturbed for one week. If the sediment collects at the bottom and the water above it is fairly clear, then it is **settleable by gravity**. If it does not, the particles are **chemically suspended**.

If your sample is settleable by gravity, you need to determine what is stirring the sediments in your pond and eliminate that cause if possible. Carp or other bottom feeding fish may need to be eradicated. A pond that is strongly mixed by wind may benefit from planting a windbreak.

If your sample is chemically suspended, you may wish to try applying inexpensive hay to the edge of the water. As it decays, hay (or other organic matter) creates electrical charges that cause clay particles to clump together and settle out. Two small bales of hay per surface acre should be scattered around the pond edge at 14-day intervals until clearing occurs. No more than four or five treatments should be done each year. You can also try placing one small bale along the shoreline every 40 feet. If these methods are not effective, consider applying limestone, gypsum, or filter alum. Refer to one of the pond management booklets listed under "Other Information" for advice. These substances usually are quicker acting but cost more and require hard work to properly apply.

If it is not feasible to clear your pond, then you may wish to consider using it to produce catfish. Up to 1,000 pounds of catfish per surface acre can be grown using catfish feed. Put out no more than 20 pounds of feed per surface acre per day to avoid a fish kill. Large bass should be removed from the pond before stocking catfish fingerlings.

Poor Fishing

In far too many ponds, Oklahomans have discovered that an afternoon of fishing yields only scrawny, undesirable fish. Before you conclude that the pond requires corrective action, be sure you have tried fishing with a variety of lures and methods at various times. Keep records of how long you fish, the fishing method used, and what size and kind of fish you catch. Such records will be useful when seeking advice from an Oklahoma Department Of Wildlife Conservation fisheries biologist, a qualified fish hatchery operator, or when reading a pond management booklet to determine what corrective steps to take.

Perhaps the most common situation is that there are **lots of small, thin sunfish and very few or no largemouth bass**. This indicates that bass have been overharvested—this can easily occur, especially in ponds of only a few acres. If you have access to largemouth bass big enough to eat the largest size bluegill in the pond, you may be able to bring bluegill reproduction under control. A largemouth bass must be at least two and a half to three times longer than a bluegill in order to swallow it. Most pond owners will find it too expensive to purchase large bass. Instead they should consider catching bass from

Muddy water does not cause flavor problems—muddy flavors in fish are the result of compounds produced by certain species of microscopic plants called algae.

Fish commonly called "perch" in Oklahoma are actually a group of similar fishes correctly called sunfish. These sunfish species include bluegill, redear sunfish, green sunfish, longear sunfish, orangespotted sunfish and others. Bluegill can be distinguished from other sunfish by their earflaps which are blue completely to the edge.

the wild and carefully handling and transporting them to their pond. Catch limits, legal fishing methods, and all other fishing regulations must be observed when doing so.

If you cannot obtain large bass, the best option for improving fishing is usually to eliminate all fish and restock. Rotenone is a pesticide approved for controlling fish. Care must be taken not to apply it to a full pond before it rains or you may cause a large downstream fish kill. Contact your local game ranger for advice on applying rotenone.

Caution: Rotenone is highly toxic to pigs and moderately toxic to horses. If your pond has a bottom drain, or you set up a siphon or pump, you can partially drain the pond to reduce the amount of rotenone needed. If you choose to totally drain your pond, be aware that fish can remain alive in puddles. Allow the pond to dry until the bottom cracks or apply one half pound of quicklime per 10 square feet of puddle. Use caution to keep it out of your eyes. For advice on restocking, see the section "Preventing Pond Problems—Follow recommended fish stocking practices."

Another common situation is **too many of one or more of the following: crappie, mudcats (bullheads), shad, shiners, goldfish, green sunfish together with poor bass and bluegill populations**. Although crappie are well liked by anglers, they should not be stocked in most ponds. Their large number of young lead to stunted populations unless an effective bass population can be maintained. Flathead catfish should also be avoided since they will consume every other fish in a pond.

The solution for ponds predominated by these undesirable fish is to eliminate all fish and restock. Steps may then need to be taken to prevent the restocking of undesirable fish. See "Build a drop-off barrier" and "Follow recommended fish stocking practices" under the "Preventing Pond Problems" section.

Sick Fish

If your fish have first been dying a few at a time and now at an increasing rate, or they are swimming strangely, then they probably have a bacterial infection or parasite problem. Fish weakened by lack of food or stressed by poor water quality are vulnerable to diseases. Quick increases in water temperature in the spring and the stress of stocking can also lead to problems. You may want to collect a sample for disease diagnosis. See CR-9204, "Fish Diseases and Diagnostic Services," available through your Extension office.

In recreational fishing ponds, a common underlying cause of disease is lack of adequate food. Inspect several fish by holding them and looking at them from above. If they appear thin, the problem is probably a lack of food.

Overfeeding catfish can also be a problem—put out no more than they will clean up in 15 minutes. The maximum safe amount of feed is 20 pounds per surface acre each day. More than this amount will lead to stressful, if not fatal, low oxygen or high ammonia levels. It does not matter if the fish want to eat more—a standing water pond can only handle 30 pounds of feed per surface acre per day.

Feeding during winter should only be done with caution. Occasional light feedings of a sinking or semi-sinking feed, when the fish will take it and warm weather is predicted for several days, is acceptable. Never feed in such a manner that the feed goes uneaten or fish will have a full stomach when water temperatures drop.

Turtles

Turtles are widely disliked because of their habit of stealing bait off hooks and eating fish held on stringers. It is rare for them to

eat healthy fish. Before you take steps to kill turtles, consider other ways to hold your catch, such as in wire baskets or coolers.

If you choose to reduce turtle numbers or enjoy eating turtle, then a “teeter trap” may be useful (Figure 1). Build a four-sided wooden box with a wire mesh bottom. Turtles smelling a piece of meat walk up a ramp and onto a teeter board. The teeter board

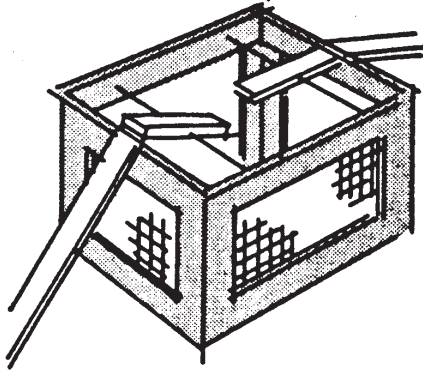


Figure 1. A homemade trap can reduce turtle numbers.

pivots on a metal rod driven horizontally through the sides of the box. To prevent escape, 20D nails are driven in on the inside of the box, slanting head upwards, four inches apart and two inches above the water. Snapping turtles must be captured using other means such as a submerged hoop trap.

Taking of alligator snapping turtles, western chicken turtles, and map turtles is prohibited (1994 Oklahoma Fishing Regulations). Contact the nearest ODWC office for details.

Wormy Fish

Discovering that your catch is riddled with pinhead-size yellow or white grubs or smaller black grubs is an upsetting experience. Although these pose no human health risk, they do ruin most peoples' appetite.

No chemical de-wormer for fish grubs exists. Recommended treatment is to break the life cycle of the parasites by eliminating or reducing the other hosts—**fish-eating birds and snails**. Fish-eating birds, such as cormorants, great blue herons, and kingfishers, can be encouraged to move on by scare devices or eliminating their roosting places. These birds, like most others, are protected by law and cannot be killed.

Snails thrive when aquatic plants are abundant. If a large part of the pond is taken up by aquatic plants, you may want to control plant growth using some of the methods discussed in the “Aquatic Vegetation” section. Another solution may be the redear sunfish. This is a native, snail-eating fish that can reduce snail numbers while also providing good fishing itself. They can be obtained in sufficient numbers by fishing. Redear can be distinguished from other sunfish by their long side (pectoral) fins which extend past the eye when bent forward. The ear flap usually has an orange or red crescent, but is mostly black with a light colored margin.

Preventing Pond Problems

A pond that is built wrong or in the wrong place will have constant problems. Do not rely solely on advice from your neighbors or bulldozer operator. Your county Soil Conservation Service (SCS) office provides expert advice on pond construction and design assistance without charge. Although cost share money for pond construction is less available than in the past, your SCS office still provides on-site design assistance and specifications that will help ensure your pond is built the right way.

Here are some items to keep in mind when planning a new fishing pond:

Look for trouble above and around your proposed pond site.

The following items can cause serious pond problems:

- Pesticides and fertilizer from yards or farmland.
- Oil and drilling fluids from oil wells.

- Large amounts of leaves—beware of too many trees nearby.
- Wastes from confined animal operations.

Also of concern are “trash” fish from ponds higher in the watershed. Fish can wash out of ponds and travel overland during heavy rains.

Deepen pond edges to prevent weedy areas.

Areas with less than three to four feet of water depth are ideal for rooted aquatic plants that may interfere with fishing or spoil a view. Survey and stake the waterline before beginning construction. Consider deepening the edge if the water will be less than one foot deep when you are at a point three feet out from the waterline. Soil removed in edge deepening can be used in the dam or to construct fishing berms jutting out into pond or pushed up if fill is well compacted (Figure 2).

An exception would be a pond owner wishing to attract waterfowl. In this case, shallow areas might be desirable for promoting the growth of plants used by ducks.

Put a bottom drain in your pond.

Being able to drain water from a pond can save money and improve your ability to manage your pond in many ways:

- Should you ever need to control trash fish, you can either do so by totally or partially draining the pond to reduce the amount of expensive fish toxicant needed to kill fish.

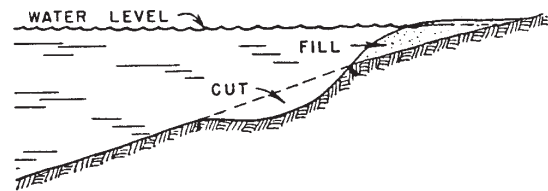


Figure 2. Before a new pond fills, it is often wise to deepen the edges.

- Repair work on the spillway or dam is facilitated.
- Lowering pond water level is sometimes recommended to help control pond weeds and excess bluegill reproduction.
- Drains which pull overflow off the bottom of the pond improve conditions for fish by discharging deep, poor quality water.

An interior standpipe drain can be easily modified to draw water off the bottom by installing a larger diameter PVC pipe around it. The bottom of the pipe must be held off the pond bottom with the top sticking above the water's surface.

Every pond needs a bottom drain. If you must hold costs down, at least install an inexpensive drain using PVC pipe through the dam and anti-seep collars every 10 feet. Contact your county SCS office for advice.

Consider the pros and cons of a spillway barrier to avoid fish losses during heavy rains.

If your pond spillway is narrow, the deep flow across it during big storms could allow fish to escape. Screens can keep fish in but pose the risk of a dam washout if improperly designed or maintained. Four foot long panels can be constructed from rebar in a welding shop and linked together on site. Rebar should run horizontally and have a one-inch spacing. One-inch mesh fencing is also acceptable but more prone to clogging. If your pond carries floating debris or you are unable to clean screens regularly, do not use spillway barriers.

Build a drop-off barrier.

Carp and a number of other fish are noted for their ability to swim upstream during heavy downpours. By building a four-foot drop in the channel below your spillway, you can effectively prevent this. Reinforced concrete and rip-rap are needed to withstand heavy flows. Spillway screens will not exclude smaller fish.

Avoid building a very deep pond.

Deep ponds build up a large amount of cold, oxygen-poor water on the bottom. This can suddenly mix with top waters as weather cools in the fall, causing a massive fish kill due to lack of oxygen.

A deep pond cannot be stocked with more fish than one of average depth (7 to 15 feet). It is the number of surface acres that determines how much good fishing a pond can provide, not the volume of water (acre feet).

Keep the dam clear of all trees and shrubs.

When a large tree or shrub dies, the roots may decay leaving paths for water to eventually breach the dam. Trees and shrubs should be removed from dams each year while they are still small.

Follow recommended fish stocking practices.

With few exceptions, the following species should be kept out of fishing ponds: crappie, bullheads (mudcats), flathead catfish, green sunfish (goggle eye perch), golden shiners, goldfish, and shad. All have problems that generally make them unsuited for farm ponds. Never empty bait buckets into the pond—dump them on the ground to avoid introducing minnows, a major pest to most ponds.

The standard stocking recommendation for new and renovated fishing ponds in Oklahoma is 300 to 500 bluegill in the fall, followed by 100 largemouth bass and 50 channel catfish in the spring. Fathead minnows and redear sunfish are also used. Crappie are not recommended for most farm ponds. If the pond owner is able to successfully manage for lots of big, hungry largemouth bass, the number of crappie young can be kept down. The publication, *Producing Fish and Wildlife from Kansas Ponds*, listed under "Other Information," provides specific information for those interested in producing crappie, trophy bass, or other specialized objectives.

Fence cattle out and install a freeze-proof watering tank below the dam.

When too many cattle are given free access to ponds, they badly erode pond banks and dams and muddy the water, making conditions less desirable for fish production. An investment in some fencing, a freeze-proof tank, and a through-the-dam supply pipe can have numerous benefits:

- No cattle lost due to falling through the ice.
- No more hard work chopping ice so cattle can drink.
- Longer pond life.
- Better fishing thanks to more sunlight penetration and increased food supply for fish.
- Increased numbers of deer and other wildlife thanks to growth of food- and shelter-providing plants around the pond.

Visit with your county NRCS representative for information and plans on installing freeze-proof tanks.

Other Information

Perhaps the most important advice of all is to be informed by seeking out good information. Two booklets are available that go into detail on building, stocking, and managing ponds. *Pond Management in Oklahoma* is available for \$1.50 by mail from the Oklahoma

Stocking ponds where large bass are present usually results in stocked fingerlings being eaten.

Department of Wildlife Conservation, 1801 North Lincoln, Oklahoma City, OK 73105. *Producing Fish and Wildlife from Kansas Ponds* is available for \$2.50 from Fisheries and Wildlife Division, Kansas Department of Wildlife and Parks, RR 2, Box 54A, Pratt, KS 67124, Attn. Pond Book, 2nd ed. The Cooperative Extension Service offers one other fact sheet of interest to pond owners: *Where to Find Fingerlings and Fish Farming Supplies*, CR-9205, provides a list of private fingerling suppliers.

Oklahoma Department of Wildlife Conservation Regional Fisheries Offices

Northwest Region—Cimarron, Texas, Beaver, Harper, Woods, Alfalfa, Ellis, Woodward, Major, Dewey, Blaine, Kingfisher, Custer and Roger Mills counties:

Route 1, Box 535, Byron, OK 73722; 580-474-2668.

Southwest Region—Beckham, Greer, Harmon, Jackson, Tillman, Cotton, Stephens, Comanche, Kiowa, Washita, Caddo, and Grady counties:

19333 State Highway 49, Lawton, OK 73507; 580-529-2795.

North Central Region—Kay, Noble, Payne, Pawnee, and Osage counties:

417 S. Silverdale Lane, Ponca City, OK 74604; 580-762-2248.

Headquarters:

P.O. Box 53465, Oklahoma City, OK 73152; 405-521-3721.

Central Region

Western District—Canadian, Loga, Oklahoma, Cleveland, McClain, and Garvin counties:

500 E. Constellation, Norman, OK 73072; 405-325-7288.

Eastern District—Lincoln, Pottawatomie, Seminole, Okfuskee, Hughes, and Okmulgee counties:

3733 Highway 48, Holdenville, OK 74848; 405-325-7288 or 405-379-5408.

South Central Region—Pontotoc, Coal, Atoka, Bryan, Marshall, Love, Carter, Murray, Johnston, and Marshall counties:

2021 Caddo Highway, Caddo, OK 74729; 580-924-4087.

Northeast Region—Creek, Tulsa, Wagoner, Mayes, Delaware, Ottawa, Craig, Nowata, Washington, and Rogers counties:

Jenks Office, 300 Aquarium Drive, Jenks, OK 74037; 918-299-2334.

East Central Region—Muskogee, Sequoyah, McIntosh, and Haskell counties:

Route 1, Box 75-B, Porter, OK 74454, 918-683-1031.

Southeast Region—Pittsburg, Pushmataha, Choctaw, McCurtain, LeFlore, and Latimer counties:

Rt. 3 Box 1570, Wilburton, OK 74578; 918-297-0153.

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