

AGRICULTURAL GUIDE

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Fishing

Managing ponds for good fishing

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"Should I keep this bass or put it back?" The correct answer to this question is an important management decision. This guide gives advice on how to manage ponds for good fishing at little cost. Proper harvest is the key to success and satisfaction in pond fishing and management.

What is good fishing, or better, what is good catching? Generally, good fishing is catching the right kind of fish, not all of the same size, neither too easily nor too infrequently. If you agree with this definition, this guide may help you make good catches.

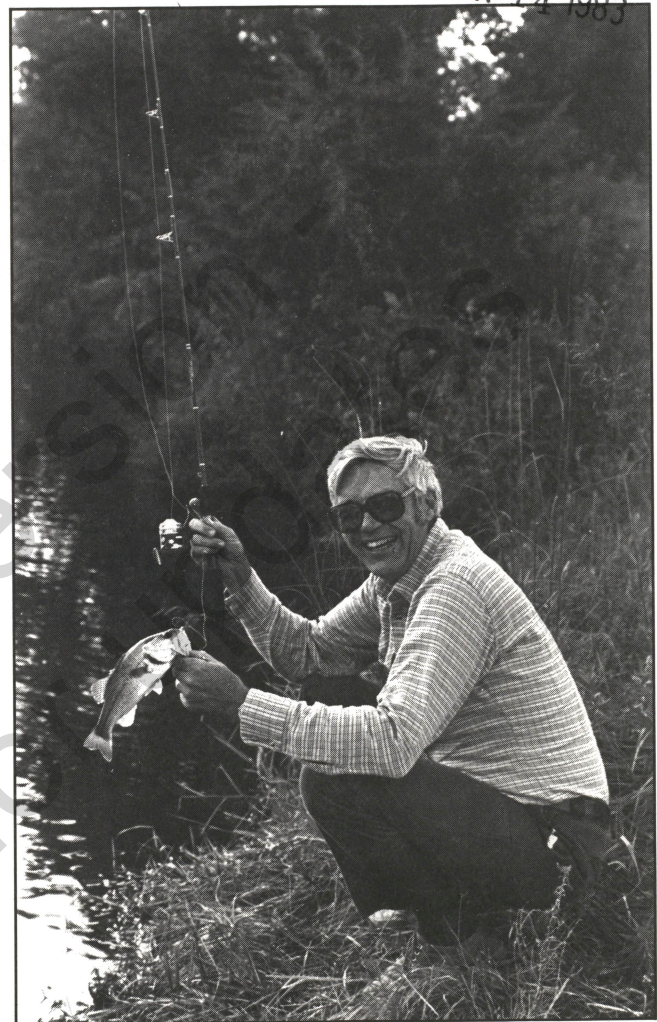
Successful fishing year after year in ponds does not happen by accident. Personal satisfaction, pleasant memories, and fish to eat from a pond requires that you make the right decisions. In this respect, a pond is much like the family garden. Those who regularly raise an excellent crop of fruits and vegetables or flowers have an understanding of the relationships between soil, nutrients, moisture, temperature, plant varieties, pests and diseases, and competition. Successful gardeners and pond managers know what to do and when and how to do it.

Habitat and water quality

For good fishing you must have a good pond. Some obvious problems in a bad pond are muddy water, excess plant growth, and fish kills.

A pond with muddy water most of the time will not provide reasonably good fishing for largemouth bass and bluegills. These fish bite best when they have a good chance to see the bait or lure at some distance greater than just beyond the end of their noses. If the water in your pond has the color of clay, and if you cannot see your lure or hand at a depth of 1 foot or more, you'll have to deal with the problem. Not only

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Should I keep this bass or put it back?

(Photo courtesy of Columbia Daily Tribune.)

will bass and bluegills not bite well, but such ponds are also unproductive. If your pond is consistently muddy, the addition of organic material is often the best solution.

Some ponds have too much plant growth. Microscopic algae can make the water an obvious green and reduce transparency to less than 1 foot. In some fertile ponds, filamentous or blue-green algae can develop extensive mats or scums persisting into late spring and summer. Even though such ponds may sometimes provide excellent catches of good fish, they are hardly attractive. Also, fish from such ponds often have a musty flavor. Under the worst condi-

Figure 1. Record catch on 3 x 5-inch cards that are convenient to carry and file. Notes might well include date, hours fished, size of largest fish, size of fish caught other than bass or bluegills, water or weed conditions, lures or bait used, and anything else of interest.

Catch Record		6/2/82
<u>LMB</u>	Total Catch	No. KEPT
8-11-9	THH	1111
12-14-9	1111	
15	11	1 (15.5)
<u>BLG</u>		
3-5-9	1111	11
6-7-9	THH 1	THH 1
8	11	11 (8.3)
DAD and I fished 3 hrs. Released 19 in. bass.		

tions, a pond with excessive algae is a likely candidate for heavy fish kills caused by oxygen depletion in summer or winter. If your pond is excessively fertile, reduce the inflow of fertilizer.

Most ponds, including good fishing ponds, have rooted aquatic plants that grow in shallow water. However, too many plants or plants of the wrong kinds can create problems. The types of plants that interfere with fishing have thin, fragile stems and finely divided leaves. Heavy growth of such plants over more than 20 percent of the pond or into water more than 3 feet deep may cause problems for fish. Catching food is much more difficult for fish in such habitats. Skinny fish may be the result, and skinny fish do not make for good fishing. The problem of too many rooted aquatic plants requires some control to reduce the surplus.

Some other problems are not so obvious. Periodic contamination from insecticides can cause fish kills. One heavy fish kill every fourth year or so can prevent the development of good fishing. Fish contaminated but not killed may be suitable for catching but not for eating.

Some ponds may be too shallow because of poor design, leaky dams, or filling in by erosion and sedimentation. Such conditions may contribute to winterkill or weed problems. Ponds built on certain soils have low levels or unique ratios of dissolved minerals which result in water quality that is not conducive to good fish production.

Fortunately, the majority of ponds do not have serious habitat problems. Most well-designed and constructed ponds have the potential to be good fishing ponds.

Fish populations

If you have a good pond, the next important consider-

ation is the kinds of fish in it. People who fish for pleasure and food have a wide range of preferences and values. Besides largemouth bass and bluegills, ponds have the potential to provide good fishing for many kinds of fish including common carp, bullheads, channel catfish, crappie, green sunfish, redear sunfish, hybrid sunfish, yellow perch, smallmouth bass, and trout. However, special conditions or efforts are needed to maintain good fishing in ponds for these kinds of fish.

Most warm-water ponds with a potential for sustained good fishing at low cost have been stocked with largemouth bass and bluegills. Both fish provide a diversity of angling opportunities, are fun to catch, and excellent to eat. This is a natural combination of predator and prey that can sustain itself and fishing success by normal reproduction and growth.

Other species can be present without causing serious problems. Channel catfish are popular, but they must be sustained by stocking. Redear sunfish are often stocked along with bluegills in the southern and central states. Green sunfish, bullheads, crappies, and some kinds of minnows can be present in a pond that will still provide good fishing. However, the abundance of other fish should not exceed that of bluegills.

How many pounds of fish are there in your pond? The poundage is related to fertility and the amount of food produced. In good ponds, the total weight of largemouth bass and bluegills, along with other panfish, ranges from 100 to 400 pounds per acre. In most ponds, the weight is about 200 pounds per acre. Largemouth bass may range from less than 5 to over 50 percent. In a good fishing pond, they range from 20 to 40 percent.

Pounds per acre and percentage composition are difficult to judge. However, it is relatively easy for a pond owner to decide whether a pond has too many or

Summary of harvest recommendations.

Based on percentage size distribution (PSD) of largemouth bass and bluegills caught by angling.

Angling PSD (%)		Harvest recommendations
Largemouth bass	Bluegills	
Less than 20	More than 80	Harvest more bass less than 12 inches long; protect bluegills by catch and release.
More than 60	Less than 50	Harvest more bluegills; protect all bass.
20-60	Less than 50	Harvest more bluegills; protect bass 12 to 16 inches long.
Less than 20	50-80	Harvest more bass less than 12 inches long; protect bass 12 to 16 inches long.
20-60	50-80	Balanced populations; maintain harvest routine, or protect bass 12 to 16 inches long.

too few largemouth bass or bluegills by analyzing the numbers and sizes caught by fishing. Fishing is always poor when fish populations have too many or too few fish of certain sizes, whatever the species.

Balanced populations

Self-sustaining fish populations are often referred to as balanced populations when they have satisfactory rates of reproduction, growth, and mortality. A pond owner can decide whether the populations are doing well by learning to recognize size distributions of good and not-so-good populations. Some effort is needed to measure and record the length of **all** fish caught. Catch cards or fishing diaries are good methods of keeping records. (See Figure 1.)

An index of size distribution is the percentage of adult fish of quality size. For largemouth bass, minimum adult size is 8 inches, and minimum quality size is 12 inches. If 10 bass are caught that are longer than 8 inches and two of these are longer than 12 inches, the percentage size distribution (PSD) is 20 ($100 \times 2 \div 10$). For bluegills, minimum adult size is 3 inches, and minimum quality size is 6 inches. If out of 10 bluegills caught, none are longer than 6 inches, PSD is 0, a not-so-good bluegill population.

A balanced, well-functioning, fish population of largemouth bass has a PSD of 20 to 60. In a good population, the proportion caught by angling that are 8 to 11.9 inches long will be 40 to 80 percent, and the proportion 12 inches long or longer will be 20 to 60 percent. For good bass fishing, 5 to 25 percent of adult largemouth bass caught should be longer than 15 inches.

Pond owners and anglers should keep records of the numbers caught in size groups of 8 to 11.9 inches, 12 to 14.9 inches, and 15 inches or longer. Remember, with a good bass population, two to six out of 10 adult bass caught are 12 inches long or longer.

As determined by angler catches, the PSD of a balanced population of bluegills is 50 to 80 with 20 to 50 percent of bluegills caught shorter than 6 inches. In the best populations, some bluegills of quality size will be longer than 8 inches. Records should be kept of the numbers caught less than 6 inches, 6 to 7.9 inches, and 8 inches long and longer. Remember, with a good bluegill population five to eight out of 10 fish caught are 6 inches long or longer.

In a balanced fish community, the populations of both largemouth bass and bluegills have good size distributions. Recognizing good fish population and community structure is necessary in order to decide whether a bass caught should be kept or released.

Harvest recommendations

If more than 50 percent of the bluegills caught by angling are shorter than the quality size of 6 inches, largemouth bass are probably depleted and need to be protected. More bass are needed to eat the surplus bluegills. Bass caught should be released until bluegill size distribution improves. Recovery may take one or two years. In extreme cases, when the bluegill catch rate is high, few are of quality size, bass are hard to catch, and PSD is over 60, bass reproductive success and survival are low. Such communities can be improved by stocking and protecting 10 to 20 adult bass per acre and by removing as many adult bluegills less than 5 inches long as possible. You can use seines or traps to advantage where legal because the surplus of adult bluegills usually exceeds 1,000 fish per acre. The problem of too many adult bluegills is often aggravated by habitat problems of muddy water or too many rooted aquatic plants. These conditions require corrective measures.

In many established ponds, a shortage of adult bluegills is caused by too many largemouth bass. In these ponds, few bluegills shorter than 6 inches long

are caught, and angling PSD is 90 or more. Almost all largemouth bass caught may be less than 12 inches long. The bass surplus may exceed 50 per acre. In such situations, limit harvest to largemouth bass less than 12 inches long until the surplus density is reduced, and balanced size distributions of largemouth bass and bluegills are evident. Protect adult bluegills so they can reproduce and provide prey for bass.

Most populations of largemouth bass in ponds produce a surplus of young adults. To sustain a balanced fish community, the pond owner or anglers must remove bass of less than quality size that are still large enough for the table. An appropriate harvest regimen in such situations is to protect largemouth bass from 12 to 16 inches long. A protected size range ("slot length limit") appears to be the best approach for sustaining the quality of fish to catch and those to eat from a typical small impoundment. This effective

management program requires little cost and effort.

Take care when fish are caught and released. Set the hook quickly when fishing with bait or plastic worms to prevent fish from swallowing the hook. Always have a pair of long-nosed pliers or a hook disgorger with you for hook removal. Hold bass by the lower jaw while removing the hook. Release fish immediately rather than holding them on a stringer or in a basket. Avoid damage to the gills, a vital organ. Fish released with care will live to fight another day.

The good fishing provided by balanced, self-sustaining fish communities of largemouth bass and bluegills in ponds with aesthetic surroundings can provide much pleasure. The ongoing process of plant and animal production is governed by the inflow and cycling of nutrients and by solar energy. A good pond with a balanced fish community can be a classic example of people in harmony with nature.