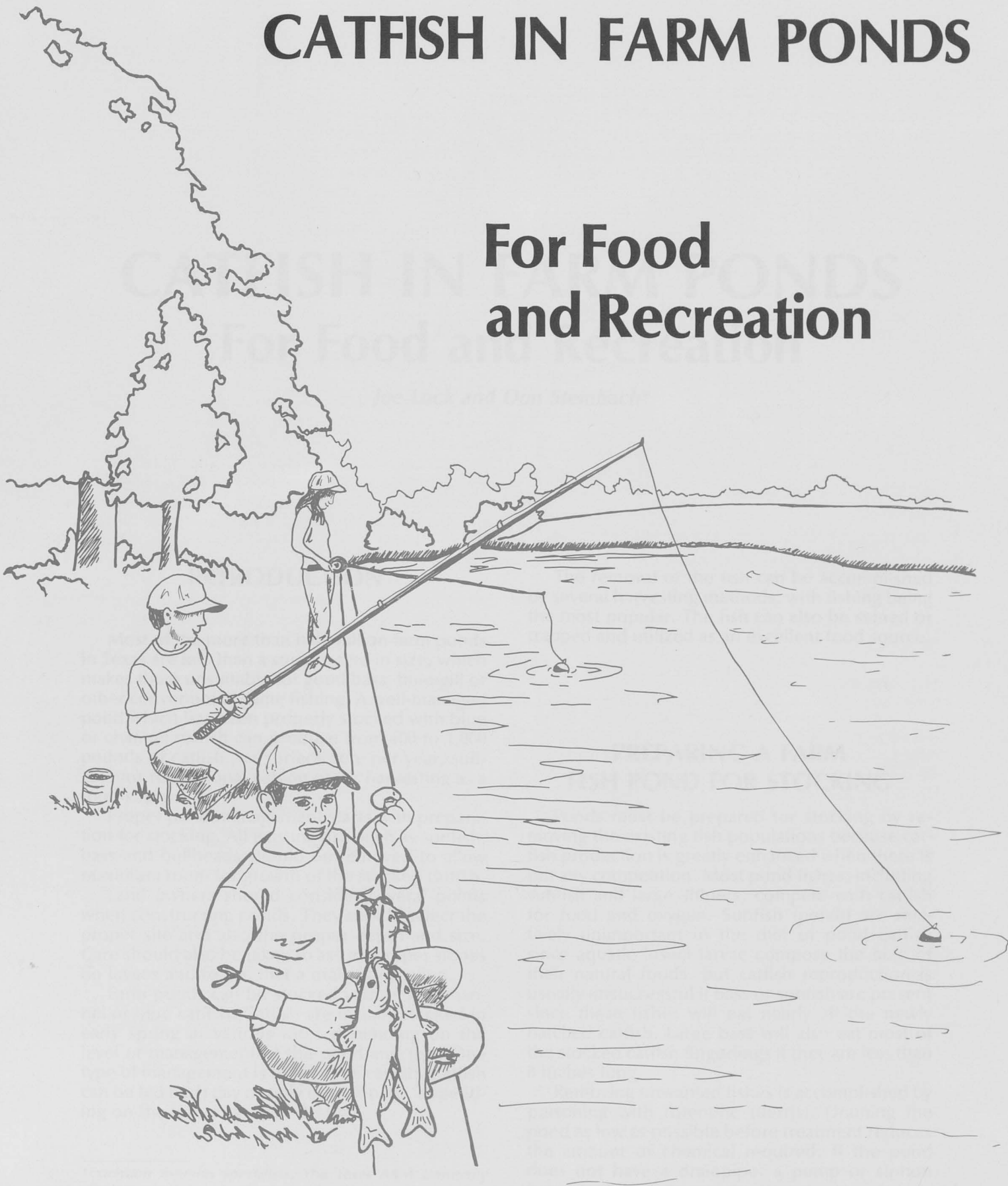


# CATFISH IN FARM PONDS

## For Food and Recreation



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## For Food and Recreation

*Joe Lock and Don Steinbach\**

### INTRODUCTION

Most of the more than half million farm ponds in Texas are less than a surface acre in size, which makes them unsuitable for good bass, blue-gill or other conventional game fishing. A well-managed pond which has been properly stocked with blue or channel catfish can produce from 400 to 1,000 pounds of catfish per surface acre per year, suitable for recreational fishing or for harvesting as a food source.

Proper pond management starts with preparation for stocking. All existing fish such as sunfish, bass and bullheads should be removed to allow maximum room for growth of the stocked catfish.

Land owners should consider several points when constructing ponds. They should select the proper site and also the proper depth and size. Care should also be taken to assure proper slopes on levees and to see that a drain is installed.

Farm ponds can be stocked with either channel or blue catfish. Catfish are usually stocked in early spring at various rates depending on the level of management of the pond and fish. One type of management is to feed the catfish. Catfish can be fed each day or only occasionally, depending on the rate of growth desired.

The removal of the fish can be accomplished by several harvesting methods, with fishing being the most popular. The fish can also be seined or trapped and utilized as an excellent food source.

### PREPARING A FARM FISH POND FOR STOCKING

Ponds must be prepared for stocking by removing the existing fish populations because catfish production is greatly enhanced when there is not any competition. Most pond fishes, including sunfish and large shiners, compete with catfish for food and oxygen. Sunfish (perch) are relatively unimportant in the diet of pond catfish since aquatic insect larvae compose the bulk of their natural foods, but catfish reproduction is usually unsuccessful if bass or sunfish are present since these fishes will eat nearly all the newly hatched catfish. Large bass will also eat most of the stocked catfish fingerlings if they are less than 8 inches long.

Removing unwanted fishes is accomplished by poisoning with rotenone (derris). Draining the pond as low as possible before treatment reduces the amount of chemical required. If the pond does not have a drainpipe, a pump or siphon hose can be used.

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\**Extension fisheries specialists, The Texas A&M University System.*

Rotenone is quite effective if applied at the correct rate and the proper time of year. For best results, apply rotenone at the rate of 1 gallon of liquid or 10 pounds of powder (5%) per acre foot of water in September or early October. Liquid rotenone gives the optimum results, but powdered rotenone is satisfactory if it is thoroughly dissolved in water before use. Rotenone can be applied with a sprayer or poured into the prop of an outboard for mixing. Since fish are harder to kill in cold water during the winter months, the treatment should be applied when the temperature is above 70 degrees F.

Rotenone is cleared for use in private waters, but caution should be observed to avoid contaminating adjacent streams. State laws prohibit the use of rotenone in public waters, which include all flowing streams. If applied at the proper rate of less than 1 ppm, it is not toxic to cattle which may drink the water. Also, the fish can be consumed by humans. Label directions on rotenone especially prepared as fish toxicants should be followed closely.

## **CONSTRUCTING A FARM POND FOR CATFISH PRODUCTION**

When a farm pond is being constructed, several points should be considered to avoid problems in producing fish.

### **Site Selection**

The first consideration in building a farm pond should be to locate a clay soil which will hold water. This location should be at the upper end of the watershed with sufficient area in relation to the amount of rainfall to supply water to the pond. This will prevent any large overflow and spillway erosion and decrease the possibility of introducing unwanted fish into the pond. Properly sodded water sheds will also prevent unsightly erosion and siltation of the farm pond. In addition, it may be desirable to fence the pond from livestock. Grazing and watering activities cause bank and dam erosion which adds to siltation. Livestock can be watered outside of a fence from a trough, using a float valve and pipe connected to the pond drainpipe. Mowing the pond bank is usually necessary if livestock are fenced from the pond.

Ponds should also be located where the owner can attain maximum recreational and economic use. Accessibility to fishing and opportunities for recreational improvement around the pond (such as home construction and bulkheading) should be considered in selecting a pond site. Ponds will also increase property values if they are prop-

erly placed to enhance the appearance of the property.

### **Size of Pond**

Any size of pond can be used to grow catfish because the amount of fish that a pond will support is directly proportional to the surface area. However, several small ponds on a watershed would be more desirable than a large pond. Ponds that are larger than 5 acres are more difficult and expensive to manage than a smaller pond.

### **Depth of Pond**

The ideal catfish pond slopes from 2 feet to 5 feet. Despite popular belief, deep ponds are not as suitable for catfish growth as those with shallower, graded slopes. Deeper ponds will stratify (develop stagnation on the bottom) causing reduced natural food production and possible oxygen depletion in the event of a turnover. Deeper ponds are also more difficult to harvest. If a constant water supply is not available, deeper ponds may be necessary to prevent them from drying up during droughts. Pond side slopes should provide a minimum water depth of 2 feet at the pond edge. This will prevent aquatic weeds from infesting the water edge because they cannot establish themselves in this water depth.

### **Drainpipe for Pond**

Drainpipes in farm ponds are very useful tools for managing the pond. They are used to prevent the introduction of unwanted fishes and to lower the pond for aquatic weed control and fish eradication.

The drainpipe should run from the deepest part of the pond bottom to the outside of the dam. An elbow and standpipe should be attached on the outside of the dam, which will keep the pond surface at the same level as the top of the vertical pipe. The pond can be lowered or raised by adjusting the standpipe to remove normal amounts of runoff water. This drainage system will increase the carrying capacity of the pond since poor quality water from the bottom is removed rather than oxygen-rich surface water. Although most fishes swim upstream during floods and will enter ponds through the spillway, a conventional spillway should also be constructed (above the normal water level of the drainpipe) to prevent damage to the pond dam during extreme flooding. Drainpipes are subject to freezing in extreme cold, but permitting some water flow during freezing weather will prevent the outside standpipes from freezing. The drainpipe size de-

pends on the size of the pond. A 4-inch-diameter pipe is sufficient for ponds less than 1 acre in size.

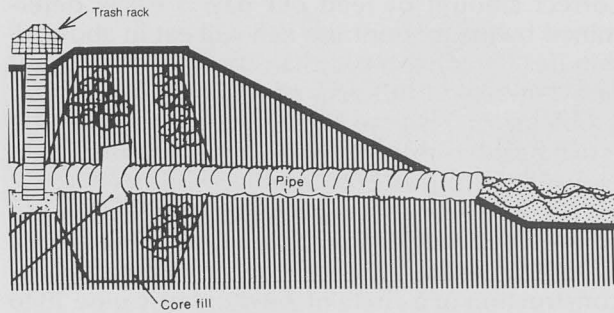


Figure 1. Drainpipes are used as management tools in ponds and a dropped inlet structure as shown prevents fish from migrating upstream into the pond.

## STOCKING CHANNEL OR BLUE CATFISH

Channel and blue catfish are the most common species stocked in Texas ponds. Both kinds are also suitable for small stock tanks. Channel catfish are more readily available from private hatcheries and are more tolerant to low oxygen than blue catfish. Both species of catfish fingerlings can be purchased from private hatcheries throughout the state. Lists of producers, with the kinds and quantities of fish, are available from the local county Extension office and from Extension fisheries specialists.\* Arrangements for purchasing fingerlings should be made several weeks in advance to avoid possible shortages.

## Channel Catfish vs. Blue Catfish

Even though experts disagree on which is the faster growing—channels or blues—during their first 2 years of life, they do agree that the blue catfish will continue to grow faster thereafter. The “high-fin” blue catfish is not to be confused with the “bull-head” blue catfish, which is in reality a large, male channel catfish. Channel and blue catfish show no difference in taste or texture if they are the same size and age and come from the same water source. Maximum recorded sizes for the channel and blue catfish are 52 pounds and 150 pounds, respectively.

## When and How to Stock Fish

Early spring, late fall and winter are suitable seasons for stocking catfish. Summer stocking should be avoided since high temperatures and low oxygen in hot weather increase the possibility of disease loss. If possible, avoid moving or handling fish in the afternoon and avoid changing the water temperature more than 10 degrees F. Fingerlings should be moved as quickly as possible in well-aerated containers. Many fingerling producers will deliver the fish or will loan a hauling tank.

## Number of Fish to Stock

The number of catfish to be stocked will depend on the surface acreage of the pond and the intensity of the management program. For maximum production, catfish should be stocked alone. Water-quality conditions will vary with



Figure 2. Top—Channel catfish have rounded anal fin and speckled sides in a size range of 2 to 3 pounds. Bottom—Blue catfish have a straight margin on anal fin and deep body with humped back in all size ranges.

\*Address requests for information to: Extension Fisheries Specialists, Department of Wildlife and Fisheries Sciences, Texas A&M University, College Station, TX 77843.

each pond, but guidelines shown in Table 1 can be generally followed for the most new or renovated ponds. This stocking rate will produce approximately the number of pounds of fish as that stocked (1-pound average).

Table 1. Stocking rates for catfish for various levels of management

Management Level	Maximum Stocking Rates
Unfertilized pond	100 fish per surface acre
Fertilized pond	200 fish per surface acre
Daily feeding or use of automatic feeder	1000 fish per surface acre

## FERTILIZING A FARM POND

If fish are not fed, proper application of inorganic fertilizers will more than double the annual fish production. Fertilizer added to a pond creates the additional food needed for fish growth. A light-green color should develop in a week or so. The color results from increased production of microscopic plants (phytoplankton), which are the base of an aquatic food chain.

### How to Apply

The annual fertilization program should begin in early spring with 100 pounds of a high-nitrogen, high-phosphorous fertilizer (20-20-5, 16-20-0) per surface acre. The fertilizer should be applied in shallow water no more than 3 feet deep. Following the initial application with 20-pound applications at 2- to 4-week intervals as needed will maintain the bloom.

## FEEDING CATFISH FOR INCREASED GROWTH

A proper feeding program will increase production tenfold. Several commercial catfish feeds are available which will produce more catfish per unit cost than any form of grain.

Fertilizer should not be used if fish are fed because increased waste products generated by an increased fish growth will serve the same purpose as the inorganic fertilizer.

### What to Feed

Both floating and sinking food pellets are available. The primary disadvantage of using the

floating type is that it is more expensive. The advantages of using floating feed are: (1) The correct amount of feed per day is easily determined by the amount the fish will eat in about 15 minutes. Feeding more than the fish will eat not only is wasteful but also adds to pond pollution problems. (2) Fish can be observed while feeding. If fish health is threatened (disease or water quality problems), food consumption will decrease.

Use of floating feed may be a problem if wind and wave action wash it against the bank before all of it is eaten. This can be prevented by the construction of a circle of 2-inch plastic pipe 10 to 12 feet in diameter.

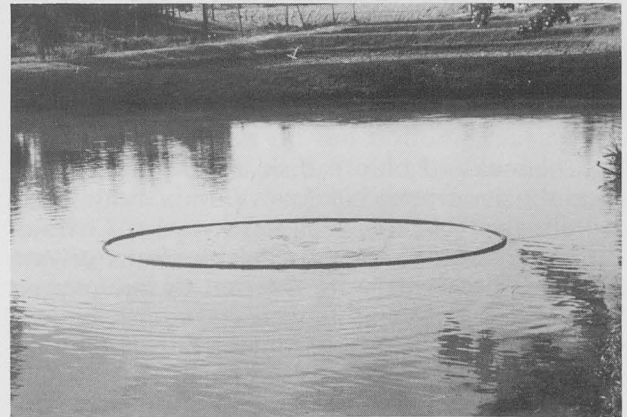


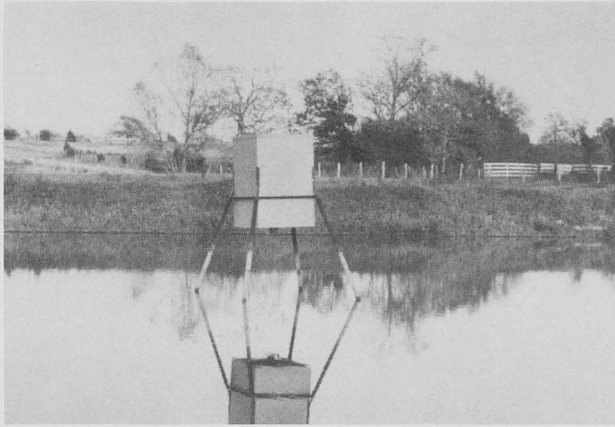
Figure 3. Feeding rings made from 2-inch plastic pipe help contain floating catfish feed.

For maximum growth, the stocked fish should be fed once per day. Late afternoon or early morning is preferable, but the fish will learn to eat at any time of the day if the feeding time is the same each day. If floating feed is used, only the amount of feed that the fish will eat in about 15 minutes should be used, but never more than 15 pounds per surface acre per day.

If sinking feed is used, estimating the weight of fish and feeding 3 percent of this estimate daily provides about the right amount.

During the winter (November to March) the fish will only eat on warm days because they are coldblooded and respond to the temperature of their water environment. Switching to a sinking feed just because the fish will not eat from the surface can do more harm than good. Most of this feed will be wasted and will contribute to oxygen depletion in the following spring. Automatic feeders are recommended for pond owners who cannot visit their ponds daily to feed the fish.

Several types of automatic fish feeders are available. These devices will dispense a measured amount of feed on a regular basis from one to several times daily.



*Figure 4. If the pond owner cannot feed the fish daily, then an automatic feeder should be used to feed the catfish.*

## HARVESTING

Fingerling catfish stocked in early spring should average at least 1 pound by the following fall if they have been adequately fed. Before the following spring, at least half of the year's production should be harvested. Failure to do so could result in more poundage of fish in the pond than it can sustain. As a result, the fish will use more oxygen, and death loss is possible.

Fish can be harvested by seining, trapping, trot lines or hook-and-line fishing or a combination of these methods.

A 1½-inch-square mesh twine is preferable for seining eating-size catfish. These can be ordered in any depth or length from commercial fishing and fish farm supply firms. The pond owner should specify that the seines be tarred or treated with a commercial net coat, which will reduce the number of catfish spines entangled in the seine.

The pond can be lowered with a drainpipe or siphon hose to an area small enough to seine. If lowering the pond is not desirable, the fish can be lured into a seinable area each day by feeding. The feeding area can then be seined by staking

out a seine the previous day. When the fish are eating in the feeding area, the free end can be pulled in by hand, or with a truck or tractor if it is that large. This method will not catch all of the fish in the pond, but it is a good method for partial or continuous harvesting. Various types of funnel-throated traps can be used for partially harvesting catfish. Wooden-slat traps, small nylon-hoop nets and wire-mesh traps are all suitable. These can be constructed by the pond owner or ordered from commercial fishing and fish farm supply firms. Traps are usually successful for a few weeks and then fail to catch fish. The wooden slat-trap seems to be the most effective for catfish.

Most pond owners prefer to harvest their ponds by sport fishing. Rod and reels, cane poles and trot lines are used. Fishing in heavily stocked farm ponds is often just as difficult as fishing in lakes and rivers. Even though the fish will not bite all the time, they will nearly always bite at the time they are being fed. But failing to feed will not cause fish to bite. If a floating feed is used, fishing with a float with the bait about 1 to 1½ feet deep in the feeding area is usually successful. If the fish are feeding well, the angler can usually catch fish as fast as the bait hits the water.

Earthworms, catalpa worms, shrimp, dough baits and beef blood are all good bait. Minnows should not be used because of the possibility of introducing disease or a breeding pair into the pond. This could result in an unwanted fish population. An excellent bait can be prepared from fish feed by adding water to make a paste, and then putting in enough flour or corn starch to thicken the mixture. Some fishermen add oil of anise, grated cheese, ground minnows or other scents.

Whatever the method used for harvesting, good fishing is assured in a properly stocked and well-managed catfish pond. With a properly constructed pond and the correct type of management, catfish are very easy to produce. This production not only can utilize some much underdeveloped resources, but also can provide an excellent food source.

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