

TROPHY BASS PRODUCTION IN EAST TEXAS PONDS AND SMALL LAKES

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The typical East Texas pond has a few bass approaching their genetic size potential and many stunted bass less than 12 inches long. The bass are small simply because they do not have enough to eat. Bass will surpass catfish growth if they have adequate food. Bass stunt because of inadequate forage production and size structure of the forage populations. Over-fishing for intermediate and large bass causes stunting of bluegill and other sunfish in the 4 to 6-inch range, which are too large for 10-inch bass to eat. Over-population in the 4-inch sunfish size class inhibits forage reproduction. The few bass that grow into intermediate sizes (15-inch or so) quickly grow larger when they are big enough to eat large forage. Genetic traits limit most native bass to about 6 to 8 lbs., with males generally smaller.

This situation can be corrected by (I) increasing forage production, i.e. providing adequate food; (II) removing excessive competing small bass; (III) introducing Florida bass to increase the potential for maximum size; and (IV) allowing bass to reach their growth potential before removing them from the pond.

I. FORAGE ENHANCEMENT

Forage production determines bass production. Most pond owners think their bass have plenty to eat because they see minnows, crawfish, tadpoles, etc., around the pond edge. This is simply not true. It would be population suicide for bass to eradicate their prey. Most East Texas ponds produce enough food to support only about 50 pounds of fish per surface acre, usually in stunted sunfish and stunted bass. Fish production, including bass production, can be increased 20 fold through forage enhancement.

There are several methods to increase forage production to varying degrees. The pond owner should evaluate his resources, decide on his objectives and estimate costs. Pond size, fish composition, water chemistry and desired fish production should be considered. Fishing can be improved slowly or dramatically increased depending on the intensity of management. Research is still needed to "fine tune" forage stocking combinations and rates, but enough information is

available to dramatically improve fishing and produce trophy bass.

A. Types of Forage

1. Any of the species of tilapia available in Texas produce more forage than any native fish. Tilapia directly feed on phytoplankton and reproduce every 6 to 8 weeks beginning when they are 8 to 12 weeks old, depending on species. The T. mossambica and/or T. zilli are probably the best forage producers, but T. nilotica and T. aurea are excellent. It is probably more of a blessing than a problem that all of the forage-size tilapia are eaten each year as winter approaches. There is evidence that tilapia interfere with bass reproduction if they are present in early spring, but this is not a problem in East Texas. Tilapia begin to become sluggish at 60° or so and die when the water gets below 55° or so. Bass enter the winter in excellent condition after fall feasting on tilapia. Tilapia must be restocked each spring at ten pounds or more per surface acre. They can more efficiently utilize plankton, but fertilization or feeding is necessary to gain full benefit.
2. Bluegill have been the traditional No. 1 bass forage fish because of their high reproductive potential and extended spawning season. They rank a far distant second to tilapia in gross forage production. Bluegill do not need to be restocked and possibly would supply winter forage in a tilapia forage based pond. If bluegill are the dominant forage fish, a 10:1 bluegill-bass ratio is optimum. Other sunfishes occur in bass ponds whether we want them or not, but most spawn only once per year in the spring. Redear should be stocked if bream fishing is desired. Redear and other sunfishes add to forage diversity and probably increase overall forage production, but documented information is lacking. Bluegill respond to both fertilization and direct feeding. Do not stock adult bluegills before stocking bass, as they will over-populate, stunt and decrease forage reproduction.

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3. Threadfin shad are excellent forage but winterkill easily. They should be stocked at 150-200 per surface acre if the pond is more than 20 ft. deep or has flowing springs. They do not surpass 6 inches in maximum length, but will not be eradicated by heavy bass predation as once thought.
4. Fathead minnows should be stocked in the fall or early spring prior to initially stocking bass. The young bass will have a good food supply of the right size to get them off to a fast start. The fatheads will usually be eradicated in one year. Future fathead stockings will only feed the bass.
5. Golden shiners reproduce only in the spring but are good supplementary forage, particularly for large bass.
6. Gizzard shad produce excellent forage but sometimes over-populate with adults. There is evidence that gizzard shad enhances large bass production.
7. Lake chub suckers produce excellent forage but are not readily available. There seems to be a correlation with the presence of both gizzard shad and lake chub suckers with large bass.

B. Feeding Forage

Food for forage species can be increased by fertilizing phytoplankton. Test the pond bottom soil to determine lime requirements and add ag lime accordingly. Tilapia use the phytoplankton directly while most other forage fishes eat the zooplankton and insect larvae that eat the plankton. Fertilizing without supplementary feeding increases fish production from 100 to 400 percent.

Directly feeding prepared fish feed to forage fishes will increase production more than ten fold. Optimum rates have been determined, but one pound per surface acre per day from April to November produces good results and 3/lb./acre/day produces excellent results. Larger bream and catfish are an added benefit to forage feeding. Powdered minnow meal seems to be the best tilapia feed, but nearly all major forage species will eat floating catfish pellets. Automatic feeders should be used unless the pond manager lives close to the pond.

II. CULLING THE RUNTS

If bass < 12 inches are easy to catch, remove 10 or so per acre by fishing. The bass are not perma-

nently stunted but are usually too numerous to grow to trophy size. If the pond owner has the time to heavily fish, remove all the milt producing small males that he catches. Males are easily identified in the spring with an abdominal squeeze. Males will not reach record size and some males will spawn several females. Bass reproduction is rarely a problem. Removing about half or so of the small bass should provide enough food to carry them "over the hump" into the fast growing intermediate size class. Failure to control runts coupled with forage enhancement can produce an over-populated intermediate size class. This is desirable for the fisherman who wants to catch 100 good fish per day but is not conducive to trophy bass production.

III. INTRODUCING FLORIDA BASS

Most of the trophy bass taken from Texas lakes are Florida-native intergrades. The state record bass was identified as pure Florida strain. There is some evidence that Florida X native F1 crosses grow faster than either of their parents and future intergrade generations. Introducing pure strain Florida bass into native populations, or stocking a mixture of native, Florida and F1's into a new pond increases the genetic potential for maximum size.

IV. HARVESTING

Potential trophy bass will not grow in a frying pan. Catch-and-release should be the general rule for intermediate and large bass that are not going to be mounted. If growth slows, increase forage production or remove only male bass.

OTHER CONCERNS

Many problems, real and imaginary, can hinder bass management. More detailed information is available in TAEX publications on farm pond management. Each pond is different and may have special problems requiring alterations in the above recommendations, but basic principles do not change. Some common problems and most asked questions are listed:

- *Aquatic weeds - Control them. They are not necessary for bass management. Too many will shelter forage and ruin the program.
- *Excessive turbidity - Slows bass growth. Bass must see to eat, Control it.
- *Rough fish - Gar and bowfin compete with bass. Consider pond renovation.
- *Acidity and low alkalinity - reduces phytoplankton production and damages fish if low enough. Lime the pond.

*Structure - Add some if you want to concentrate fish, but is not necessary for bass production.

*Heavy water flow - Feed forage rather than fertilize.

HOW TO MAKE IT WORK IN YOUR POND

1. Take a water sample to your county Extension office for analysis. Lime if necessary
2. Keep records of the length of bass caught.
3. Seine or trap to verify presence of bluegills and size structure of the population that you catch.
4. Decide on your objectives and prepare management plan.

Example "Cadillac" Plan for Trophy Bass in Existing Pond:

1. Spread two tons of ag lime per surface acre over water surface.

2. Catch and remove male bass less than 12 inches in the first spring.
3. Stock 30 lbs. adult tilapia/surface acre in May each year. Stock 20 adult gizzard shad, 200 adult golden shiners and 12 lake chub suckers if available the second spring. Stock 20 advanced Florida bass fingerlings each fall, or 100 smaller fish each spring for three years, then at three-year intervals.
4. Fertilize as necessary to maintain bloom through summer.
5. Feed 5 lbs. minnow meal/surface acre/day. More if the tilapia will eat it.
6. Remove no bass unless for mounting, checking for record weight, or unless growth slows. If so, remove only males.