



MAKING MONSTERS!



*An In-Depth Look
at How Genetics From Florida
Produce Largemouth Lunkers
in Oklahoma*

A boat equipped with electro-fishing equipment floats over a pond at the Durant State Fish Hatchery to collect potential Florida bass brooders.

A Certified Game of Tag



Fisheries Division senior biologist Cliff Sager looks on as technician David Routledge removes potential Florida largemouth bass brood fish from a holding tank aboard an electro-fishing boat.

Genetic Testing is Foundation for Future Trophy Fish

EDITOR'S NOTE: This article is the second in a series detailing the efforts of the Oklahoma Department of Wildlife Conservation to produce trophy largemouth bass in Oklahoma's waters.

By Don P. Brown, Information and Education Specialist

Monster bass lurk in the depths of many Oklahoma lakes. It's surely a fact that 14-pound lunkers are swimming in waters in the southern part of the state. Chances are there's a 15-pounder out there, too – which would be a new state record.

But monsters of that size are assuredly quite rare in Oklahoma. But anglers can be more confident of someday hooking a largemouth in the 8- to 12-pound range. Such confidence has grown over the past four decades,



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Fisheries Division technician Shane Lewis uses a rubber net to transfer bass into a holding tank before the fish are sampled and tagged.

since the Oklahoma Department of Wildlife Conservation began deliberate efforts to grow bigger bass in the state.

In the 1960s and 1970s, almost every angler considered an 8-pound largemouth a real trophy that deserved to be displayed on the wall. That's because in those days, virtually every bass in Oklahoma waters was a northern largemouth bass, a native species that tended to top out around 8 to 10 pounds in this particular climate.

However, things began to change in the decade of the 1970s. In an effort to increase the potential for larger bass in the future, biologists wanted to try to influence the genetics of the state's native bass populations. Florida bass were known to grow much larger than the native bass in Oklahoma, so it was theorized that by stocking Florida bass here, the fish could eventually attain larger sizes.

The earliest Florida bass stocking in Oklahoma was around 1971 at Lake Lawtonka. The city of Duncan also began stocking Florida bass in its city lakes in the early 1970s. Jump ahead 40-plus years, and Oklahoma's record



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Before being processed for DNA certification testing, the bass are dipped in a special tank to anesthetize them.

*Fisheries Division
Technician Joe
Williams prepares to
move anesthetized bass
into wooden cradles
for the sampling and
tagging process.*





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Fisheries Division employees David Routledge, Gordon Schomer, Luke Taylor, Shane Lewis and Cliff Sager work in assembly-line fashion to process potential brood fish for the Florida largemouth bass program at the Durant State Fish Hatchery.

for the largemouth bass has been broken in back-to-back years. The most recent was a 14-pound 13.7-ounce monster caught from Cedar Lake on March 13, 2013, by Dale Miller of Panama, Okla.

Each year, the Wildlife Department continues this Florida largemouth bass (FLMB) stocking program to enhance the opportunity for state anglers to land even bigger bass.

IT BEGINS WITH BROODERS

September 24 was just another sunny Indian Summer’s day in southern Oklahoma. The temperature was already approaching 80 degrees when senior biologist Cliff Sager and fisheries technician David Routledge returned to the bank of the holding pond with yet another load of fish in the tank aboard their boat.

The men had just finished another run across the narrow hatchery pond in a boat with an electrofishing rig mounted up front. During collection, the rig shocked bass to the pond’s surface. Fish were collected using rubber-mesh nets to minimize contact damage and later delivered to a processing facility on the grounds of the Durant State Fish Hatchery in Caddo, Okla.

This was the beginning of the months-long process of preparing this year’s certified-FLMB brood stock. The process will come to fruition in spring and summer, when millions of FLMB fry and fingerlings will be released in lakes throughout the southern half of Oklahoma.



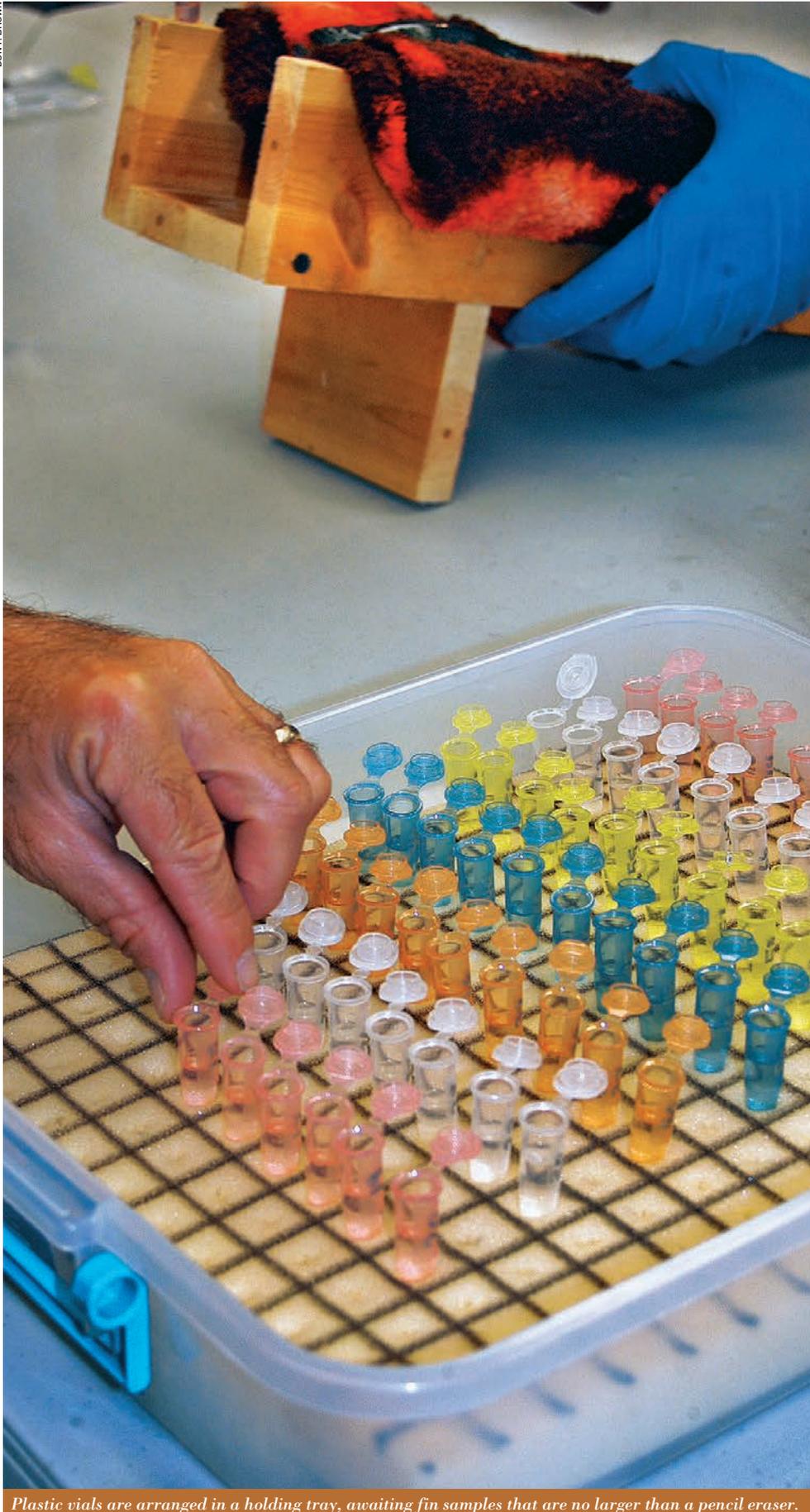
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Fisheries Division technician Luke Taylor uses small scissors to clip a tissue sample from the tail fin of a bass for DNA testing.



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A small fin sample is clipped from the tail fin of a potential Florida bass brooder. Samples from all the bass are sent to a lab for genetic testing.



Plastic vials are arranged in a holding tray, awaiting fin samples that are no larger than a pencil eraser.

On this September day, Sager and Routledge collected about 300 fish from the hatchery pond. These fish were about 18 months old and were among the 1.7 million FLMB fingerlings produced at the hatchery in 2012.

About 1,000 FLMB brood fish are maintained at the Durant hatchery. These brood fish are spawned each spring to produce the year's crop of fry and fingerlings that are stocked into state lakes. However, new brooders must be certified each year to replace those lost to retirement or old age. And so begins a six- to eight-year investment in these "parent" fish that may someday produce Oklahoma's next state record largemouth bass.

Sager explained that none of these potential brooders can be used in the FLMB program until its genetic makeup has been verified by DNA testing. So, each potential brooder must be tagged for later identification, and a tissue sample must be taken from each fish for genetic testing.

TAKE A FISH, PASS IT ON

Hatchery employees work in assembly-line fashion to process the potential brooders as quickly as possible before returning them to their hatchery pond.

The bass, which average about 10 inches long, are first placed in a tank where they are anesthetized. Each sedated fish then goes into a padded wooden cradle belly-down, then begins making its way through the sampling and tagging procedure.

Using a small scissors, a tissue sample less than the



Durant Hatchery manager Gordon Schomer scans a PIT tag inside a syringe and records its ID code in a computer.

size of a pencil eraser is snipped from the fish's tail fin and placed into a sterile vial that is labeled with a previously assigned tag number. Each vial is collected in trays and will later be sent to a laboratory for genetic testing.

Next, an electronic PIT (passive integrated transponder) tag is selected for the fish and scanned electronically so its unique identifying number can be recorded and matched to the fish's previously assigned tag number. The PIT tags, about the size of a grain of rice, are the same tags veterinarians use for "chipping" dogs and cats.

The tag is loaded into a syringe and injected alongside the bass's dorsal fin atop its back. Once the tag is in place, it is scanned once more for confirmation and recording, then the small injection site is treated with an antibiotic and a sealant to aid in healing.

These sampled and tagged bass are then put into a reviving bath and are transferred to a holding tank on the hatchery truck. Once all the potential brood fish have been processed, they are returned to the hatchery pond, where they will continue to grow during the winter months.



Fisheries technician Shane Lewis uses a special syringe to inject a Passive Integrated Transponder (PIT) tag into a bass adjacent to the dorsal fin. The tags emit an ID number when scanned.

Senior biologist Cliff Sager uses a scanner to verify the ID code of the PIT tag that has just been implanted into a potential Florida bass brood fish.





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Assistant hatchery manager Ike McKay tidies up the tag implant site on a bass after he has applied an antibiotic and a skin sealer to the area.

BOOSTING THE ODDS

Ike McKay, assistant manager at the Durant Hatchery, said he and his fellow employees have made great strides to improve fish-handling techniques in the past few years, which has led to record-breaking success in the FLMB stocking program. “We’re real proud of that,” McKay said.

Technician Shane Lewis said the technique of placing PIT tags alongside the fish’s dorsal fin represents another alternative procedure that has seemingly improved fish survival rates as well as retention of the tags. These techniques that have been refined by the Durant crew have helped boost the odds in favor of bass survival during the certification process.

Employees use rubber fish nets to move the bass from tank to tank, and anyone handling the fish must wear rubber gloves to minimize damage to the fish’s slime layer. Air temperature is also a consideration, since these fish are not adapted to colder conditions. “You can have a bad winter, and the whole thing can go south on you,” McKay said.

Technician Shane Lewis said the hatchery’s goal is that all 300 potential brooders will become DNA-certified. In 2012, the hatchery collected 600 potential FLMB brooders, and 97 percent of those were genetically certified as Florida bass.

Only time will tell how successful this brooder certification class will be. It won’t be until next spring when it is learned how many of these fish passed their genetic tests.

NEXT ISSUE: The process of growing bigger bass goes into the laboratory, where we find out which of our potential brooders will have a chance to produce Oklahoma’s next record-breaking largemouth. Don’t miss the next part of our series, “Making Monsters!” 🌿



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The PIT tag ID code is paired with the tissue sample vial number so that results from genetic testing can later be connected to a specific fish.