



Lake Audrey

POTENTIAL FOR SUCCESS

By Christopher Smith, Principal Fisheries Biologist

Chris Smith/NJ Div. Fish and Wildlife

THE SITE: A 120-ACRE BORROW PIT, LOCATED SOUTH OF MILLVILLE IN COMMERCIAL TOWNSHIP, CUMBERLAND COUNTY.

FAR TOO ACIDIC TO REALLY SUPPORT A FISHERY, AND CONTAINING NO HABITAT to speak of, the recreational usefulness of this soil excavation site was questionable. Dubbed Lake Audrey when acquired by the state in 2004, the acquisition was supported by only a few who saw the potential in turning this barren water into something very unique to South Jersey—a smallmouth bass lake. Although smallmouth bass habitat is abundant and the species well distributed in northern New Jersey, in the southern part of the state, smallmouth opportunities are limited to Union Lake.

At the time of acquisition, Lake Audrey's pH measured 4.2. (Recall that a neutral pH is 7.0; smaller numbers are acid, larger are alkaline or basic.) However, Fish and Wildlife's Bureau of Land Management, in collaboration with our Bureau of Freshwater Fisheries, initiated a project to enhance the water quality by adding lime (alkaline) to the lake. In 2006, members of the South Jersey Bass Club Association, New Jersey Federation of Sportsmen's Clubs, Fish and Wildlife staff and other volunteers added 136 tons of lime to Lake Audrey to neutralize the acid pH.

As the pH stabilized to above 7.0, artificial habitat structures in the form of wooden pallet structures and weighted evergreen trees were deployed to provide much-needed fish habitat. Favorable habitat and abundant areas of coarse gravel—which provide excellent spawning substrate—are perfect conditions for the introduction of smallmouth bass.

In 2007, Lake Audrey was stocked with smallmouth bass along with yellow perch, bluegill, pumpkinseed, creek chub sucker, brown bullhead and golden shiner. To protect the developing fishery, Lake Audrey was closed to fishing in July 2008. The lake was stocked again in 2008 and 2009 with adult smallmouth bass ranging from 1½ pounds to 3½ pounds plus 3,000 2- to 3-inch fingerlings raised at the Hackettstown Hatchery.



Chris Smith/NJ Div. Fish and Wildlife

Seasonal Fish and Wildlife employee Scott Ward prepares to release a healthy Lake Audrey smallmouth bass.

Lake Audrey Management Strategy

2004

- Lake Audrey acquired by the state of New Jersey
- pH=4.2 (acidic)

2006

- 136 tons of lime added to Lake Audrey to neutralize its pH
- Artificial structures added to create fish habitat

2007

- Lake Audrey is stocked with smallmouth bass, yellow perch, bluegill, pumpkinseed, creek chub sucker, brown bullhead and golden shiner

2008/9

- Lake Audrey is closed to fishing
- The lake is stocked with adult smallmouth bass and fingerlings

2009

- Lake Audrey is monitored by NJ Division of Fish and Wildlife


2010

- Lake Audrey will open to catch and release fishing!

For the past three years Freshwater Fisheries has monitored the developing smallmouth bass population here. The fish are in excellent condition and have above-average growth rates. With few competing species and abundant forage consisting of yellow perch, creek chub suckers, golden shiner and bluegill, the smallmouth bass growth accelerated beyond our expectations.

Lake Audrey's management strategy is as unique as its fishery. The developing fishery holds great promise for the future but it remains an extremely fragile ecosystem. *Angler cooperation is paramount to this waterbody's ultimate success.* The lake is being managed strictly for smallmouth bass; no largemouth bass will be stocked nor are desired since they would compete directly with the smallmouths. **It is imperative to the success of this lake that anglers do not introduce any fish into the lake.** Stocking fish is illegal (without a permit). Keeping strict limitations on any competition for food and habitat is critical for the continued successful development of this fishery.

When the lake is opened to fishing in 2010, all smallmouth bass caught must be released immediately, unharmed. The *no harvest* regulations will bolster upcoming year classes until this fishery stabilizes.

On the management side, Fish and Wildlife will continue to improve habitat within the lake through future habitat projects. The ongoing progress of this fishery will be assessed in upcoming years through electrofishing surveys. Annual stocking of additional fingerling smallmouth bass will also continue until the fishery fully develops. Working together with the support of anglers, Lake Audrey provides an opportunity to create a premier smallmouth bass fishery. 



Sean Cochran/NJ Div. Fish and Wildlife

Smallmouth bass like this 4-pounder are found in Lake Audrey.

Channel Catfish

Changes for the Spring Stocking Program

By Lisa Barno, Chief, Bureau of Freshwater Fisheries and Craig Lemon, Superintendent, Hackettstown State Fish Hatchery



Shawn Crouse displays another Delaware River channel catfish

Lori Crouse

As managers, much of our time is spent balancing budgets, juggling staff and allocating time to invest in programs. Lately it seems that typical decisions revolve around what projects to cut because staffing and budgets no longer support the level of service we have provided to our constituents in the past. So it's a rare opportunity to be in the position of being able to reduce costs, reduce staff demands and actually be able to provide a better product. However, recent changes in New Jersey Division of Fish and Wildlife's channel catfish program may accomplish just that.

Channel catfish are reared at the Hackettstown State Fish Hatchery. Traditionally, the rearing process begins in June and July with the collection of egg masses from two ponds where the channel catfish broodstock are held for spawning. These eggs are transferred into the hatchery's intensive culture building and when they hatch, the fry are placed in circular rearing tanks. When the fry reach fingerling size, they are transferred into larger 2,000 gallon growing tanks in the intensive building. The water temperature in these tanks is maintained at about 80°F; the fish grow quickly in this warm water. By fall the catfish reach 6 to 7 inches and most of them are stocked. However, some are held in the intensive culture building all winter, then stocked the following spring—at a size of about 12 inches.

For stocked channel catfish to have the best chance of survival, the fish must be at least 6 inches long; closer to 9 inches is even better. The fall-stocked catfish are retained in the hatchery as long possible to maximize their growth before they are stocked. Water temperatures at the time of stocking are a key factor in the fishes' survival. In the fall the catfish need to be out of the hatchery and into ponds and lakes before their water temperatures drop below 60°F. Every fall it's a gamble with temperature because the weather is unpredictable.

For the spring-stocked channels retained in the hatchery, the recirculating system in the intensive culture building must run all winter. Besides high utility costs, this takes a huge toll on the main boilers responsible for heating the water. Originally installed in 1999, they have already been replaced. The boilers were simply not designed to operate around the clock, 365 days a year. A new main control panel was also replaced and now cycles the boilers more efficiently, reducing their burden. In addition, keeping the fish inside all winter means the tanks must be cleaned—and the fish fed—daily, putting further stress on an already very limited staff.

Wearing out major (and expensive) equipment prematurely—and the staff too—then gambling every year on the weather for the success of a stocking program made us take a long, hard look at business as usual. The biggest hurdle with channel catfish rearing is getting the fish to the desired size in a relatively short time frame. Our channel catfish broodstock spawn in June and for best survival, the hatched fry must reach at least 6 inches in only three and a half months! How could we gain more time to grow the fish larger? The answer lay in states to the south, where channel cats spawn earlier due to warmer temperatures.

On June 1, 2009, 10,000 channel catfish, measuring 4 to 6 inches, arrived from Arkansas at the Hackettstown Hatchery. Notice the huge difference: these fish have already grown to 4 to 6 inches while New Jersey's catfish have not yet spawned. The fingerling catfish from Arkansas were placed directly into an outside rearing pond and fed daily, starting with 25 pounds of feed, working up to 60 pounds a day. The pond was also stocked with plenty of fathead minnows so the channels had an ample supply of forage fish.

By early September these cats averaged 10 inches, a size that would take our hatchery-born fish all winter and into next spring to achieve. The cost of this endeavor? Only \$1,725! Most live fish are extremely expensive to purchase, particularly the species, size and numbers to meet New Jersey's stocking needs. Catfish are an exception to this rule.

The benefits of this new rearing arrangement are significant. Instead of nurturing catfish inside all winter long and stocking them the following spring, these catfish can be stocked much earlier, like



in September with no sacrifice in size. Now the intensive culture building can be shut down for the winter, saving thousands in utility costs and considerably reducing wear and tear on the system. This new-found down time can also be used to for better preventive system maintenance, a luxury not possible with the system running year round. And not having to care for channels cats during the winter allows our staff more time to prepare for next year's fish culture needs.

Fish and Wildlife's channel catfish program will no longer face gambling with suitable water temperatures in order to maximize fish growth and survival. This new approach reduces costs and staff time while producing the same size fish that can be stocked seven months earlier. It's a win-win for both anglers and the hatchery. 🐟

Nice channel catfish caught in the Delaware River by Steve Schoeppner.



Shawn Crouse



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 (see page 21)



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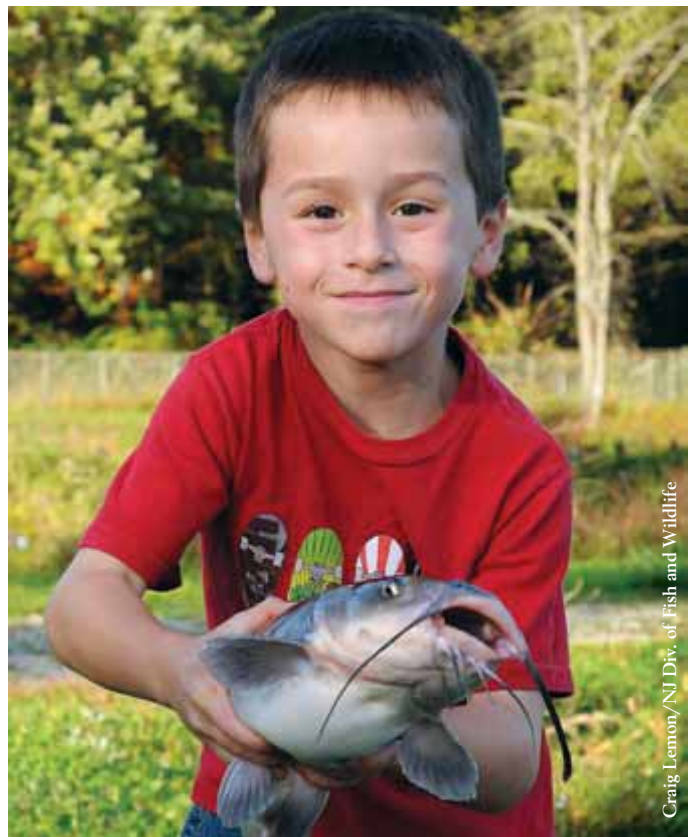
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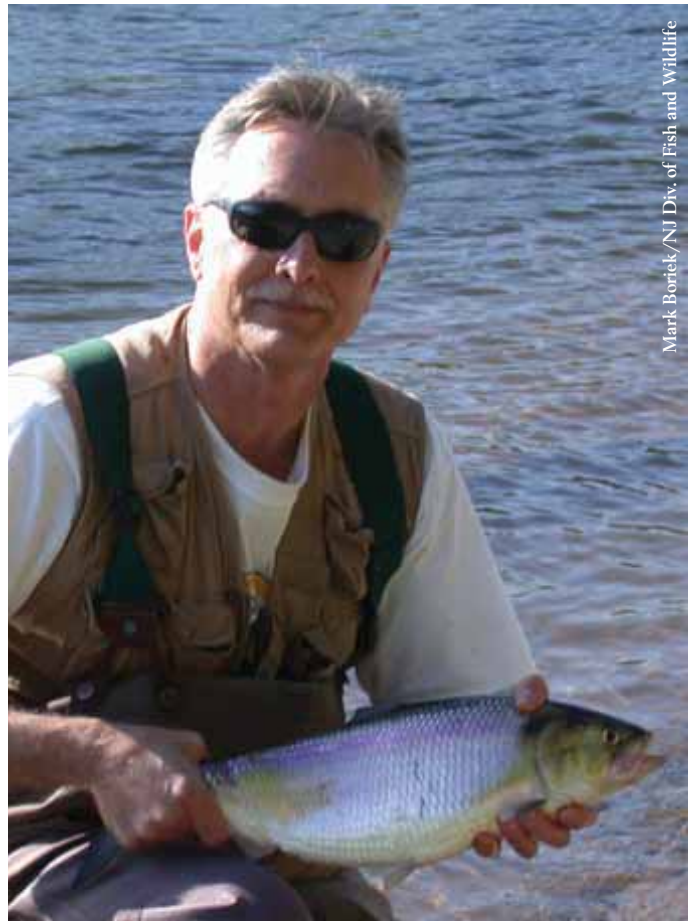
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Craig Lemoy/NJ Div. of Fish and Wildlife

Working to keep a firm grip, Eric displays a nice channel catfish.



Mark Boriek/NJ Div. of Fish and Wildlife

Bill Stansley with a Delaware River shad.

Jarmo

finland

Handmade,
heirloom quality,
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Carving wooden fishing lures is a tradition rooted deep in Finnish culture. Inspired by his famous grandfather, Lauri, and his father, Esko, Jarmo Rapala is on a quest to make the perfect lure. A lure with beauty, balance, action and fish-catching ability. Jarmo is making artistically detailed balsa wood lures at his new company, "The Finnish Lure Company," in Vaaksy, Finland.

Until now, Jarmo's small studio workshop has been distributing a selective line of lures in Finland only. However, in honor of the Finnish lure making tradition, Jarmo has exciting news for the angling community. Available now, The Finnish Lure Company has released for sale 1,000 special edition lures. Each lure is autographed and serial numbered by Jarmo Rapala. Once sold the autographed lures in this model will never be offered again.



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he crafts and the fish he catches."*

— Jarmo Rapala



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