

# LAKE ROBERTSON

## Fisheries Management

### Sport Fish Restoration Document F-111-R-16

April 1, 2007 to March 31, 2008



#### Who is responsible for fisheries management at Lake Robertson?

The professionals responsible for fishing programs at Lake Robertson are fisheries biologists at the Virginia Department of Game and Inland Fisheries (DGIF) in Verona, VA (540-248-9360).

#### What are the responsibilities of the fisheries biologists?

Fish stocking, fish sampling, water quality monitoring, habitat improvement, aquatic weed control, angler access, angler surveys, program development, fishing regulation proposals, coordination with Rockbridge County staff, and public outreach.

#### Who owns Lake Robertson?

DGIF owns 538 acres in the Lake Robertson watershed and leases 75 acres to Rockbridge County. The county maintains the picnic areas, the recreational facilities, the concession shop, and the campground. DGIF manages the 26-acre lake and the undeveloped land surrounding the rec area. Lake Robertson was stocked with fish from nearby Lake Merriweather and opened to public fishing in 1972. It was built by DGIF solely for fishing. Sailing, swimming, and gasoline motors are prohibited. You may tilt your gas outboard while at Lake Robertson and power your boat with an electric motor.

#### What kind of fish can I catch from Lake Robertson?

Largemouth bass, sunfish (such as bluegill, redear sunfish, warmouth, redbreast sunfish, and pumpkinseed) channel catfish, walleye, and yellow bullhead catfish. The only species that are stocked are channel catfish and walleye. Both of these lack the appropriate habitat requirements for spawning.

#### Who needs a license to fish?

A state resident, non-resident, or 5-day trip license for those 16 years and older is required at all times.

#### Fishing Regulations

Species	Daily Limit	Minimum size
Largemouth bass	5/day	12 inches
Sunfish	25/day	no min. size
Walleye	5/day	20 inches
Channel catfish	5/day	20 inches

#### How do the biologists check the fish populations in the lake?

Biologists sample fish populations in a variety of ways. Electrofishing is used at Lake Robertson to assess the warm water fish population. Bass and panfish populations were examined with electrofishing gear 2000, 2001, 2003, 2004, 2005, and 2006. Different types of nets can be employed to target different sport fish. Walleye and channel catfish can be effectively monitored with gill nets. Gill nets have been used seasonally for walleye since 1987 and for channel catfish since 1992. Angler surveys

were carried out in 1994 and 1996 to determine angling pressure and harvest of sportfish.

#### What kind of things do biologists do with the fish after they “shock” them?

Biologists target both predators and prey with an electrofishing boat. As biologists work their way around the shoreline at night, they net whatever bass, panfish, catfish, and walleye that get stunned and can be readily netted. In a small lake like Robertson, usually one trip around the lake constitutes a sample. The entire sampling trip is timed. Fish are identified, counted, measured, weighed, and released unharmed. In specific studies, some fish are tagged and others are taken back to the lab for age and growth analysis.

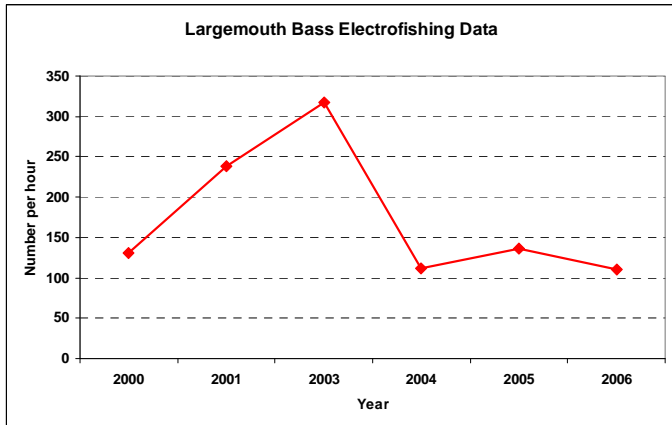
#### What do biologists do with the information?

First, relative abundance of target species is determined. This is calculated by taking the total number of an individual species and dividing by 3,600 seconds (1hour). By normalizing our count to one hour of fishing time, we can compare the number of largemouth bass from sample to sample, from year to year, from lake to lake. Too many predators can result in an abundance of small, skinny fish. Too few can produce more trophy size fish, but longer waits between catching a bass. The same reasoning applies to prey species. The idea is to achieve balance in a fish population. Slow growth can be found by determining a fish's age and looking at its length at that age. This can be done by counting annuli, or growth “rings”, on hard structures such as scales or otoliths (ear stones). Biologists also divide fish into size groups and use simple ratios to evaluate the balance of medium, keeper, and trophy size fish in the population. These are referred to as population indices, and they can be used to look at individual species over time. Are fish too thin for their length? “Plumpness” can be measured using an index that compares the weight of an individual fish to those of the same size across the U.S. This is called relative weight and a fish scoring 100 would be considered the right weight for its length. Fishing regulations, such as length limits, are usually derived from periodic sampling and from harvest data that is generated through angler surveys. Often, a minimum length limit, such as 12 inches for bass, is imposed on a lake. Such a regulation is designed to make anglers “throw back the little ones”. This type of regulation is fine if you are trying to maintain a large number of small bass. Another type of length regulation is a “slot size limit”. A slot limit is meant to protect a group of fish (usually of larger size), and allows anglers to harvest younger and trophy fish. This regulation is used to “thin out” plentiful young fish while protecting substantial numbers of quality size fish. Gill netting is used at Lake Robertson to evaluate the walleye and channel catfish stocking programs.

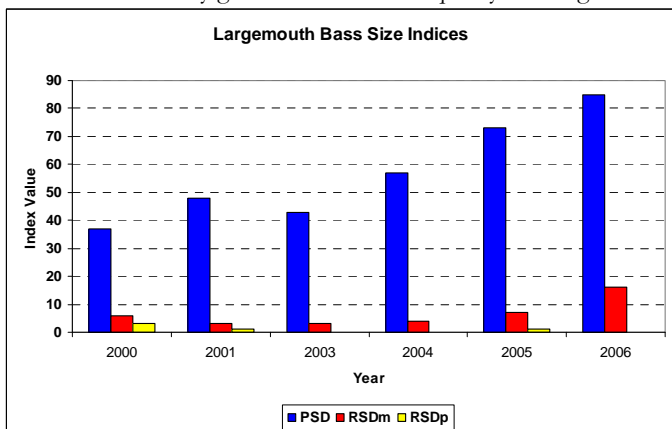
#### What does the fish population look like in Lake Robertson?

**Largemouth bass:** The 2006 catch rate for this top predator was 110 fish per hour, but was an astounding 317 fish per hour in 2003. These rates are considered to be very high. Look at the graph on the back page to see how largemouth bass samples change over time. It appears that largemouth bass densities were very high in 2001 and 2003, but have stabilized since. The average size bass increased from 10.6 inches in 2003 to 13.4 in 2006. The

largest was a 24-inch specimen that weighed 8.7 pounds.



Size indices show that of all bass in the lake over 8 inches long, 85% are greater than 12 inches and 16% are over 15 inches long. This indicates a very good distribution of quality size largemouth.



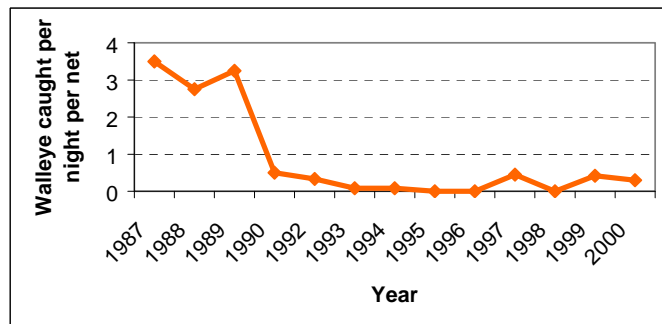
Bass can be caught around any woody debris (brush piles, beaver lodges, fallen trees, artificial habitat), ledges, channels, springs, weed beds, and drop-offs. Trophy bass are numerous, but fishing for them is difficult in Lake Robertson due to the extreme clarity of the water.

**Bluegill:** Although bass are the most popular sport fish at Lake Robertson, bluegill provide hours of angling opportunity for families and are the main prey species. This lake has a reputation for producing large sunfish. Bluegill are abundant (134 fish per hour) and well balanced (93% of the adult catch was greater than 6 inches long). Bluegill grow at a good pace; it takes at least 3 years for them to reach a “keeper” size of 6 inches. Bluegill are found around sunken cedar trees and shady areas, such as the handicap fishing pier.

**Redear sunfish:** This species, also known as shellcracker, was fairly abundant in the lake’s early years through the 1980’s. Heavy fishing pressure and a low reproductive rate have reduced their numbers. Efforts to restore this popular panfish were undertaken in 2001, when 26,000 redear fingerlings were stocked. Redears grow faster and larger than their sunfish cousins. They occupy deep water and can be located in schools on drop-offs, old roadbeds, and woody debris. These stocky panfish often attain trophy (greater than one pound) proportions in Lake Robertson.

**Walleye:** What is a popular, midwestern member of the perch family doing in a small Virginia impoundment? Walleye were first introduced into Lake Robertson in 1983 to help control a growing pumpkinseed population. They did the job well and also provided the opportunity to catch an exotic sportfish. Walleye do not reproduce in Lake Robertson, but they do rather well through stocking. Around 1,600 walleye were stocked annually until 1999, but the stocking rate has since been increased to 2,600 per year. Electrofishing for walleye at Lake Robertson is not a good way to

evaluate the success of the program. Instead, gill nets are used in the spring or fall to gauge relative abundance and growth. Below is a line graph showing walleye catch rates over time. It is clear from the figure that walleye abundance has dropped through the 1990’s. It is hoped that stocking and regulation changes will help increase numbers of this popular sportfish. The largest walleye sampled from Lake Robertson was a 27-inch, 8-pound lunker!



**Channel catfish:** Around 1,600 channel catfish fingerlings were stocked annually into Lake Robertson from 1977-1992, but only a few were caught each year. Beginning in 1993, DGIF cut the number of channel cats stocked in half, but stocked fish over 10 inches long. This simple change has made all of the difference in improving the catfish fishery. Twenty inch, 3 pound cats are now abundant, and fish between 25 – 30 inches are now lurking in deep water. Channel catfish have the reputation of being a “trash” eater. No so. Channel catfish are very predacious and have been known to even take a fly on the surface. In Lake Robertson, use live minnows, night crawlers, or “stink bait” fished on the bottom for best results.

**Other species:** Anglers will sometimes catch yellow bullhead catfish, redbreast sunfish, pumpkinseed sunfish, and warmouth. These species are not very abundant and are not generally targeted by the fishing public.

### What other kinds of fisheries improvement work has taken place at Lake Robertson?

The lake has been periodically drawn down for tower repairs or general maintenance. One drawdown occurred in 1998, and while the lake was down, the boat launch area was dredged. Biologists took advantage of the drawdown to build several tree reefs for fish habitat. Also, large trees are cut and dropped into the lake to attract fish. Sterile grass carp were last stocked in 1999 to help control overabundant aquatic vegetation. Park staff and DGIF personnel built a handicap-fishing pier in 1994 and a courtesy dock in 2002.

### What does the future hold for fishing at Lake Robertson?

We will continue to add woody structure to improve fish habitat. Adult channel catfish will be stocked annually. Walleye will be closely monitored, as will bass and sunfish populations. We hope you enjoy your fishing experience at Lake Robertson!

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