



# CLIFTON FORGE RESERVOIR

## Fisheries Management

### Sport Fish Restoration Document F-111-R-10

April 1, 2001 to March 31, 2002

#### Who is responsible for fisheries management at Clifton Forge Reservoir?

The professionals responsible for fishing programs at Clifton Forge Reservoir are fisheries biologists at the Virginia Department of Game and Inland Fisheries (DGIF) in Verona, VA (540-248-9360) and the U. S. Forest Service.

#### 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 Clifton Forge staff, and public outreach.

#### Who owns Clifton Forge Reservoir?

The City of Clifton Forge owns the 9.0-acre impoundment and manages it as a water supply for the town. Smith Creek feeds the reservoir and provides some great trout fishing opportunities above the lake. Downstream of the lake, Smith Creek is managed as a trophy brown trout fishery by DGIF. The land surrounding Clifton Forge Reservoir and upper Smith Creek is U.S. Forest Service property. Sailing, swimming, and gasoline motors are prohibited.

#### What kind of fish can I catch from Clifton Forge Reservoir?

Largemouth bass, redbreast sunfish, channel catfish, and black crappie are the warm water fish species likely to be encountered at the lake. Clifton Forge Reservoir is also stocked with rainbow trout by DGIF nine times between October and June. 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. A trout license, in addition to a regular fishing license, is required for Clifton Forge Reservoir from October 1 – June 15. A National Forest Permit is also needed to fish the lake.

Fishing Regulations		
Species	Daily Limit	Minimum size
Largemouth bass	5/day	12 inches
Sunfish	50/day	no minimum size
Crappie	25/day	no minimum size
Channel catfish	5/day	20 inches
Trout	6/day	7 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 Clifton Forge Reservoir to assess the warm water fish population. Bass and panfish populations were examined with electrofishing gear in 1988, 1998, and 2001.

Different types of nets can be employed to target sport fish that live in deep or open water. Channel catfish can be effectively monitored with gill nets, but this technique has not been tried in Clifton Forge Reservoir because of the probability of killing a significant number of stocked trout.

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

Biologists target both predators and prey. As they work their way around the shoreline at night with their boat electrofisher, they “dip” whatever bass, panfish, catfish, and trout that get stunned and can be easily netted. In a small lake like Clifton Forge Reservoir, 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.

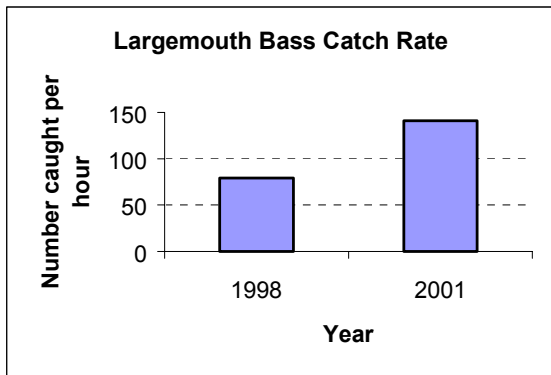
#### What do biologists do with the information?

First, density or 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 by one hour, 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 an 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”

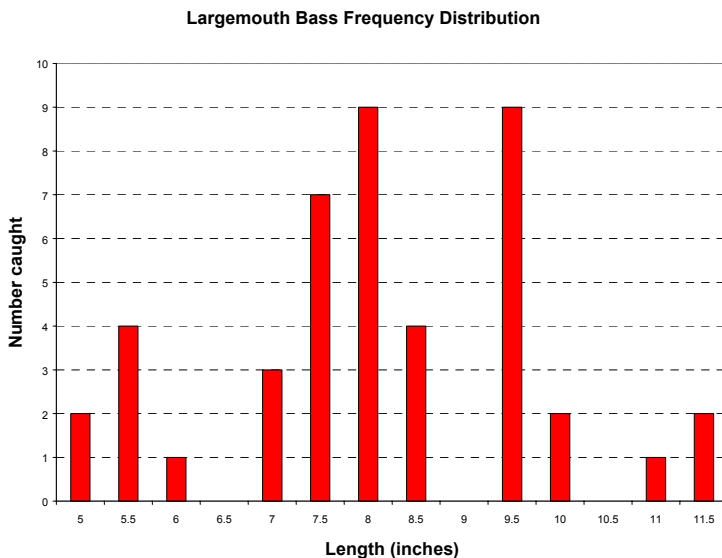
plentiful young fish while protecting substantial numbers of quality size fish.

## What does the fish population look like in Clifton Forge Reservoir?

**Largemouth bass:** The 2001 catch rate for this predator was around 141 fish per hour. This rate is considered high. Look at the graph on the back page to see how largemouth bass samples



In 1988, only 8 bass were sampled. As the above graph shows, the catch rate increased from 80 fish per hour in 1998 to 140 in 2001. Is this level of predator too high? Only if it slows down growth and reduces the food supply in the lake. In 2001, the average size in the sample was 8 inches and the largest was only 11 long.



The red bar graph above shows the distribution of largemouth bass by size. The bulk of the bass fishery is composed of fish from 7-9 inches. Although there are plenty of bass in the lake, most are small. Are they fat for their size? Yes. The average relative weight was 94 (out of 100). Bass can be caught around any woody debris (brush piles, beaver lodges, fallen trees, artificial **Panfish:** Two types of panfish were found at Clifton Forge Reservoir in 2001. Black panfish are present, probably introduced by well-meaning anglers. Also, redbreast sunfish, typically a river species, are found here in small numbers. Both of these fish are predators, so their presence in the lake only puts more pressure on a limited food base. Crappie range from 6 to 10 inches long, and are probably stunted. An important prey species, bluegill, are absent. In fact, in all three electrofishing excursions at Clifton Forge Reservoir, bluegill were never encountered. This is one explanation why largemouth bass growth is so poor.

**Channel catfish:** This popular sportfish has been stocked periodically. In 1997, the Forest Service and DGIF purchased a large number of channel catfish to be stocked in USFS impoundments. Clifton Forge Reservoir got an allocation of 275 channel catfish that year. Two large channel catfish were shocked in 2001: a 19-inch and a 20-inch specimen. Despite the poor forage base in the lake, channel catfish have been successful in finding a food supply to spur them on to quality proportions.

Channel catfish have the reputation of being a “trash” eater. Not so. Channel catfish are very predacious and have been known to even take a fly on the surface. Use live minnows, night crawlers, or “stink bait” fished on the bottom for best results.

**Other species:** A single stocked brown trout was netted in the 2001 electrofishing survey. Typically, trout are found in deep water in the summer and the shocking gear does not do an effective job sampling for them.

## What other kinds of fisheries improvement work has taken place at Clifton Forge Reservoir?

Beaver have been busy adding woody structure to the lake. DGIF personnel will consider using damaged trees on the bank for future structure. Little has been done to enhance bass and sunfish habitat in the past, so this may be a good opportunity to drop girdled trees into the lake to concentrate these species.

## What does the future hold for fishing at Clifton Forge Reservoir?

Redear sunfish (shellcrackers) and bluegill fingerlings were stocked in 2002. This should help “put food on the table” for the bass and catfish, as well as diversify angling for seniors and kids. Adult channel catfish will be stocked annually. Catchable trout will continue to be a mainstay in the fishery. DGIF will continue to work with the City of Clifton Forge and the Forest Service on lake management issues. We hope you enjoy your fishing experience at Clifton Forge Reservoir!

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