



# UPPER RECREATION POND

## Fisheries Management

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

April 1, 2007 to March 31, 2008

#### Who is responsible for fisheries management at Upper Recreation Pond?

The fishing program at Upper Recreation Pond is co-managed by fisheries biologists from Dominion Resources in Richmond, VA and 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 between Dominion Resources and DGIF staff, and public outreach.

#### Who owns Upper Recreation Pond?

Dominion Resources owns the 45-acre impoundment and manages it, the Lower Recreation Pond, and a reach of Back Creek as a public recreation complex. The ponds and renovation of Back Creek were mitigation items resulting from the construction of the Bath County Pumped Storage Station which was completed in 1986. A modern campground, complete with showers, flush toilets, drinking water, and a dump station are located next to the lake. A picnic pavilion, grills, and ball fields are also available to the public. A fishing pier constructed for disabled persons is available next to a concrete boat ramp. Use of gasoline motors are prohibited.

#### What kind of fish can I catch from Upper Recreation Pond?

Largemouth bass, bluegill, green sunfish, redbreast sunfish, redear sunfish, and channel catfish are the dominant warm water fish species in the lake. Limited populations of rock bass, warmouth, and black crappie are present. Only channel catfish are stocked on an annual basis; other species found in the lake sustain populations without the need to stock.

#### 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	Length Limit
Largemouth bass	5/day	12-15 inch slot
Sunfish	50/day	no minimum size
Crappie	25/day	no minimum size
Channel catfish	5/day	15 inches

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

Biologists sample fish populations in a variety of ways. Electrofishing is primarily used at Upper Recreation Pond to assess the fish population. Bass and panfish populations have been examined with electrofishing gear annually since 1987. Different types of nets can also be employed to target sport fish that live in deep or open water. Channel catfish can be effectively monitored with gill nets, and this technique has been used periodically to study this species. Creel, or angler, surveys are an effective tool in keeping a pulse on the amount of fishing pressure and harvest (fish being removed) related to a water body.

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

Biologists usually target both predators and prey during routine surveys. As they work their way around the shoreline at night with their boat electrofisher, they “dip” whatever bass, panfish, and catfish that get stunned and can be easily netted. In a small lake like Upper Recreation Pond, usually one trip around the lake constitutes a sample. Because of the sheer volume of fish that can be collected in a “round trip”, often sub-samples are pulled and then expanded to describe the whole population. The entire sampling trip is timed. Fish are identified, counted, measured, weighed, and released unharmed. In some studies, fish are tagged or marked, while others are taken back to the lab for age and growth analysis.

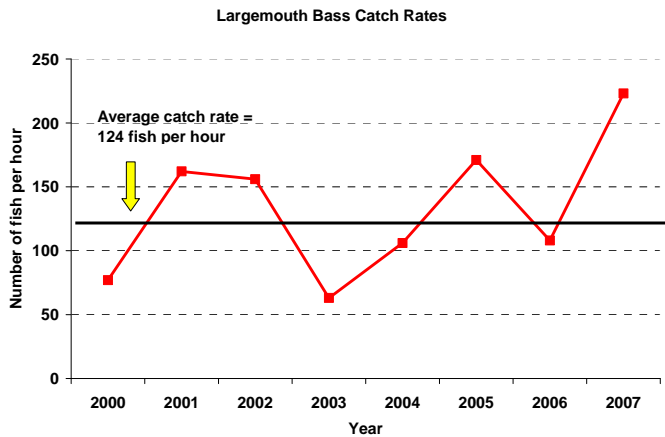
#### What do biologists do with the information?

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 to 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 a longer wait between bass bites. 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 monitor species balance 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 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

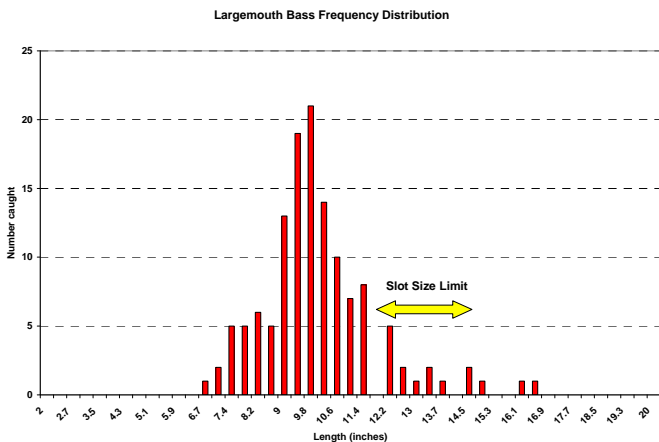
maintain a large number of small bass. Another type of length regulation is a “slot size limit”. A slot limit is meant to protect a group of fish (usually of quality size), and allows anglers to harvest younger fish and trophy fish. This regulation is used to “thin out” plentiful young fish while protecting substantial numbers of quality size fish. This is the regulation currently enforced at Upper Recreation Pond.

### What does the fish population look like in Upper Recreation Pond?

**Largemouth bass:** The Upper Recreation Pond is sampled annually in the spring with electrofishing gear. The catch rate for largemouth bass in 2007 was 223 bass per hour. This rate is considered very high. Look at the graph below to see how the largemouth bass catch has varied over time.



As you can see, this lake supports a high density of largemouth bass. But how is the size structure? The PSD, or proportional stock density, is an index used to get a quick glimpse of a fish species’ size structure. By dividing the number of stock size (between 8 and 12 inches) bass into quality size (>12 inch) bass and multiplying by 100, an number is derived that allows biologists to further examine the sport fish population. Balanced largemouth bass PSD’s should fall between 40 and 70. In 2007, the PSD for this lake was 14, indicating a population of sub-quality sized black bass . Examine the following bar graph.



It shows the distribution of the catch according to size. Many bass are in the protected slot size, but few make it to trophy size. In 2007, the average size in the sample was 10 inches and the largest was only 16 inches long. Past age & growth analysis shows that the bass in the Upper Recreation Pond are slow growing. Further, their “condition”, or weight for a given length, is sub-par. This is probably due to the infertility of the lake, as well as its short retention time. A short retention time means a quick “flow through”, clear water, and somewhat deficient in the area of primary production. Are they fat for their size? No. The average

relative weight in 2007 was 87 (out of 100). Bass can be caught around any woody debris (brush piles and artificial structure), large rock, or drop-offs.

**Panfish:** Four types of panfish can be found in the Upper Recreation Pond: bluegill, green sunfish, redear sunfish, and redbreast sunfish. Bluegill were established as the main prey item in the lake, however strong populations of redbreast and green sunfish are also present. The redear sunfish population, very robust in the 1990’s, still maintains a viable presence in the lake. These sunfish grow to trophy proportions and can be located off shore in slightly deeper water than bluegill. Black crappie, probably introduced by well-meaning anglers, have been collected in the past. Crappies are desirable sportfish in large reservoirs, but tend to overpopulate and stunt in small lakes like Upper Recreation Pond. We’ll keep an eye on this species in future surveys. Scattered rock bass and warmouth can be caught as well.

**Channel catfish:** This popular sportfish was first stocked in 1986, and has been stocked annually since 1993. In 1998, Dominion Resources biologists and DGIF collected 237 stunted channel catfish from Mt. Storm Lake, marked them, and stocked them into Upper Recreation Pond. The purpose of this exercise was to try stocking larger catfish in a lake heavily populated with largemouth bass, in order to increase survival and improve the catfish population. Gill net sets and electrofishing in spring, 1999 yielded few recaptured catfish. Although the stocking experiment was inconclusive, DGIF began stocking adult (>10 inch) channel catfish in 2003 in an effort to improve this segment of the sport fishery. Spawning habitat for channel catfish is lacking, so continued annual plantings, as well as a good food supply, should maintain reasonable numbers of this species. Channel catfish have the reputation of being “trash” eaters. 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 (at night) for best results.

### What other kinds of fisheries improvement work has taken place at Upper Recreation Pond?

Dominion Resource biologists and DGIF have used winter drawdowns and grass carp to control the amount of submerged aquatic vegetation (SAV) and algae. Due to the transparency of the water and the pond’s shallow nature, it is difficult to maintain SAV at fishable levels. Structure, in the form of cedar tree/Christmas tree brush shelters and man-made fish attractors, has been deployed over time.

### What is the future of fishing at Upper Recreation Pond?

Adult channel catfish will be stocked annually. DGIF will continue to work with the Dominion Resources on lake management issues, especially the development of habitat. We hope you enjoy your fishing experience at Upper Recreation Pond!

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