



2016 Hidden Valley Lake Fisheries Management Report

Hidden Valley Lake is a 61-acre Department-owned impoundment located on the Hidden Valley Wildlife Management Area in Washington County, Virginia. At normal pool elevation (3,600 feet MSL), the reservoir has a maximum depth of 24 feet and a mean depth of 14 feet. Hidden Valley Lake was formed in 1963 when a smaller dam was renovated and upgraded by the Department. From 1963 to 1979 the reservoir was managed as a put-grow-and-take fishery for brook trout. During the mid-1970's, unauthorized stockings of rock bass and golden shiners altered the fishery, and brook trout introductions were soon discontinued. Adult smallmouth bass were stocked in 1979 and 1980 to control the rock bass and shiner populations. From 1984 to 1988 balanced populations of rock bass, redbreast sunfish (unknown source), and smallmouth bass provided quality fishing opportunities.

The lake was completely drained in November 1988 to facilitate repairs to the primary spillway structure and the emergency spillway. Repairs were completed the following spring, and the lake began filling on July 17, 1989. Efforts to re-establish the fishery began in July 1989. The fish community that became established in the 1990's did not provide very good fishing opportunities. Smallmouth bass were scarce, less than five per hour when sampling and redbreast sunfish were over-abundant and stunted at a small size.

Biologists have attempted to re-structure the lake's fish community by stocking largemouth bass and bluegill sunfish. Largemouth and bluegill reproduced in the lake and established self-sustaining populations. Channel catfish are stocked into the lake each year, because the lake does not have sufficient spawning habitat for these species. Northern pike are stocked as they are available.

The current bass regulation is an 18-inch minimum length limit, with a one bass per day creel limit. A 30-inch minimum length limit and two fish per day creel limit are in effect for northern pike. Statewide daily creel limits are in effect for sunfish (50) and crappie (25). Channel catfish are managed under an 18" minimum size limit and 5 fish/day creel. These regulations are in place to prevent over harvest.

Current fisheries management objectives for Hidden Valley Lake are to increase abundance and size of largemouth bass, to increase the size and abundance of bluegills, and to maintain the black crappie population at a level that provides reasonable numbers of quality size (8 inches) fish. In order to achieve these objectives biologists enhance fish habitat, monitor the fish populations by routine sampling, and stock fish as needed.

Brush shelters and hinge trees are added periodically to enhance existing habitat in the lake. Aquatic vegetation is beginning to present some problems. Submerged aquatic vegetation provides very good habitat for fish as long as it does not "take over". Biologists have stocked triploid (sterile) grass carp periodically as a means of controlling aquatic vegetation.

Fish populations at Hidden Valley Lake are sampled annually in May using boat-mounted electrofishing gear. Fish collected during these population surveys are measured, weighed, and released back into the lake. Relative abundance (number of fish collected per hour) is used to evaluate the size structure of the population by looking at the length data. The abundance and size structure data allow biologists to compare the current sample collection to past results, and to the results of samples collected at other lakes. The fish populations at Hidden Valley Lake have changed considerably since

1999 and are a marked improvement from the 1990's.

Bass

Largemouth bass relative abundance (number collected per hour of sampling) has increased dramatically since 1999 (Figure 1). Spawning success can be highly variable and is better in some years than others. The decrease in overall largemouth bass abundance in the 2005, 2008, 2010 and 2013 samples appears to be the result of collecting fewer young bass. The overall catch rate for largemouth bass in Hidden Valley Lake is now above average for small impoundments in Southwest Virginia.

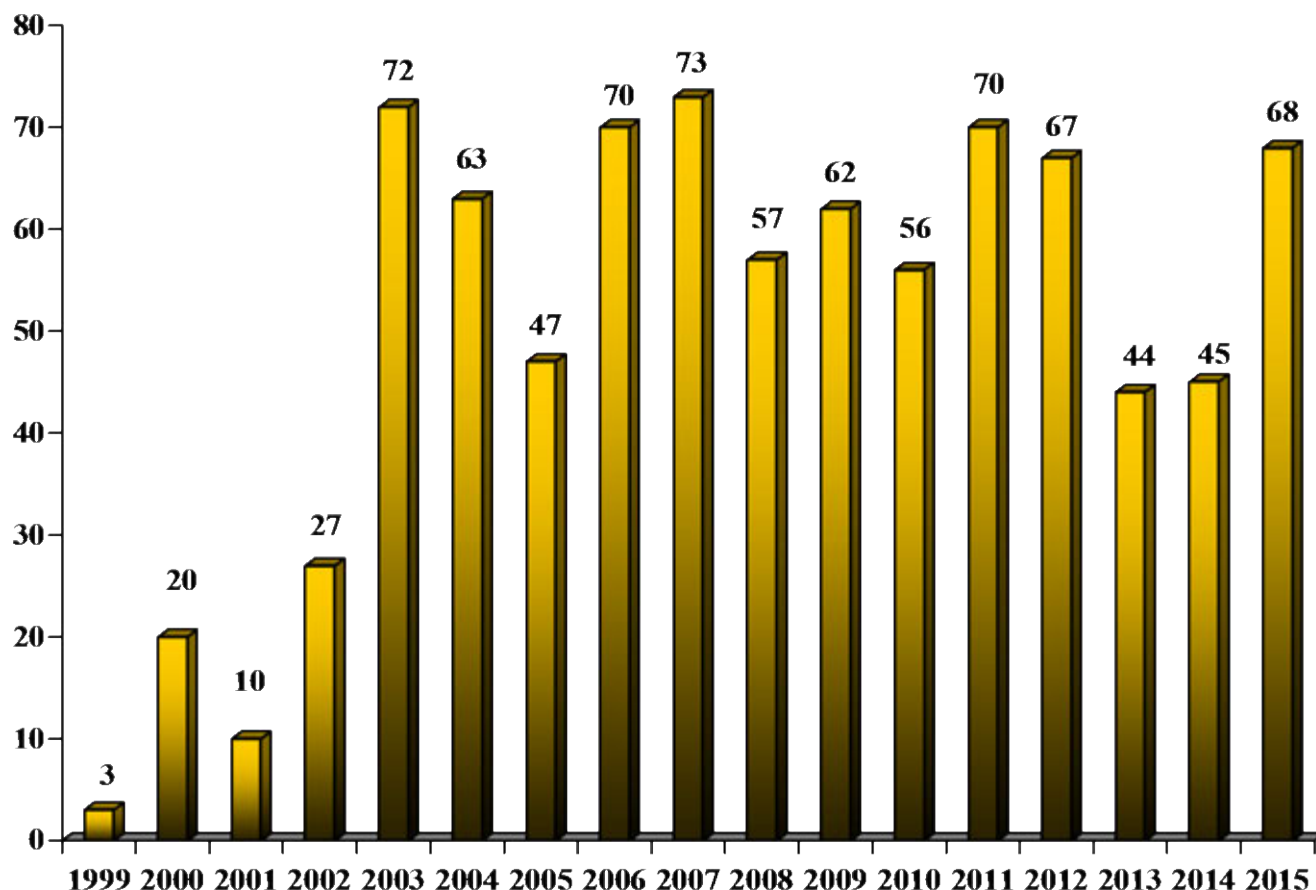


Figure 1. Number of largemouth bass collected per hour of sampling in Hidden Valley Lake 1999 – 2015.

Largemouth bass structural indices (PSD and RSD) are used to evaluate population size structure. PSD (proportional stock density) is an index commonly used to describe the size structure of a population and may be used to describe bass of predator/prey population within a system. In a nutshell, the larger the number; the larger the proportion of big fish in a population. PSD is calculated by determining the ratio of bass greater than 8 inches, but also greater than 12 inches. Additionally, RSD-P (relative stock density of preferred bass) is a ratio of the number of bass that are greater than 8 inches, but also greater than 15 inches.

The size structure of the largemouth population in 2014 was fair with most fish 12 – 15” in length (PSD = 84, RSD-P = 15). Typically, only about 5 to 10 percent of the adult largemouth

population exceeds 15 inches in length. In 2015, about 15 percent of the adult bass were longer than 15 inches. Hidden Valley Lake is not an easy lake to sample, because of clear water and low conductivity. It is likely that larger bass are present and not represented in the sample. In similar waters trophy bass often are not collected regularly in sampling but trophies do occasionally get caught by anglers or when the sampling can be conducted at the perfect time and under ideal conditions.

Sunfish

Bluegills are well-established, although their overall abundance varies greatly from year to year (Figure 2). More importantly, redbreast sunfish catch rates have declined from 125 per hour in 1999 to 13 per hour in 2015 and redbreast sunfish are no longer overabundant. Bluegill CPE (catch per effort) increased significantly from 15 fish/hr in 2014 to 63 fish/hr in 2015. Predation from largemouth bass has limited the population to young of the year and large adults with intermediate sized fish absent. However, the size structure for bluegill still appears good (PSD = 58, RSD-P = 17) for the larger more desirable fish.

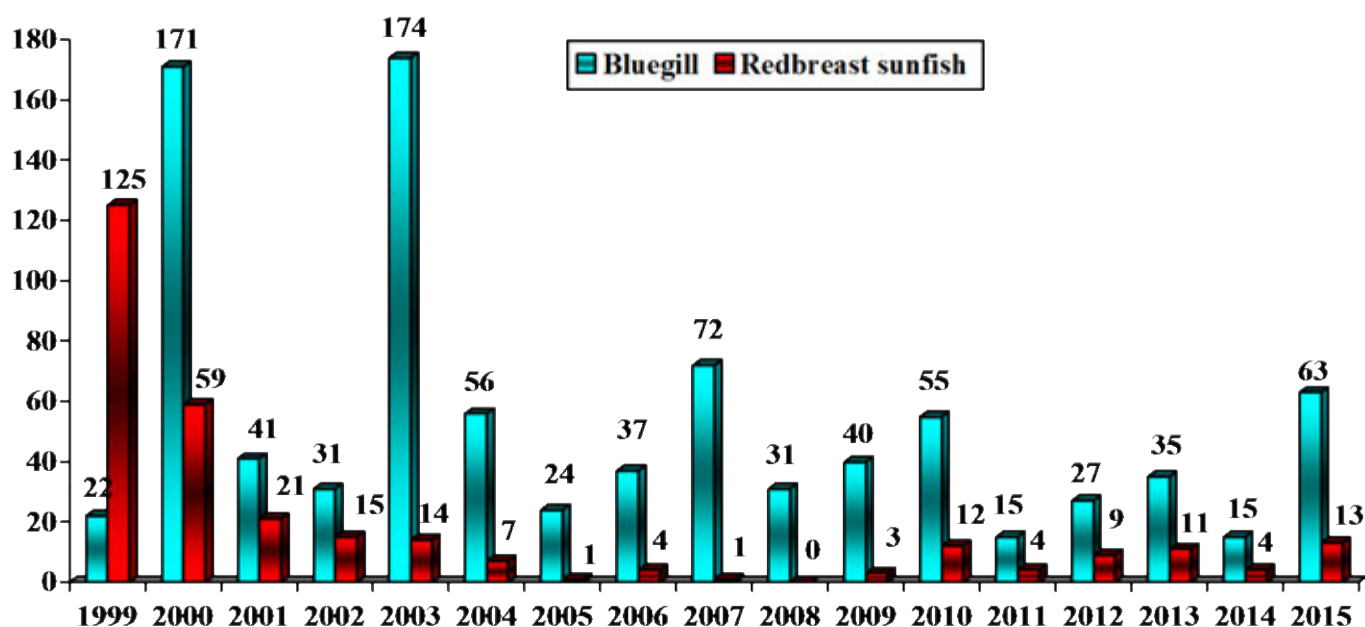


Figure 2. Number of bluegill (blue columns) and number of redbreast sunfish (red columns) collected per hour of electrofishing from 1999-2015.

Black crappie were introduced by an un-authorized source in the mid-1990's. Sample catch rates have fluctuated since 1999 and decreased since 2004, with the last few sample collections yielding only a handful of fish (Figure 3). Anglers shouldn't make a trip to Hidden Valley just to fish for crappie, but should enjoy the limited population when pursuing other species.

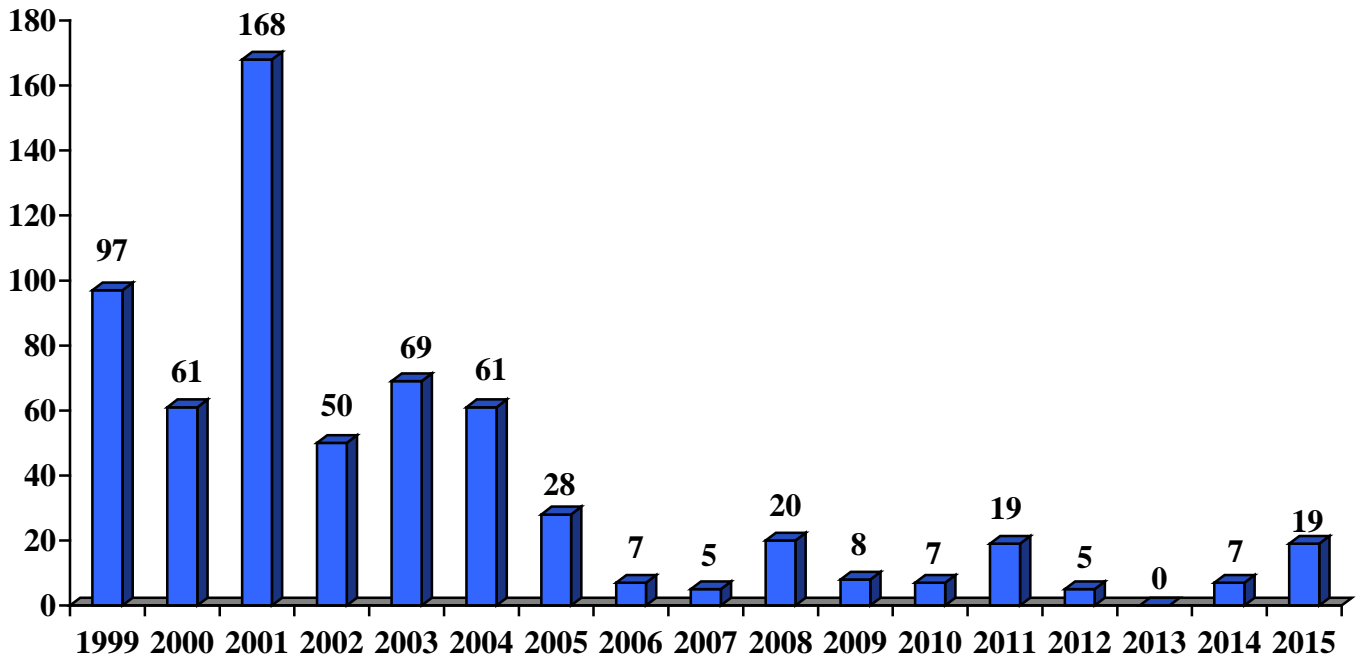


Figure 3. Number of black crappie collected per hour of sampling in Hidden Valley Lake 1999-2015.

Larger channel catfish (ten inches average) are now being stocked into Hidden Valley Lake each year. Stocking larger catfish should continue to improve catfish fishing opportunities in the lake as these fish are less susceptible to predation by largemouth bass. Angler reports have been favorable for catfish in most years.

Northern pike fingerlings are also stocked as needed and as fish are available. Sampling catch rates for northern pike are low. Again, the clear water and low conductivity make it difficult to collect northern pike. Anglers do report catching big northern pike each year.

In summary, Hidden Valley Lake offers decent fishing for largemouth bass, bluegill and crappie. Some large bass are present, and may provide a memorable day for the lucky or skillful angler. Fishing for bluegills and redbreast sunfish is decent. Channel catfish opportunities are improving under the new stocking program. Northern pike are present in low numbers based on sampling, but some large pike are caught by anglers each year.

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