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2020 Hidden Valley Lake Fisheries Management Report

Hidden Valley Lake is a 61-acre impoundment owned by the Virginia Department of Game and Inland Fisheries (DGIF) and is located on the Hidden Valley Wildlife Management Area (WMA) 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 DGIF. 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.

More recently, biologists have attempted to restructure the lake's fish community by stocking Largemouth Bass and Bluegill. Both of these species reproduce naturally in the lake and have established self-sustaining populations. Following the establishment of these populations, Black Crappie were illegally introduced into the lake. The crappie population quickly expanded and became stunted with large numbers of small fish. In an effort to control the crappie population, Northern Pike were stocked into Hidden Valley Lake by DGIF.

Regulations

As of spring 2019 the fish populations in Hidden Valley Lake were managed under the following regulations:

<u>Species</u>	<u>Length Limit</u>	<u>Creel Limit</u>
Largemouth Bass	18-inch minimum	1 per day
Channel Catfish	18-inch minimum	5 per day
Northern Pike	30-inch minimum	2 per day

Species not specifically listed in the table above are managed under statewide regulations. The lake is open to fishing 24 hours a day, but DGIF requires an Access Permit for visitors to department-owned WMAs and public fishing lakes, who are age 17 and older, unless they possess a valid Virginia hunting, freshwater fishing, or trapping license, or a current Virginia boat registration. The use of gasoline motors is prohibited on Hidden Valley Lake.

Stocking

Approximately 550 catchable-size Channel Catfish (average length = 11 inches) were stocked into Hidden Valley Lake in fall 2019. Grass Carp are also stocked as needed to control aquatic vegetation.

Population Sampling

Fish populations at Hidden Valley Lake are sampled each year in May using boat-mounted electrofishing gear. Fish collected during these population surveys are measured, weighed and released back into the lake. Sampling time is recorded so that the relative abundance (number of fish collected per hour of electrofishing) can be determined. Biologists get important information about 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.

Largemouth Bass – Largemouth Bass was the most abundant fish species observed on Hidden Valley Lake in 2019. The relative abundance (number collected per hour of sampling) of Largemouth Bass during the 2019 sample was approximately 60 fish/h, which was above the long-term average abundance for this lake (49 fish/h).

Largemouth Bass observed in the 2019 sample ranged in length from 2 – 18 inches with an average length of 10 inches (Figure 1). Length indices such as PSD (proportional size distribution) are used to evaluate population size structure. This index is commonly used to describe the size structure of a population and may be used to describe bass of predator/prey population within a system. Basically, the larger the number the larger

the proportion of big fish in a population. PSD is calculated by determining the ratio of adult (≥ 8 inches) Largemouth Bass that are also greater than 12 inches. Additionally, PSD-P is the ratio of the number of adult bass that are greater than 15 inches. The PSD for the Hidden Valley Lake Largemouth Bass population in 2019 was 54 and the PSD-P was 13. The generally accepted PSD value for Largemouth Bass in a balanced fish population ranges from 40-70 and the PSD value for Hidden Valley falls well within that range. Currently, the 18-inch minimum length limit is protecting about 98% of the Largemouth Bass population.

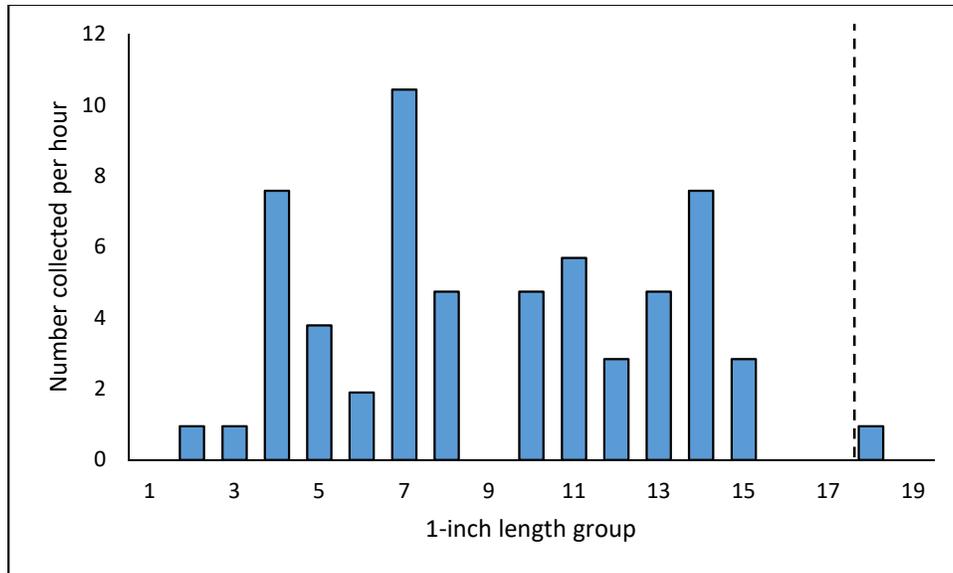


Figure 1. Length frequency distributions of Largemouth Bass collected during electrofishing samples on Hidden Valley Lake in spring 2019. Dashed, vertical line represents the 18-inch minimum length limit for this species.

Sunfish - Bluegill are the most abundant sunfish species in the lake, although their overall abundance varies greatly from year to year. The relative abundance of Bluegill in 2019 was 18 fish/h, which was within the range of variation observed over the past ten years. The size structure of the Bluegill population was fair with 35% of adult Bluegill measuring 6 inches (PSD) or more and 12% exceeding 8 inches (PSD-P). Redbreast Sunfish were also present in the 2019 sample, but were much less abundant (4 fish/h). No Black Crappie were observed in 2019 on Hidden Valley Lake.

Other Species – No Northern Pike and only three Channel Catfish were observed in the 2019 sample.

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