

Deep Creek Lake - Spring Survey, 2022

During mid-May, Freshwater Fisheries and Hatcheries Division (FFHD) staff completed night electrofishing surveys at twenty, randomly selected locations on Deep Creek Lake. The following is a brief summary of the various gamefish and panfish data collected. This report is being generated to present basic size distribution and abundance information for the fishery in order to help anglers plan their fishing trip on Deep Creek Lake. More specific questions about the fishery or the management of individual fish species should be directed to the regional manager by emailing him at matt.sell@maryland.gov.

Key Terms:

Proportional Size Distribution (PSD) - A measure of the proportion of quality size and larger fish to the total fish in a population. Generally speaking, a higher PSD means that larger fish make up a higher percentage of the population and a lower PSD means that the fishery is dominated by smaller fish. Each species has a range of values that represent a balanced size structure.

Catch per Unit Effort (CPUE) - A measure of relative abundance that is reported as the number of fish caught per sampling effort. In this case, numbers are reported as a $CPUE_{60}$, which represents the number of fish per 60 minutes (1 hour) of electrofishing effort. It is important to understand that this is a measure of relative abundance, not actual abundance and is used to track population trends through time.

Survey Results:

<i>Species</i>	<i>PSD</i>	<i>CPUE₆₀</i>
<i>Largemouth Bass</i>	100 (100 - 100)	9.0 (6.61 - 11.39)
<i>Smallmouth Bass</i>	63.44 (53.65 - 73.23)	29.37 (18.58 - 40.16)
<i>Walleye</i>	27.59 (11.32 - 43.85)	10.87 (5.27 - 16.48)
<i>Northern Pike</i>	100 (100 - 100)	8.40 (5.52 - 11.28)
<i>Yellow Perch</i>	71.88 (66.37 - 77.38)	90.35 (57.28 - 123.42)
<i>Bluegill</i>	73.41 (66.83 - 79.99)	54.63 (34.46 - 74.80)
<i>Pumpkinseed</i>	97.3 (92.07 - 102.52)	20.18 (11.46 - 28.91)
<i>Rock Bass</i>	48.05 (36.89 - 59.21)	33.00 (19.85 - 46.15)
<i>Black Crappie*</i>	100	6.00 (6.00 - 6.00)
<i>Chain Pickerel</i>	70.0 (41.6 - 98.4)	8.57 (5.07 - 12.07)

*Sample size insufficient to establish confidence intervals

Largemouth Bass

The largemouth bass fishery in Deep Creek Lake is characterized by a relatively low density and very high PSD. The results suggest that growth rates are sufficient to support a high-quality fishery, however, recruitment to stock size may be limited. Future investigations into reproductive success are warranted before alternative management strategies should be considered.



Smallmouth Bass

Smallmouth bass are the most abundant gamefish species in Deep Creek Lake. The size distribution of smallmouth bass is indicative of a balanced population. Likewise, the relative abundance of smallmouth bass is sufficient to provide a quality fishery for anglers. No changes to the management of this resource are recommended at this time.



Walleye

Under the current regulations (5 fish daily, 15 inch minimum size), the walleye population in Deep Creek Lake is characterized by an undesirable size distribution, skewed heavily toward sub-legal fish. Natural



reproduction is sufficient to support the fishery and the density of walleyes at or below the legal minimum size for harvest is high. Investigations into growth rates suggest that growth is adequate to support the fishery and that high harvest rates may be the primary cause for the imbalance. In 2022, FFHD staff tagged 450 walleyes in order to determine angler catch and harvest rates of legal-sized fish. Preliminary data from this tagging study suggest that harvest rates of legal walleyes may exceed 70 percent. At the completion of the walleye tagging study, fishery and angler data will be compiled and used to model management scenarios aimed at improving the size structure of the fishery.

Northern Pike/Chain Pickerel

Deep Creek Lake is known to have a high quality, trophy northern pike fishery with fish commonly exceeding 36". However, due to habitat preferences and location within Deep Creek Lake during the time of surveys, northern pike can be notoriously difficult to sample. The number of northern pike in the stock-quality-preferred sizes appear to be quickly increasing in this impoundment while the density of chain pickerel is concurrently decreasing. Northern pike dietary preferences are known to include elongate, cylindrical, soft-rated fishes and evidence suggests that chain pickerel are a prey species for juvenile and adult northern pike. Future sampling efforts will incorporate an early spring pike-specific survey to assess the current pike fishery and further investigations into chain pickerel densities are planned.

Yellow Perch

Yellow perch are the most abundant panfish species in Deep Creek Lake with a PSD slightly higher than that suggested for a balanced population. The density of quality size fish and larger are adequate to provide an excellent fishery although recruitment to adulthood may be limited because juvenile yellow

perch are a primary forage fish for gamefish species in the lake. Given the density of yellow perch in Deep Creek Lake, no changes to the management of this fishery are recommended at this time. However, continued monitoring of recruitment is necessary to ensure that the fishery does not decline.

Bluegill/Pumpkinseed

When combined, the bluegill/pumpkinseed fishery in Deep Creek Lake is characterized by densities and a size distribution adequate to provide a high-quality fishery for anglers. Bluegills are fairly ubiquitous throughout the lake (collected in 95 percent of sites), whereas pumpkinseed occupy more specific habitats (eg. muck bottom, SAV) due to dietary requirements as molluscivores and were only collected in 55 percent of sites. Similar to yellow perch, juvenile bluegill/pumpkinseed contribute to the forage base for the lake's gamefish, which likely contributes to the high PSD. Given the current densities, no changes to the management of this fishery are anticipated, although continued monitoring of recruitment is necessary to ensure that this fishery does not decline.



Black Crappie

Due to habitat preferences, schooling nature, and location within a waterbody, crappie fisheries can be notoriously difficult to sample. The entire sample of crappie for this survey was collected in one, very isolated location and may not be representative of the overall abundance and/or size structure of the crappie fishery in Deep Creek Lake. A low density, quality crappie fishery is known to exist in this impoundment and future sampling efforts will incorporate alternative methodologies to specifically target and more accurately characterize it.