Bureau of Fisheries Technical Brief #tb322019
Lake Welch Centrarchid Survey (Survey #322019)

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NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

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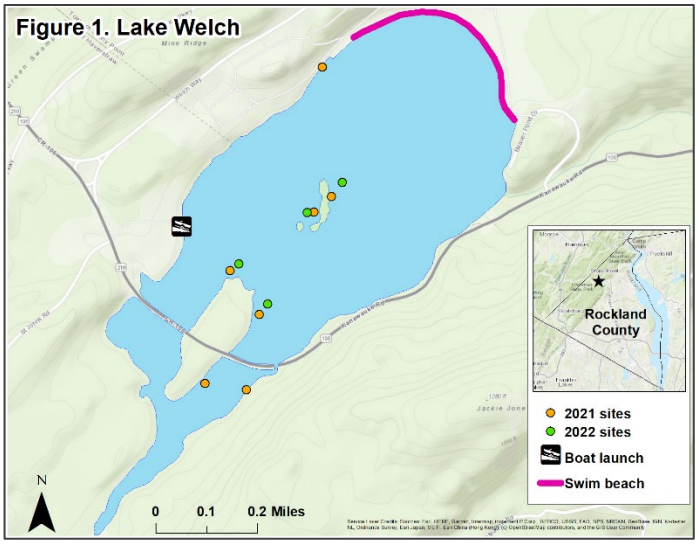
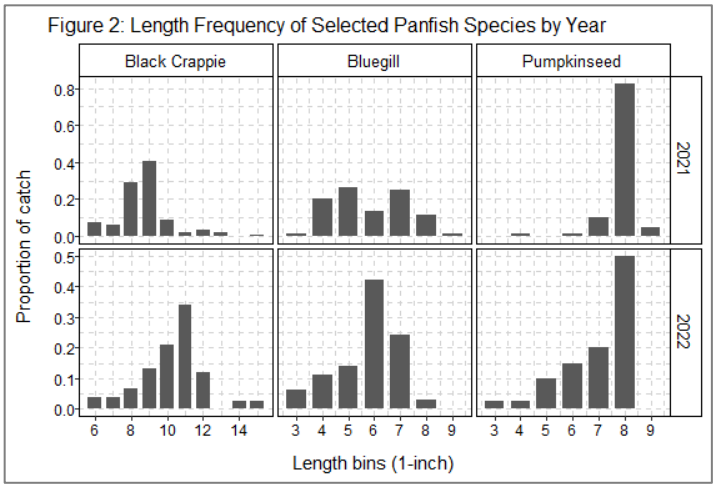


Lake Welch is a 205-acre lake in the Towns of Haverstraw and Stony Point in Rockland County. The lake has a drainage area of 2.9 square miles and lies entirely within Harriman State Park. Shoreline access is available along most of the lake, and a cartop boat launch is located off Seven Lakes Dr (Figure 1). A public swimming beach is present at the NE side of the lake and is approximately ½ mile long. The lake is divided into two basins, with the NE basin at approximately 180 acres and the SW basin at approximately 25 acres. The basins are divided by a causeway, connected by a channel at the SE portion of the lake. Electric motors only are permitted, and a Palisades Interstate Park Commission boat permit is required for all boaters. Ice fishing is permitted when the State Park deems conditions are safe. Lake Welch has historically been managed under statewide fishing regulations, but a special sunfish regulation was implemented on April 1, 2022, as part of the Big Panfish Initiative (NYSDEC 2021). The regulation is an eight-inch minimum size limit, daily limit of 15 fish, and applies to bluegill, pumpkinseed and redbreast sunfish. Additionally, the statewide minimum length for black crappie increased from nine to ten inches. Previously, Lake Welch panfish were evaluated with BPI protocols in 2021 and via nighttime boat electrofishing surveys in 1993, 2004 and 2019.

The survey was conducted to evaluate the new sunfish regulations as part of the Big Panfish Initiative. A secondary objective was to evaluate the 10" minimum size limit for black crappie. This was the second year of trap netting, with surveys planned every year from 2021 through 2025. Results will provide a baseline for comparisons with future surveys. The survey methodology followed the New York Sunfish and Crappie Trap Netting Protocol (Loukmas 2021). Four sites were sampled on 5/31/22 and three sites were sampled on 6/1/2022 for a total of seven net nights. Net locations by survey year are shown in Figure 1. The surface water temperature was 74.3°F on the survey day.



A total of 260 sunfish were caught over seven net nights for a combined catch rate of 37.1/net night. Bluegill sunfish made up most of the catch with a total of 216 caught (30.8/net night), followed by pumpkinseed sunfish with 40 individuals caught (5.7/net night), while only four redbreast sunfish were caught (0.6/net night). The 2022 bluegill catch rate was over five times larger than those reported in the 2021 trap net survey, while the catch rate for pumpkinseed and redbreast remained relatively consistent with the previous season. All sunfish were measured for total length, while scales and otoliths were removed in a subsample of each species. Ages on both structures were determined by two agers and consensus ages were used to create an age-length key to estimate ages of unaged fish.

SPORT FISH RESTORATION

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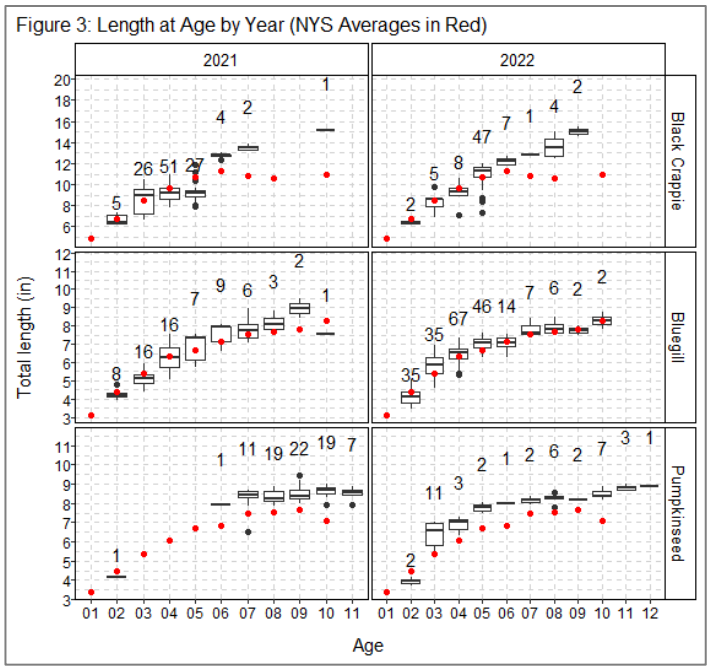

Bluegill lengths in 2022 ranged from three to nine inches (Figure 2). The 2022 PSD, RSD_8 and RSD_{10} were 72, 3 and 0, respectively. The PSD value indicates a balanced population between stock and quality size fish, while the RSD_8 value was just below the NY state mean of five. The relative weight for quality to preferred (6-8 inches) and preferred to memorable (8-10 inches) sized bluegill in 2022 were 96 and 90. These values are below the New York State means of 101 and 99 but close to the optimal range for New York State waters. Ages in 2022 ranged from two to ten with the majority of fish aged five years and younger (Figure 3). Lengths at age of in 2021-2022 were similar to the statewide average.

Pumpkinseed lengths in 2022 ranged from three to nine inches (Figure 2). The Proportional Stock Density (PSD), Relative Stock Density$_8$ (RSD_8) and RSD_{10} were 85, 55 and 0, respectively. These values are much different from the 2018 electrofishing survey and 2021 trap net survey which showed an unbalanced population of larger fish. Ages from 2022 ranged from two to twelve (Figure 3), with the age at highest abundance of three. The presence of younger fish in the sample indicates spawning is occurring in the lake. The relative weight for preferred to memorable size (8-10 inch) pumpkinseed was 108. This is slightly above the statewide mean of 103 for pumpkinseed caught during springtime electrofishing and is considered optimal condition for NY waters (Brooking et al. 2018). Mean lengths at age in 2021-2022 were slightly larger than the statewide average.

A total of 76 black crappie were caught in the seven nets in 2022 (10.8/net night). Lengths ranged from six to fifteen inches with 72% of fish greater than the new minimum length limit of 10 inches (Figure 2). This was much different from the 2021 results which saw over 80% below ten inches. The PSD, RSD_{10}, RSD_{12}, RSD_{15}, were 93, 72, 26, and 3 respectively. The relative weight for quality to preferred (8-10 inches) and preferred to memorable (10-12 inches) size black crappie was 98 and 102, which is well above the New York State means of 93 and 92. Ages of black crappie ranged from two to nine with age five as the most abundant (Figure 3). Age results from both BPI years indicate 2017 was a strong year class of black crappie.

These trap net surveys will continue over the next four years to assess sunfish and black crappie size structure after the regulations have been implemented and further evaluate recruitment.

Literature Cited:

Brooking, T., Loukmas, J., Jackson, R., VanDevalk, T. 2018. Black bass and sunfish sampling manual for lakes and ponds. New York State Department of Environmental Conservation, Federal Aid in Sportfish Restoration, F-63-R, Study 2, Job 2-2.3. Albany, New York.

NYSDEC, 2021. Big Panfish Initiative Study Plan. New York State Department of Environmental Conservation, Bureau of Fisheries. Albany, NY

Loukmas, J. 2021. New York Sunfish and Crappie Trap Netting Protocol. New York State Department of Environmental Conservation, Bureau of Fisheries. Albany, NY