

Artist Lake Centrarchid Survey (Survey #: 122003) Region 1 Fisheries, Peter Malaty

5/5/23

Artist Lake is a 27-acre lake in Suffolk County Long Island with shore and boat access through a town of Brookhaven park. The lake supports a warmwater fishery for largemouth bass, black crappie, bluegill, and pumpkinseed. There are currently no stocking policies on Artist Lake and the only special regulation is a year-round catch and release season for largemouth bass, although just prior to the survey the sunfish bag limit was 15 with no minimum length limit and the black crappie bag limit was 15 with a minimum length limit of 9 inches. The current regulations which went into effect on 4/1/22 are 25 sunfish with no minimum length limit and 25 black crappie with a 10 inch minimum length limit.

This survey followed the centrarchid sampling plan. One full lap consisting of five all fish runs was completed on the night of 5/17/22. A second full lap consisting of two game fish runs was completed on the night of 5/18/22. Full laps excluded the western basin because low water made it inaccessible. The water temperature was 71.24 °F. The purpose of this survey was to assess the effectiveness of the year round catch and release regulation by looking at size distribution and catch rates for largemouth bass and comparing them with previous surveys in 1993, 2004, 2008, 2011, and 2016.

A total of 295 fish were caught during the survey. Species caught were largemouth bass, bluegill, pumpkinseed, black crappie, brown bullhead, chain pickerel, golden shiner, and yellow perch. Length frequency distributions for bluegill generally consisted of sub-6-inch fish in all survey years except 2022 where 6 inch bluegill made up most of the catch (Figure 1). Black crappie and pumpkinseed length frequency distributions varied through time and were generally caught in low numbers (Figure 1). Bluegill PSD was relatively stable through time but spiked in 2022 (Figure 2). Pumpkinseed and black crappie were caught in low numbers and stock index values were variable through time (Figure 2).

A total of 32 largemouth bass were caught in 2022 and ranged in length between eight and fifteen inches (Figure 3). This was the lowest number of largemouth bass caught and the narrowest range in length out of all the years sampled (Figure 3). Largemouth bass PSD varied throughout the time series (Figure 4). The 2022 estimate of 28.1 was the second lowest of all the survey years. PSD was lowest in 1993, peaked in 2008 and has declined every survey since. RSDp has followed a similar trend. Memorable size bass were only captured in 1993 and 2008. CPUE of largemouth bass varied through time (Figure 5). Catch rates of stock size fish peaked in 2004 and 2016 while catch rates for quality size fish peaked in 2008 and 2016. In 2004 the CPUE for quality size bass was 23.1 fish/hour while the 2011 and 2022 estimates were 10.0 and 5.8 fish/hour respectively. Preferred and memorable size catch rates remained low and stable throughout the time series. CPUE of stock size bass in 2022 (20.5 fish/hour) was at the median for the time series while CPUE of preferred sized bass (5.8 fish/hour) was the second lowest of the time series.

The catch and release regulation was implemented in the fall of 2004 to increase catch rates and improve the size structure of largemouth bass. The response of the population to this regulation change is unclear. Two surveys (point estimates of abundance and size structure in space and time), eleven years apart were inadequate to characterize the pre regulation population. Catch rates and size structure post regulation change have fluctuated above and below what was measured prior to the regulation change. Low replication of surveys prior to the regulation change and the variability in catch rates and size structure post regulation change have confounded the ability to detect a change, if one existed, in those response variables.

Figure 1. Length frequency distributions of panfish by year.

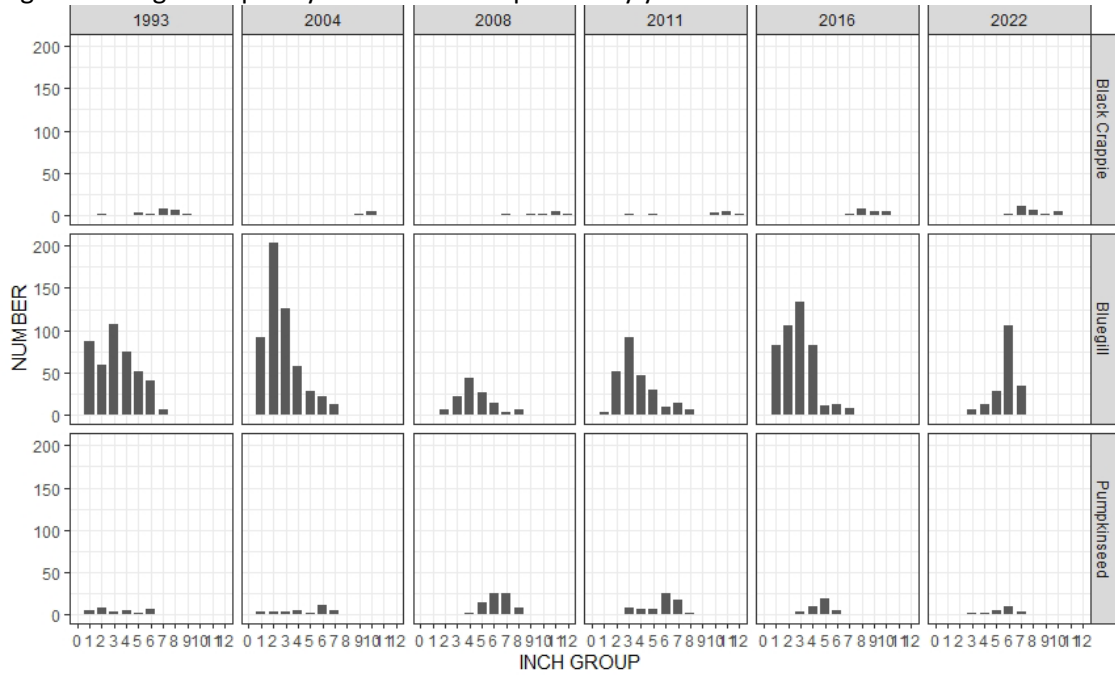


Figure 2. Stock indices of panfish by year.

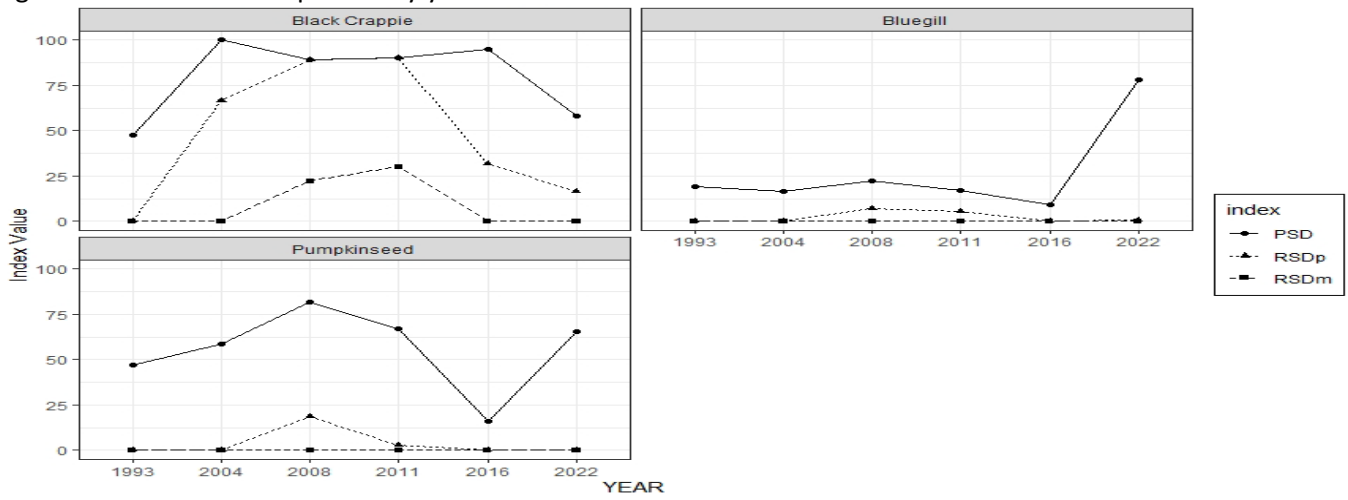


Figure 3. Length frequency distributions of largemouth bass by year.

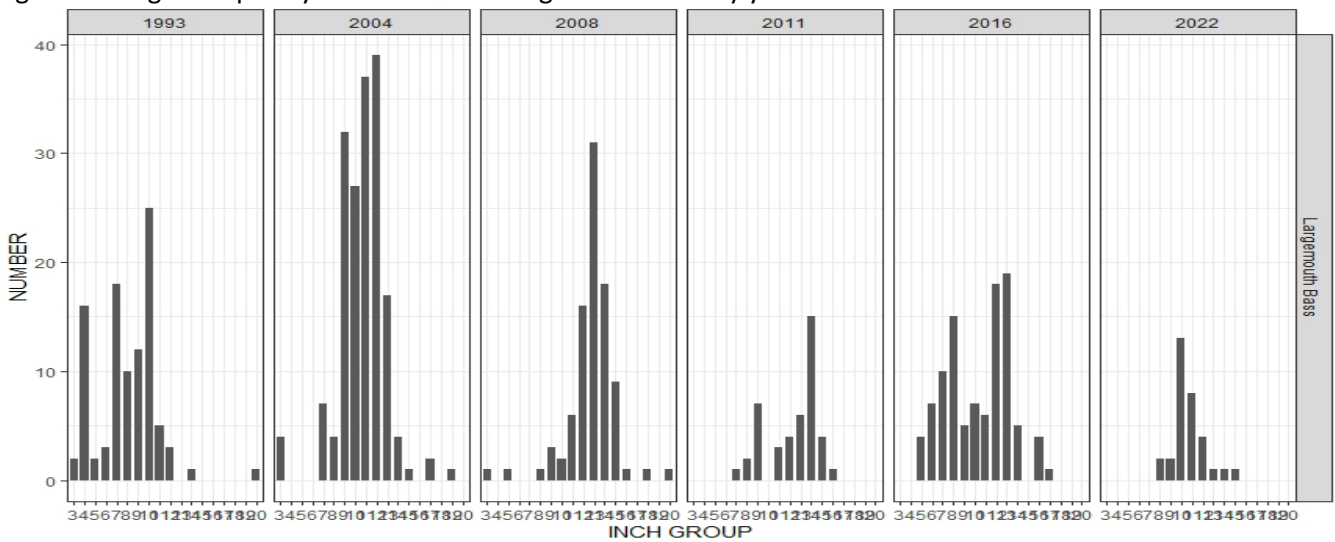


Figure 4. Largemouth bass relative stock indices by year.

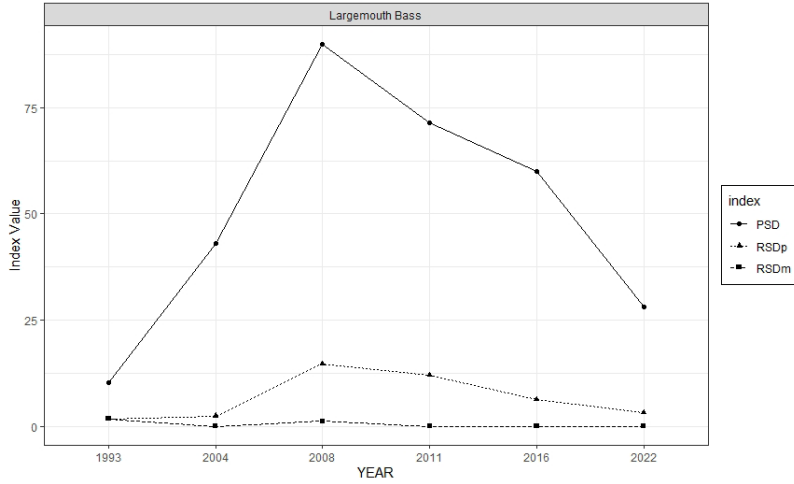


Figure 5. Catch rates by stock index category for largemouth bass.

