# Juvenile Striped Bass Survey



**INTRODUCTION:** The juvenile striped bass survey documents annual year-class success for young-of-the-year striped bass (Morone saxatilis) and relative abundance of many other fish species in Chesapeake Bay. Over 100 fish species have been collected since 1954. Annual indices of relative abundance provide an early indicator of future adult stock recruitment and document annual variation and long-term trends in abundance and distribution.

**SAMPLE AREA and INTENSITY:** Juvenile indices are derived annually from sampling at 22 fixed stations within Maryland's portion of the Chesapeake Bay. Stations have been sampled continuously since 1954, with changes in some station locations.
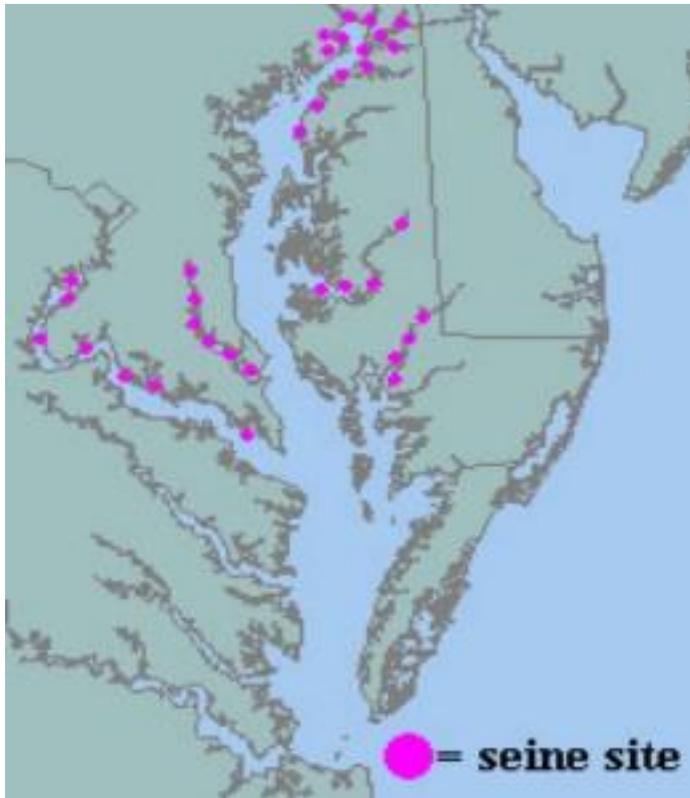
They are divided among four of the major spawning and nursery areas: seven each in the Potomac River and Head of Bay areas and four each in the Nanticoke and Choptank Rivers. Sampling is monthly, with rounds (sampling excursions) occurring during July (Round I), August (Round II), and September (Round III). Replicate seine hauls, a minimum of thirty minutes apart, are taken at each site on each sample round. This produces a total of 132 samples from which bay-wide means are calculated. From 1954 to 1961, juvenile surveys included various stations and rounds. Sample sizes ranged from 34 to 46. Present indices derived for this period include only stations which are consistent with subsequent years. In 1962, stations were standardized and a second sample round was added for a total of 88 samples. A third sample round, added in 1966, increased sample size to 132. Auxiliary stations have been sampled on an inconsistent basis and are not included in survey indices. These data enhance geographical coverage in rivers with permanent stations or provide information from other river systems. They are also useful for replacement of permanent stations when necessary.

## Video Describing Juvenile Striped Bass Survey Protocol

**SAMPLE PROTOCOL:** A 30.5-m x 1.24-m bagless beach seine of untreated 6.4-mm bar mesh was set by hand. One end was held on shore. The other was fully stretched perpendicular from the beach and swept with the current. Ideally, the area swept was equivalent to a 729 $m^2$ quadrant. When depths of 1.6-m or greater were encountered, the offshore end was deployed along this depth contour. An estimate of distance from the beach to this depth was recorded. Striped bass and selected other species were separated into age 0 and age 1+ groupings. Ages

were assigned from [length-frequencies](#) and verified through scale examination. The age 0 fish were measured from a random sample of up to 30 individuals per site and round. All other finfish were identified to species and counted. Additional data were collected at each site and sample round. These included: time of first haul, maximum distance from shore, weather, maximum depth, surface water temperature (degrees Celcius), tide stage, surface salinity (ppt), primary and secondary bottom substrates, and percent of submerged aquatic vegetation within the sample area. Dissolved oxygen, pH, and turbidity (secchi disk) were added in 1997.

## Fish Abundance Indices



[Relative abundance](#) of data and graphs for a particular species. The fifteen most commonly requested species are pictured. Data is presented in an Excel file which can be downloaded by clicking "Save As" on your browser. Each file contains data and graphs for the Chesapeake Bay (includes all areas sampled), Choptank River, Head of Bay area, Nanticoke River, and Potomac River. Each system appears in a separate worksheet. Although system-specific indices appear for each species, they may not always be appropriate. For example: only one site on the Choptank River is of low enough salinity to be considered good habitat for juvenile yellow perch. Indices of relative abundance are presented as Geometric Mean Catch per Haul. The Geometric Mean has been adopted by the Atlantic States Marine Fisheries Commission as the preferred [index](#) of relative abundance.

The Geometric Mean is a statistical way of handling the data that is more precise than the Arithmetic Mean Catch per Haul because it is not as sensitive to a single large sample value. The Arithmetic Mean Catch per Haul is presented for striped bass because it is the most widely recognized and easily understood juvenile index. Also appearing in the data tables are: year, number of samples (n), and 95 % confidence intervals.

**All information and data from this web site**
**should be cited as:**

**Durell, E.Q., and Weedon, C. 2019. Striped Bass Seine Survey Juvenile Index Web Page. dnr.maryland.gov/fisheries/pages/juvenile-index.aspx. Maryland Department of Natural Resources, Fishing and Boating Services.**