MEMORANDUM

TO: Atlantic Menhaden Management Board

FROM: Atlantic Menhaden Technical Committee

DATE: September 20, 2016

SUBJECT: 2015 Juvenile Abundance Indices

At the August 2016 meeting, the Atlantic Menhaden Management Board (Board) requested the Technical Committee (TC) provide information on recent recruitment trends in the fishery. Given that recruitment trends are derived from the Beaufort Assessment Model and can only be updated during a stock assessment, the TC decided to investigate juvenile abundance indices (JAIs) as a proxy for recruitment. Given time constraints, only eight indices from six different states could be updated in time for the October Board meeting. These juvenile indices are presented below in an attempt to provide the Board with some information on the juvenile portion of the Atlantic menhaden population. The TC highlights that these indices do not provide a comprehensive picture of juvenile abundance along the coast, especially since the available indices only span from Rhode Island to Virginia. As a result, the TC is not able to provide a statement on recruitment in 2015 nor are they able to predict the magnitude of the young-of-year population in 2015.

The eight available juvenile abundance indices are presented below and are organized geographically, from north to south.
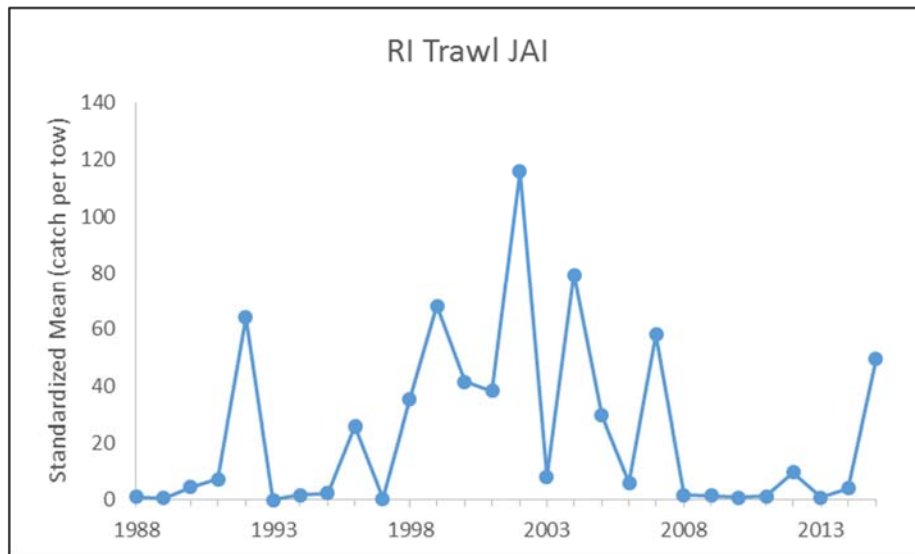

Figure 1: Juvenile abundance index from the Rhode Island Seine Survey, 1988-2015. The survey samples 18 fixed sites in Narragansett Bay, RI each month from June through October.
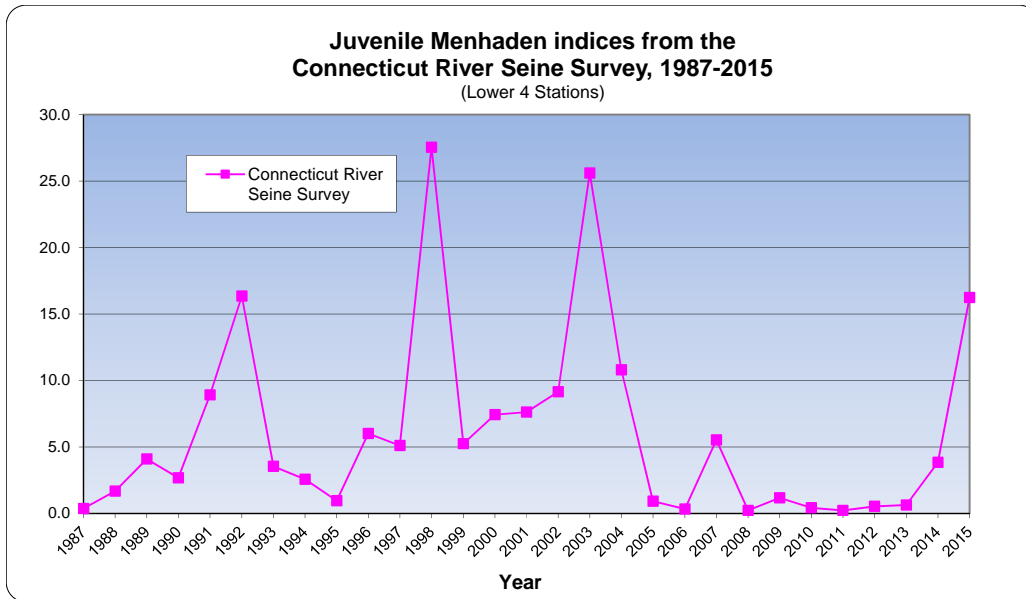
Figure 2: Juvenile abundance index from the Connecticut River Seine Survey, 1987-2015. The survey calculates a juvenile menhaden index based on four stations from Glastonbury, CT to Essex, CT, near the river mouth. The survey is standardized to a 14 week period between mid-July and mid-October. The x-axis is the geometric mean.
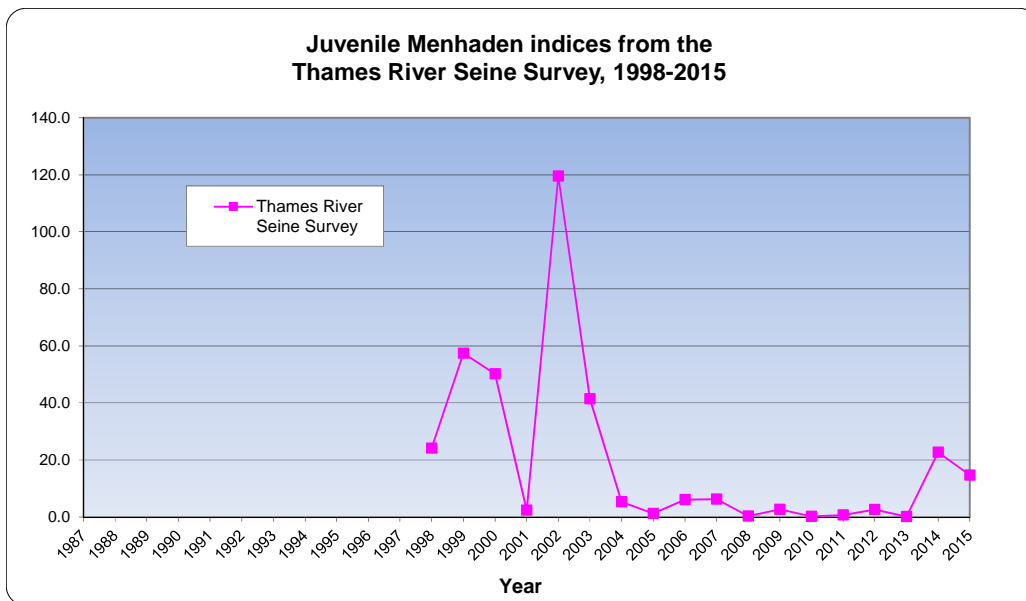

Figure 3: Juvenile abundance index from the Thames River Seine Survey in Connecticut, 1998-2015. Sites located between Norwich, CT, and the mouth of the river are used to calculate a juvenile index for menhaden. The survey is standardized to a 14 week period between mid-July and mid-October. The x-axis is the geometric mean.
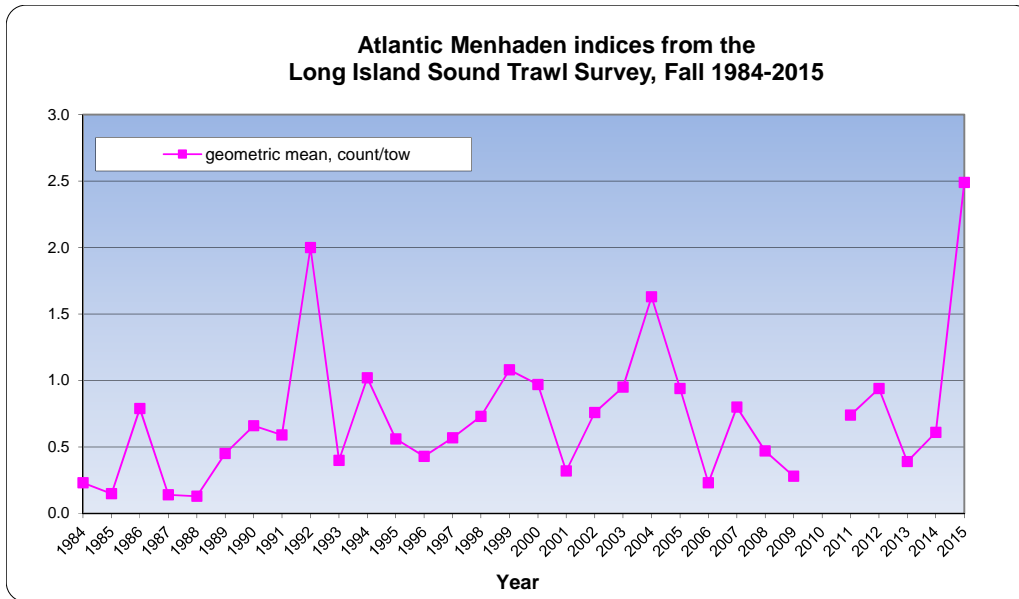
Figure 4: Atlantic menhaden index from the fall Long Island Sound Trawl Survey, 1984-2015. The fall survey occurs in September and October and samples 40 stations selected at random between Groton, CT, and Greenwich, CT, in both New York and Connecticut waters. While this index is used for both juvenile and adult indices, over 60% of menhaden caught in the fall survey are juveniles.
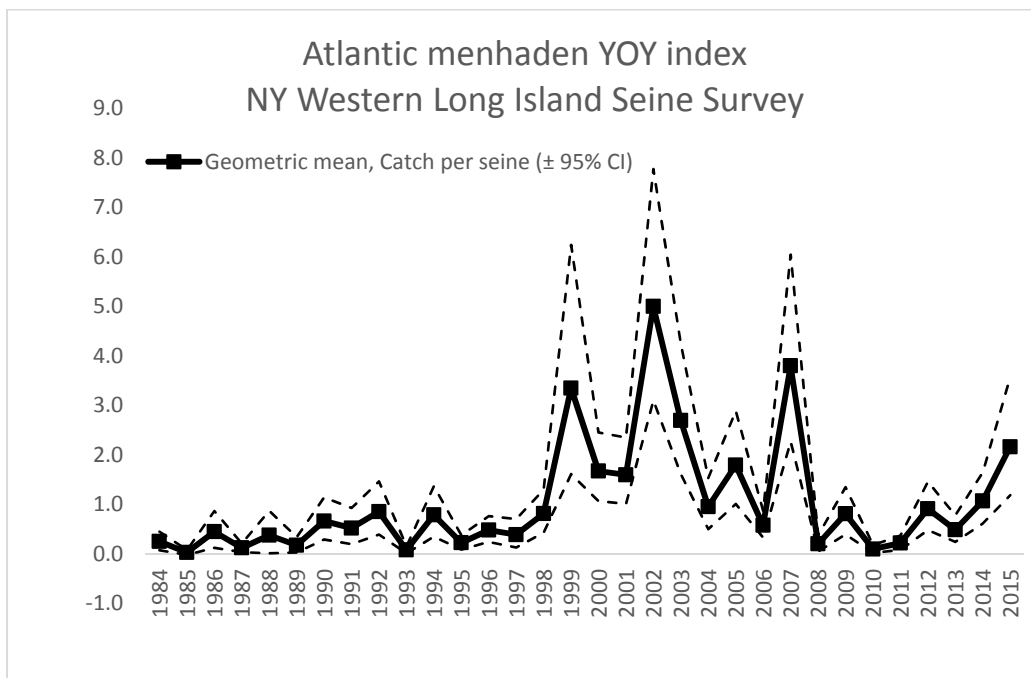

Figure 5: Young-of-year index from the New York Western Long Island Sound Seine Survey, 1984-2015. The survey covers 20 beach sites across 4 bays between May and October.
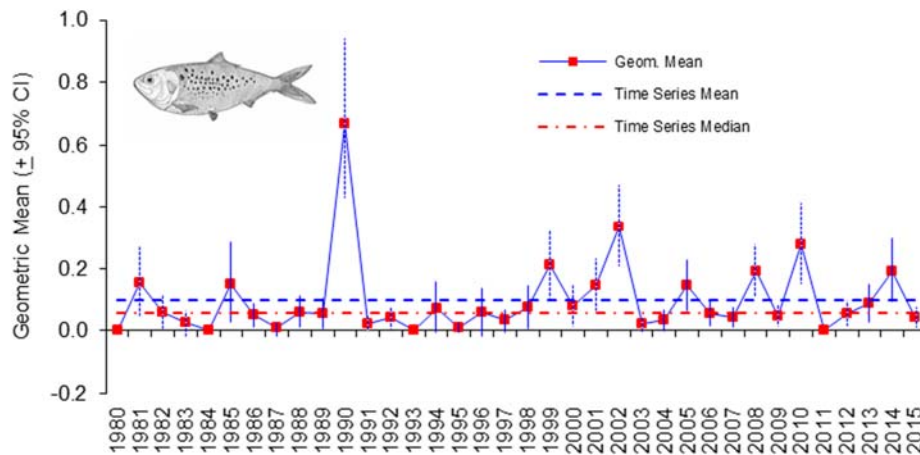
Figure 6: Index of young-of-the-year Atlantic menhaden abundance from the Delaware Bay Juvenile 16ft Trawl Survey, 1980 – 2015. Sites along the western coast of the Delaware Bay are sampled monthly from April through October. The time series mean and median are plotted in blue and red lines, respectively.
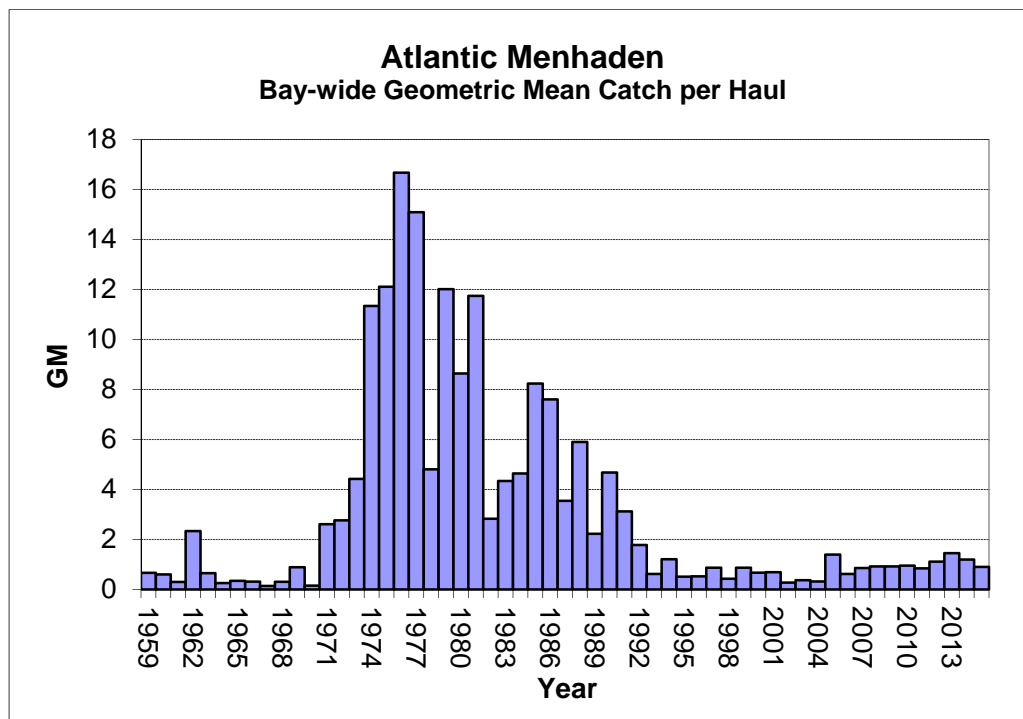

Figure 7: Juvenile abundance index from the Maryland Juvenile Striped Bass Seine Survey, 1959-2015. The juvenile index is derived from samples at 22 fixed stations within Maryland's portion of the Chesapeake Bay. Sampling occurs monthly between July and September.
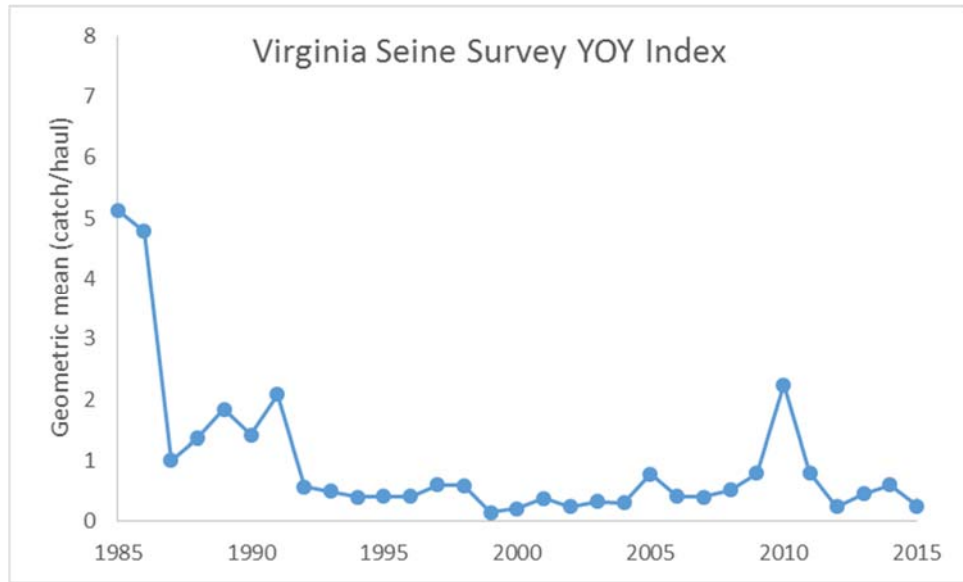
Figure 8: Juvenile abundance index from the Virginia Juvenile Striped Bass Seine Survey, 1985-2015. Index is a geometric mean. The survey samples 18 historic sites and 22 auxiliary sites in the James, York, and Rappahannock Rivers between July and September.