

Appendix 1 - Indices

NMFS Northeast Fisheries Science Center Trawl (starts next page)

<https://www.fisheries.noaa.gov/about/northeast-ecosystems-surveys>

River herring and American shad indices from the NEFSC spring and fall bottom trawl surveys updated to the degree applicable.

American Shad indices are undergoing transition into the modern database structure used for other commonly queried species and have not been able to be updated.

For the updated river herring indices, the magnitude of the y-axes are slightly different from previous figures due to index redevelopment, but the previous trends are essentially identical. The differences are more noticeable in the figures of proportion of positive tows as a result of different strata being included.

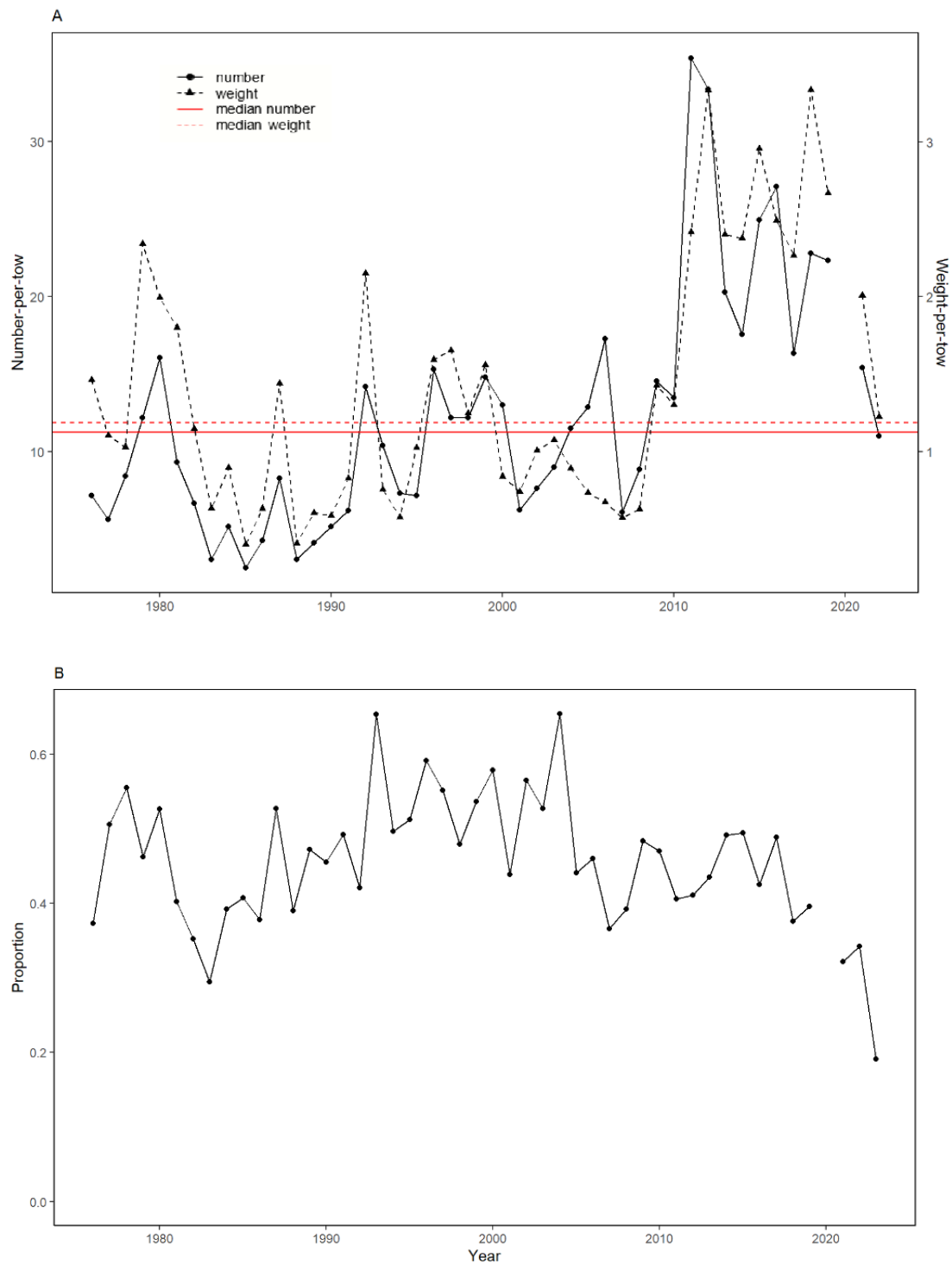


Figure 1: Alewife relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg- per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC spring bottom trawl survey for 1976-2022. Indices from 2009 onward were converted to Albatross units. The median number- and weight-per-tow values represent the median indices over 1976-2022. The full strata set was not sampled in 2014 due to delays in the survey (offshore strata 61-68 south of Maryland were not sampled) and the 2020 survey was not completed due to the covid pandemic.

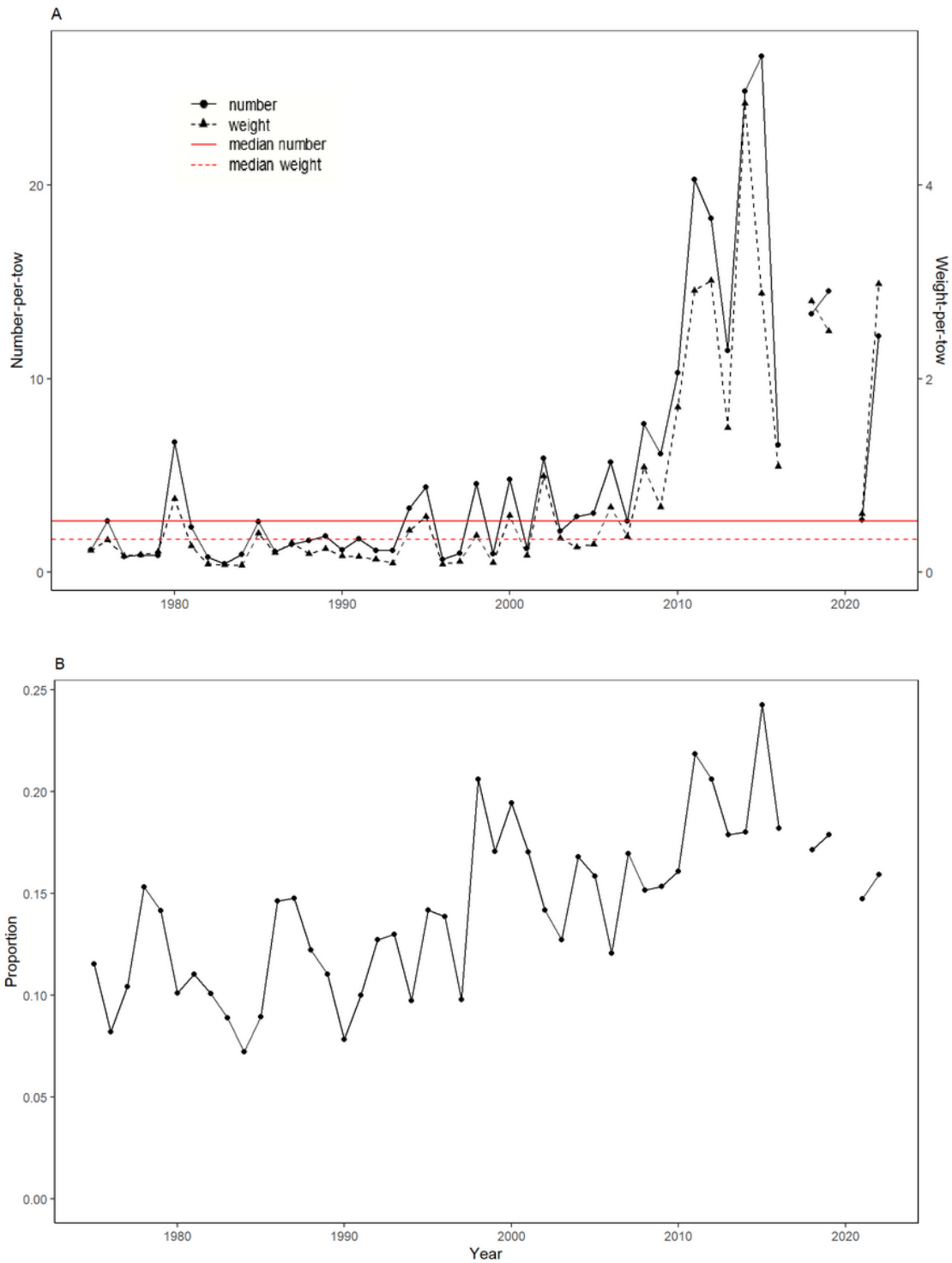


Figure 2: Alewife relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg- per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC fall bottom trawl survey for 1975-2022. Indices from 2009 onward were converted to Albatross units. The median number- and weight-per-tow values represent the median indices over 1975-2022. Indices from the 2017 fall bottom trawl survey are treated as missing because the full survey was not completed due to vessel mechanical issues. Additionally, the 2020 survey was not completed due to the covid pandemic

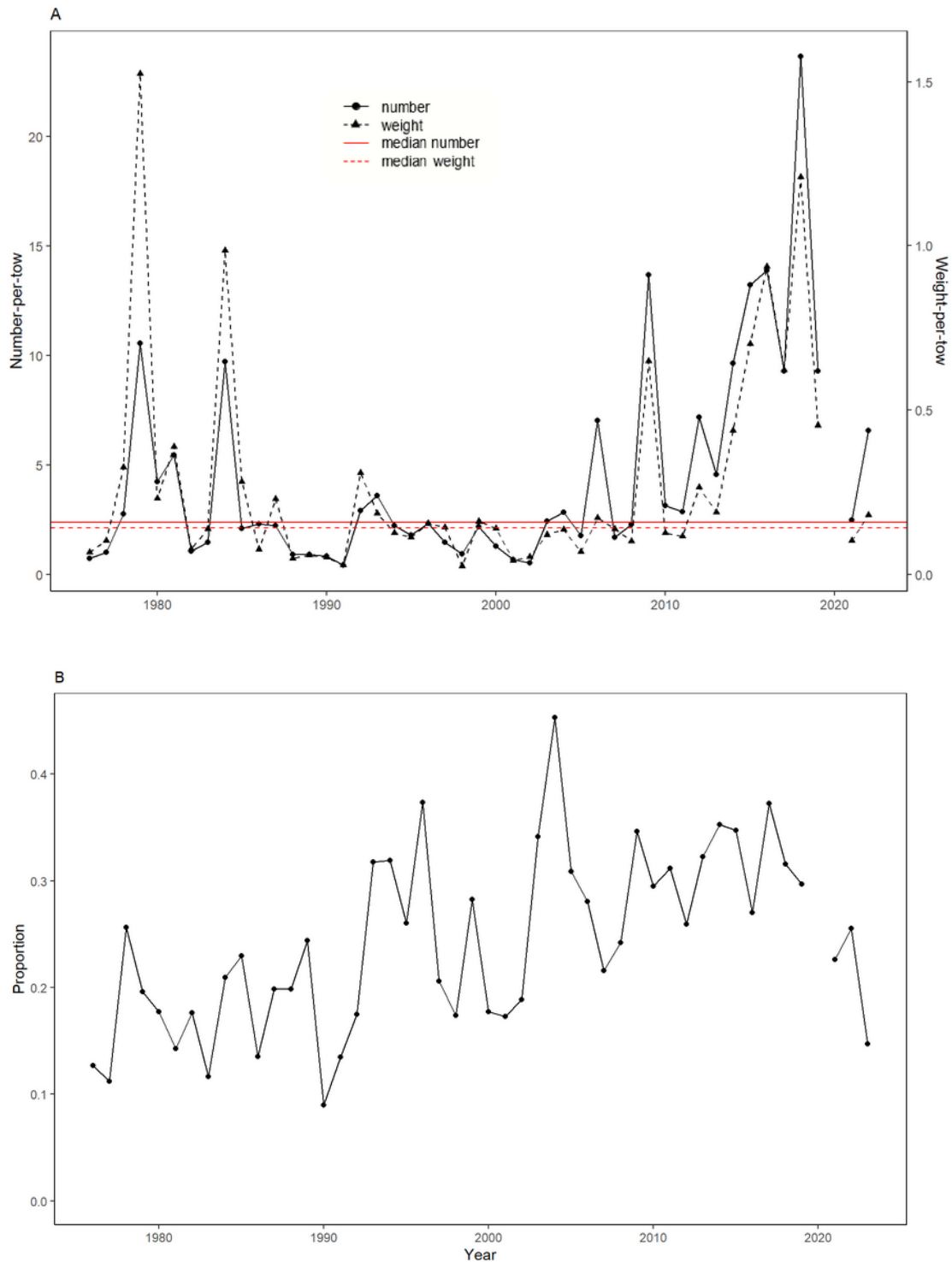


Figure 3: **Blueback** herring relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg-per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC **spring** bottom trawl survey for 1976-2022. Indices from 2009 onward were converted to Albatross units. The median number- and weight-per-tow values represent the median indices over 1976-2022. The full strata set was not sampled in 2014 due to delays in the survey (offshore strata 61-68 south of Maryland were not sampled) and the 2020 survey was not completed due to the covid pandemic.

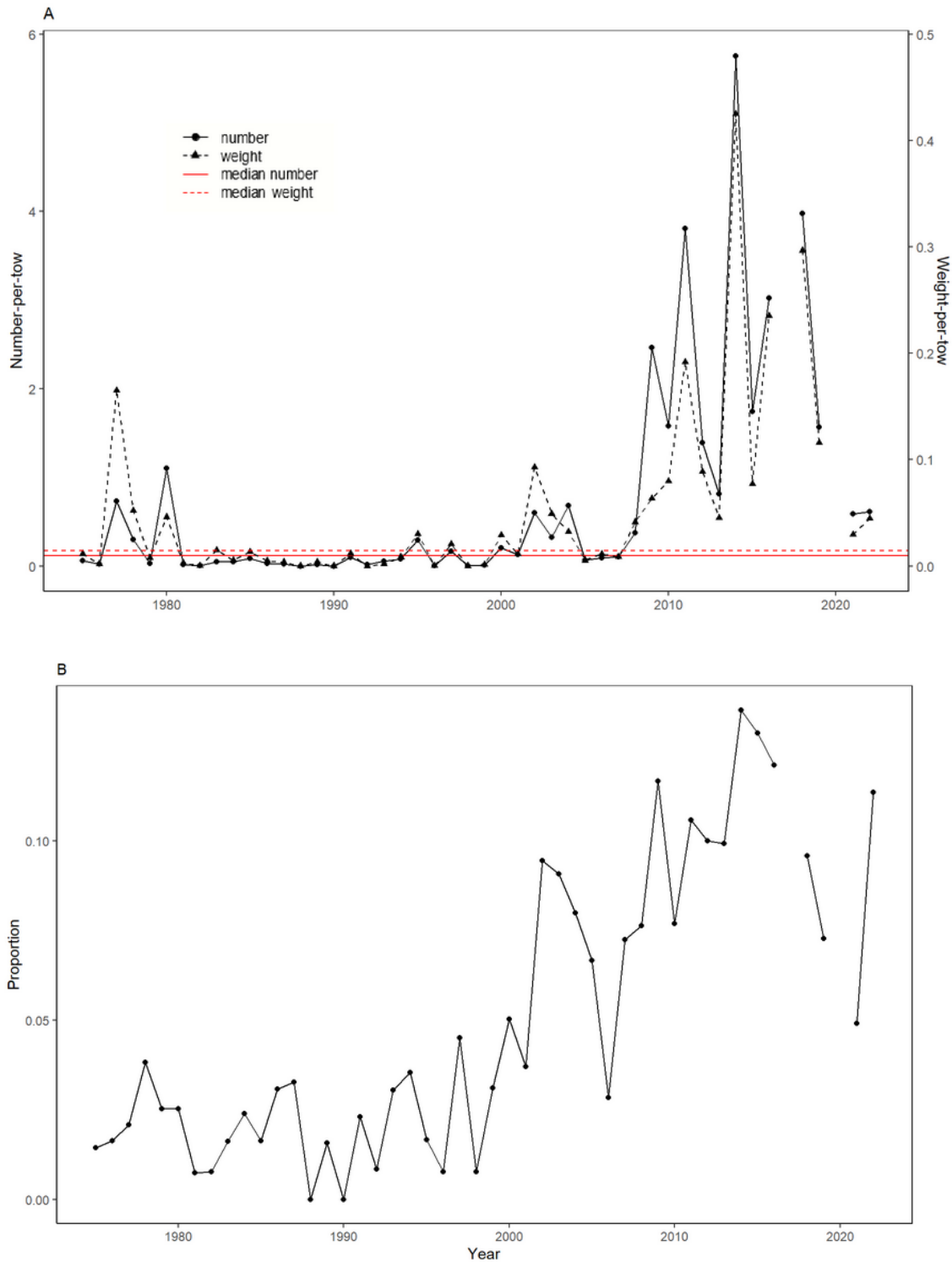


Figure 4: **Blueback** herring relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg-per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC **fall** bottom trawl survey for 1975-2022. Indices from 2009 onward were converted to Albatross units. The median number- and weight-per-tow values represent the median indices over 1975-2022. Indices from the 2017 fall bottom trawl survey are treated as missing because the full survey was not completed due to vessel mechanical issues. Additionally, the 2020 survey was not completed due to the covid pandemic.

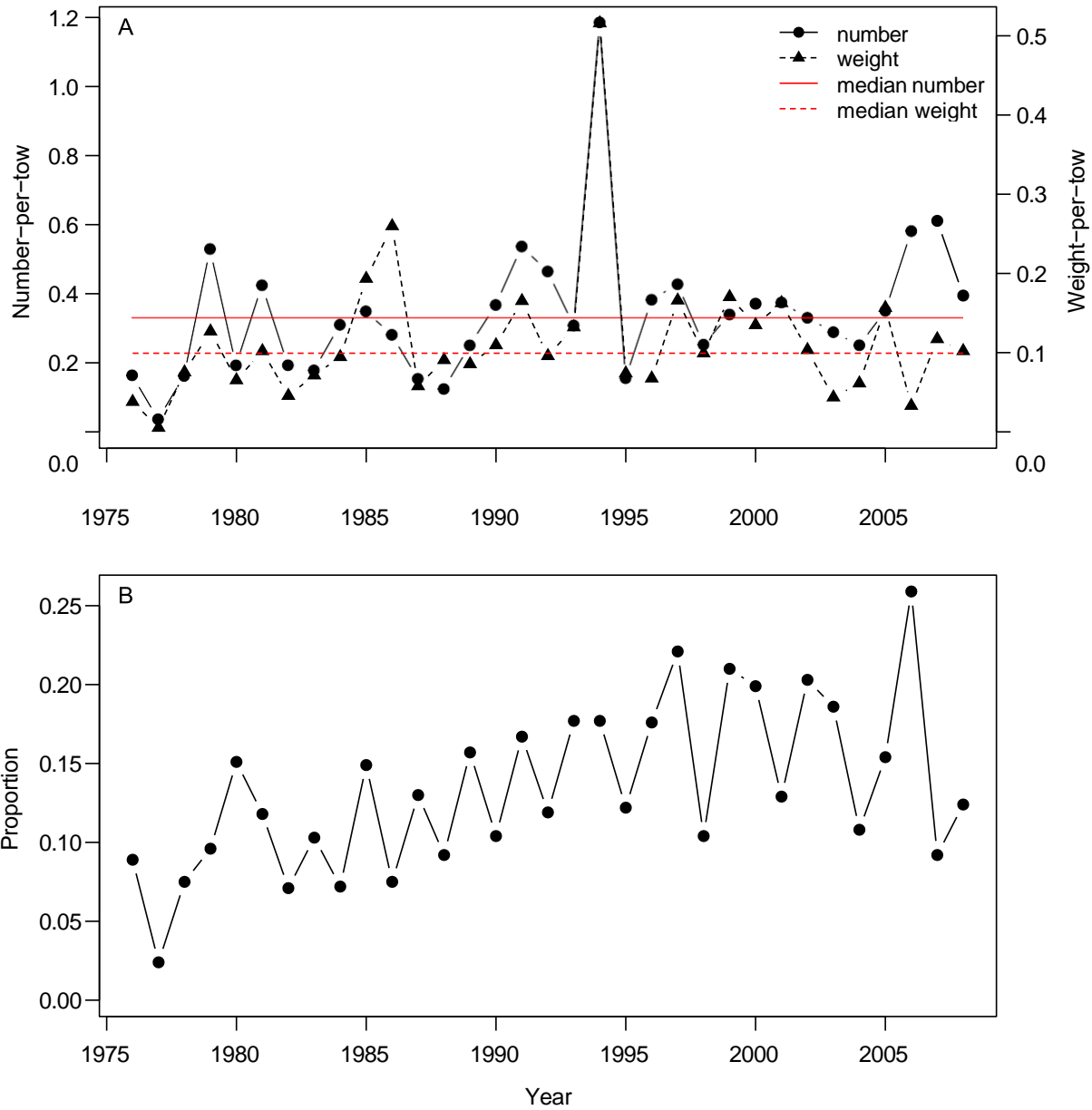


Figure 5: American shad relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg-per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC spring bottom trawl survey for 1976-2008. Vessel (Bigelow to Albatross) conversion coefficients are not available for American shad; therefore, the time series was split in 2008. The median number- and weight-per-tow values represent the median indices over 1976-2008.

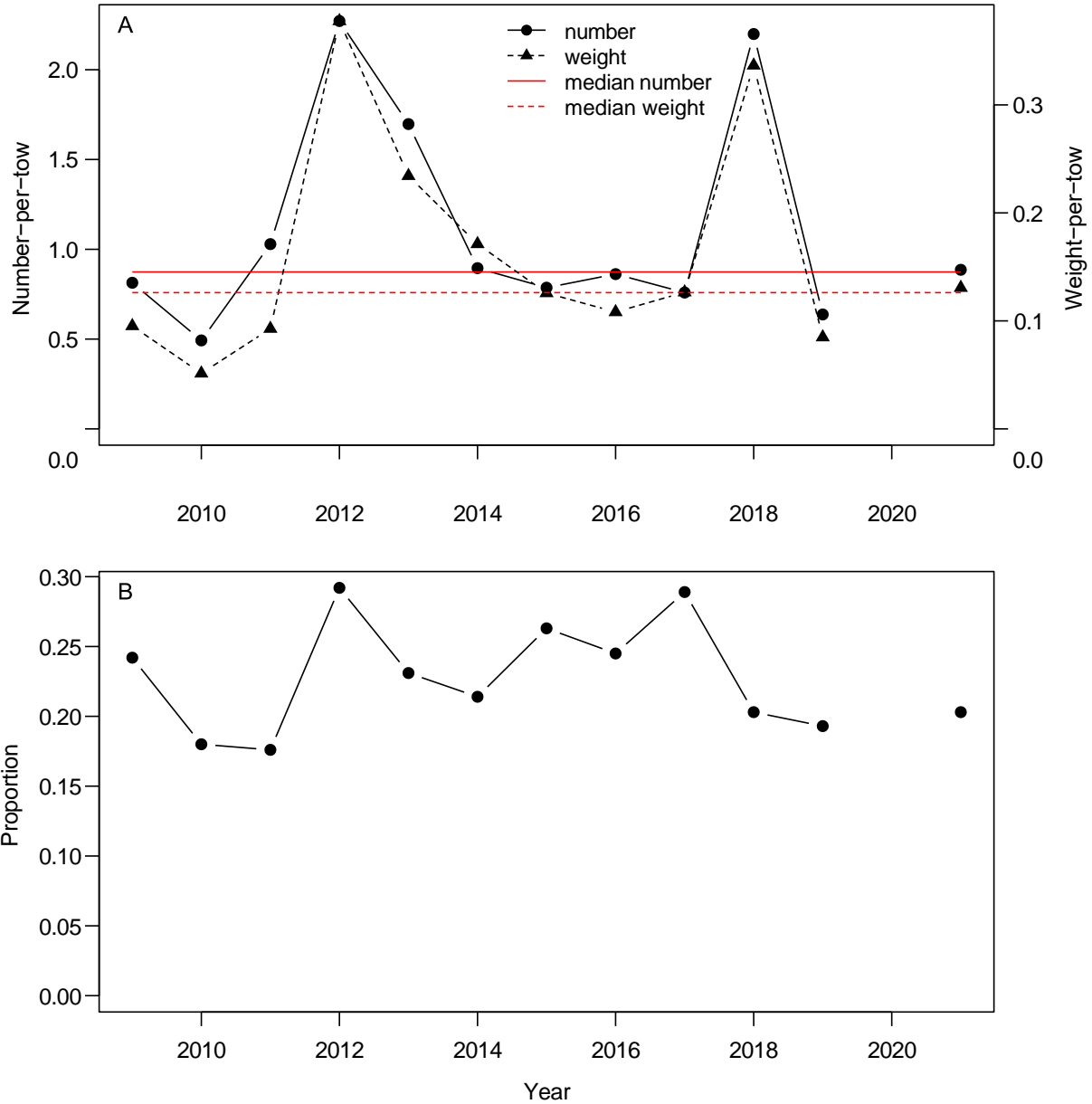


Figure 6: American shad relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg-per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC spring bottom trawl survey for 2009-2021 (Bigelow units). The median number- and weight-per-tow values represent the median indices over 2009-2021. The full strata set was not sampled in 2014 due to delays in the survey (offshore strata 61-68 south of Maryland were not sampled) and the 2020 survey was not completed due to the covid pandemic.

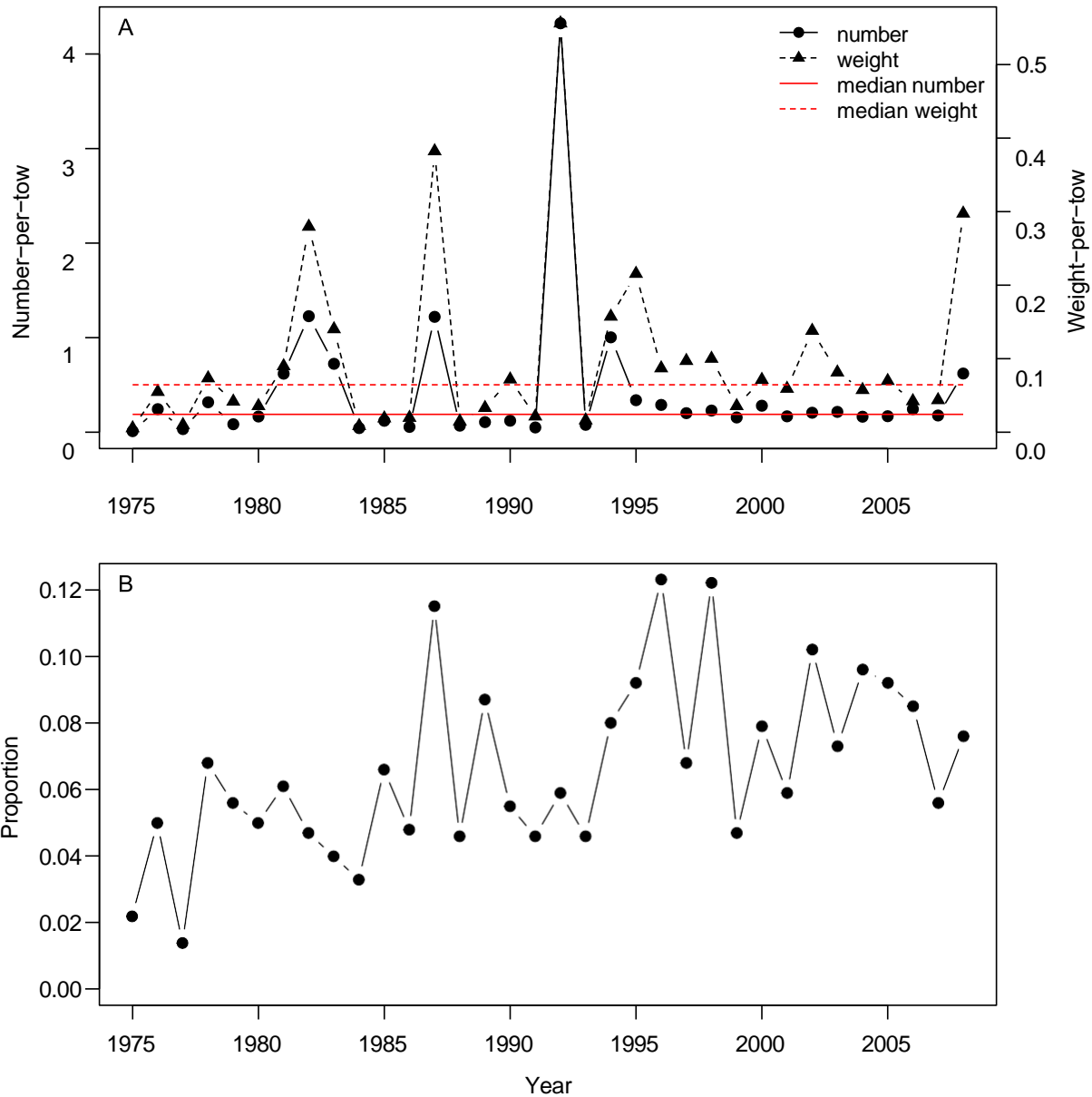


Figure 7: American shad relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg-per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC fall bottom trawl survey for 1975-2008. Vessel (Bigelow to Albatross) conversion coefficients are not available for American shad; therefore, the time series was split in 2008. The median number- and weight-per-tow values represent the median indices over 1975-2008.

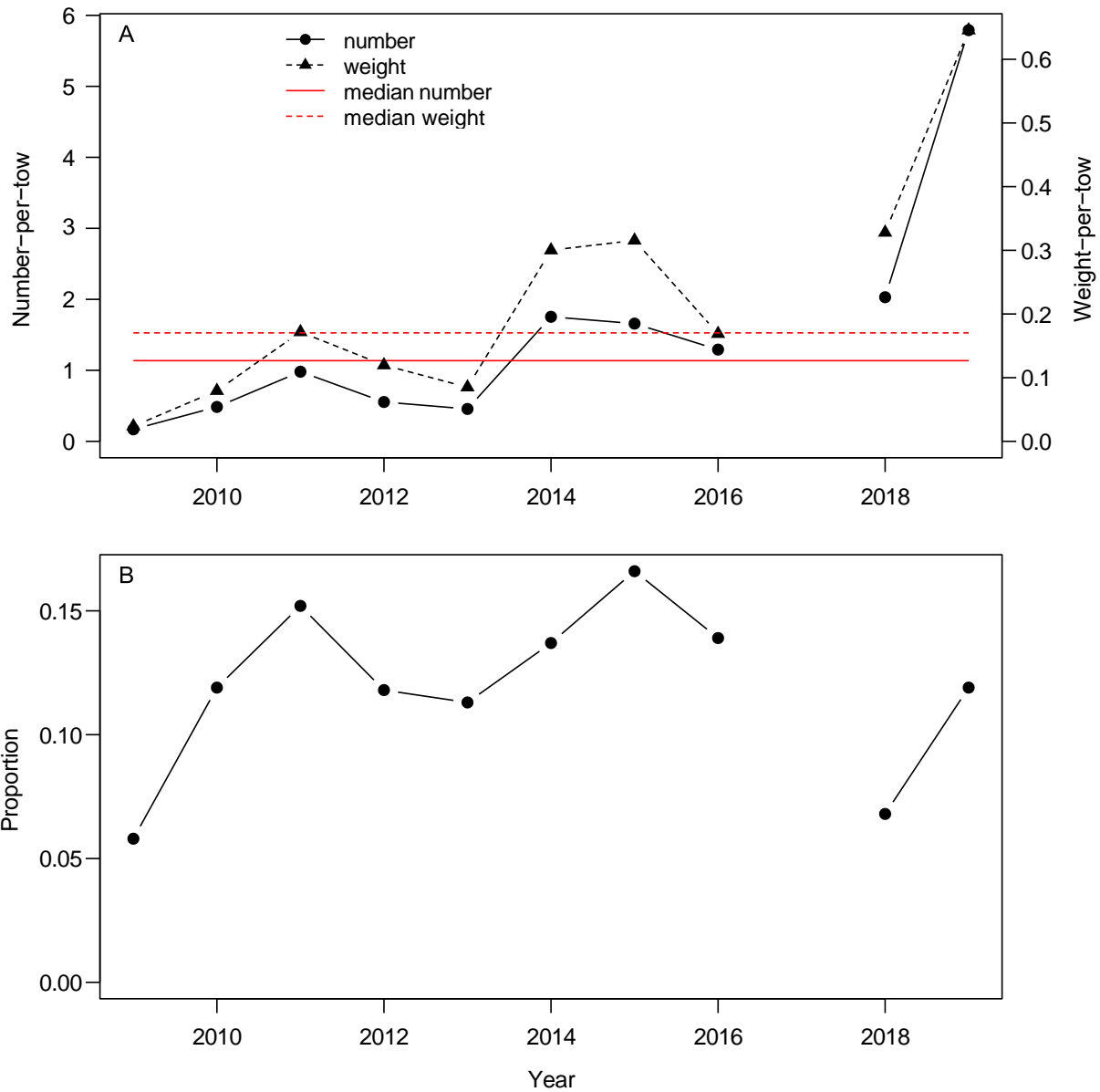
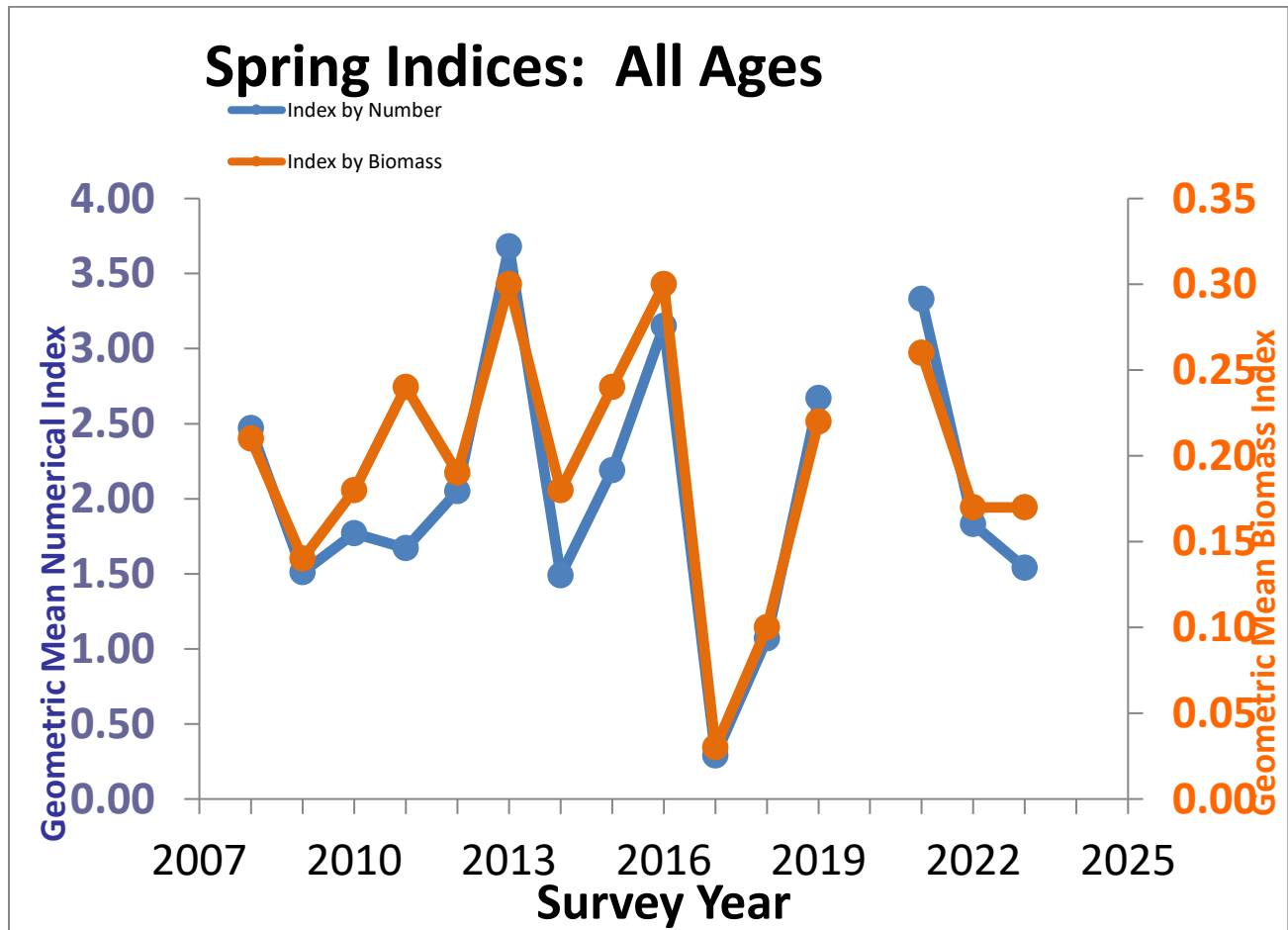


Figure 8: American shad relative abundance (stratified mean number-per-tow) and biomass (stratified mean kg-per-tow) indices (A) and the proportion of positive tows (B) derived from the NEFSC fall bottom trawl survey for 2009-2019 (Bigelow units). The median number- and weight-per-tow values represent the median indices over 2009-2019. Indices from the 2017 fall bottom trawl survey are treated as missing because the full survey was not completed due to vessel mechanical issues. Additionally, the 2020 survey was not completed due to the covid pandemic.

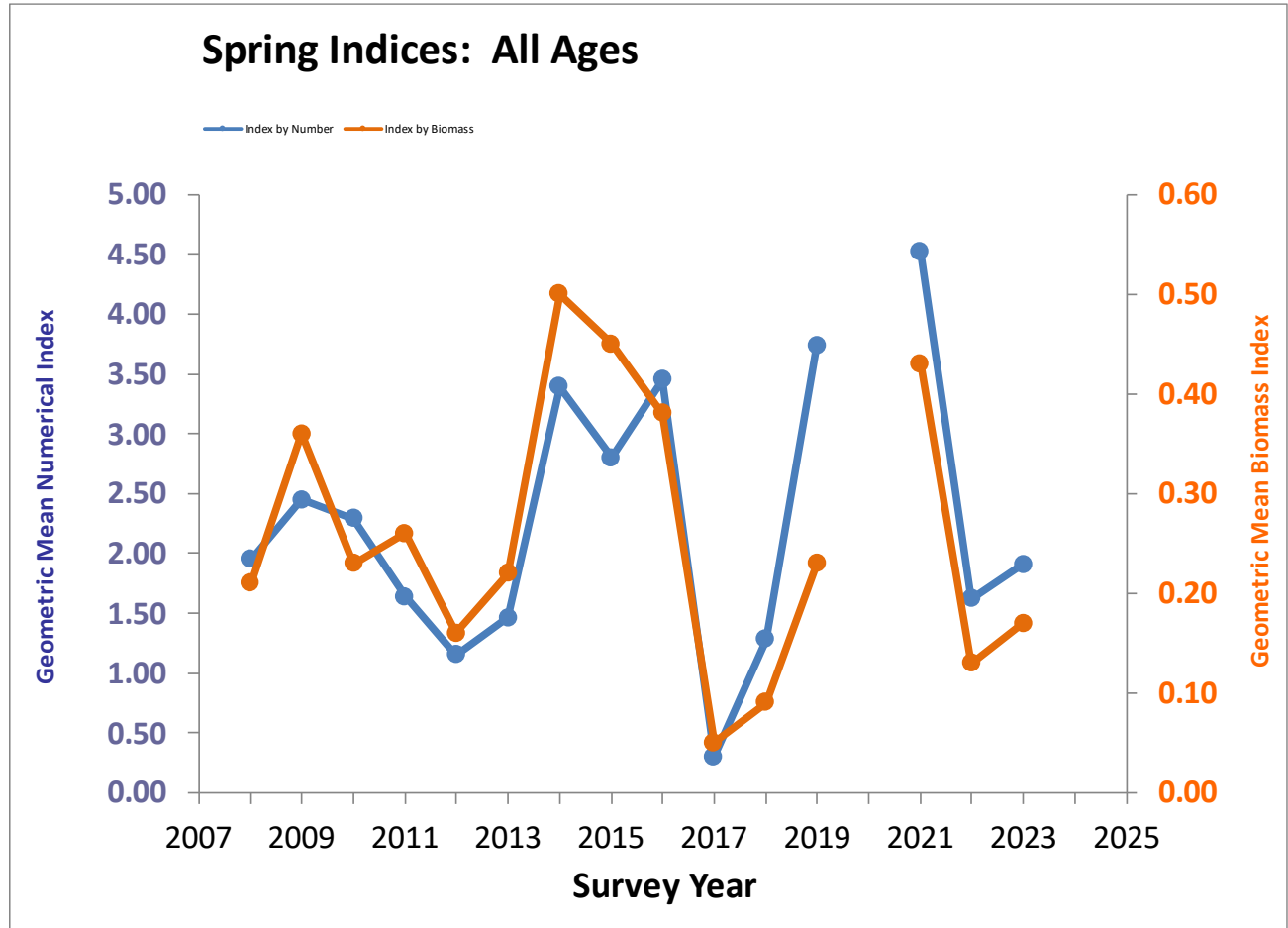
NEAMAP – updated through spring 2023

https://www.vims.edu/research/units/programs/multispecies_fisheries_research/neamap/index.php

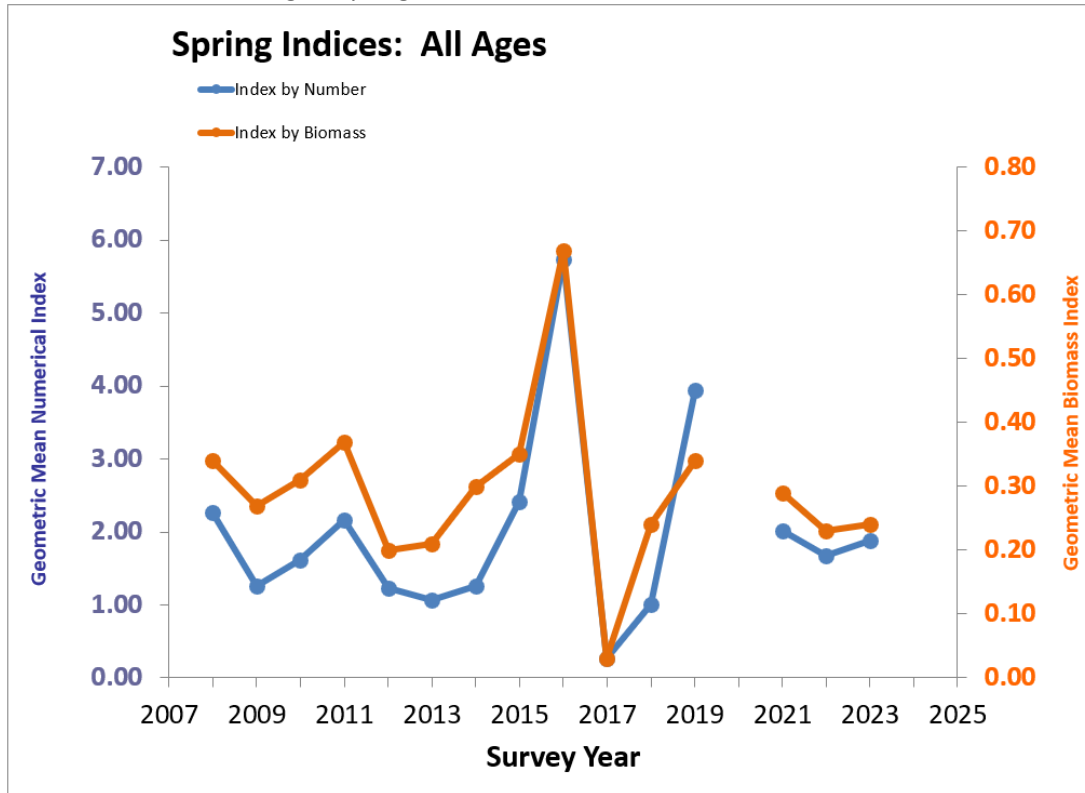
NEAMAP, American Shad all ages, Spring



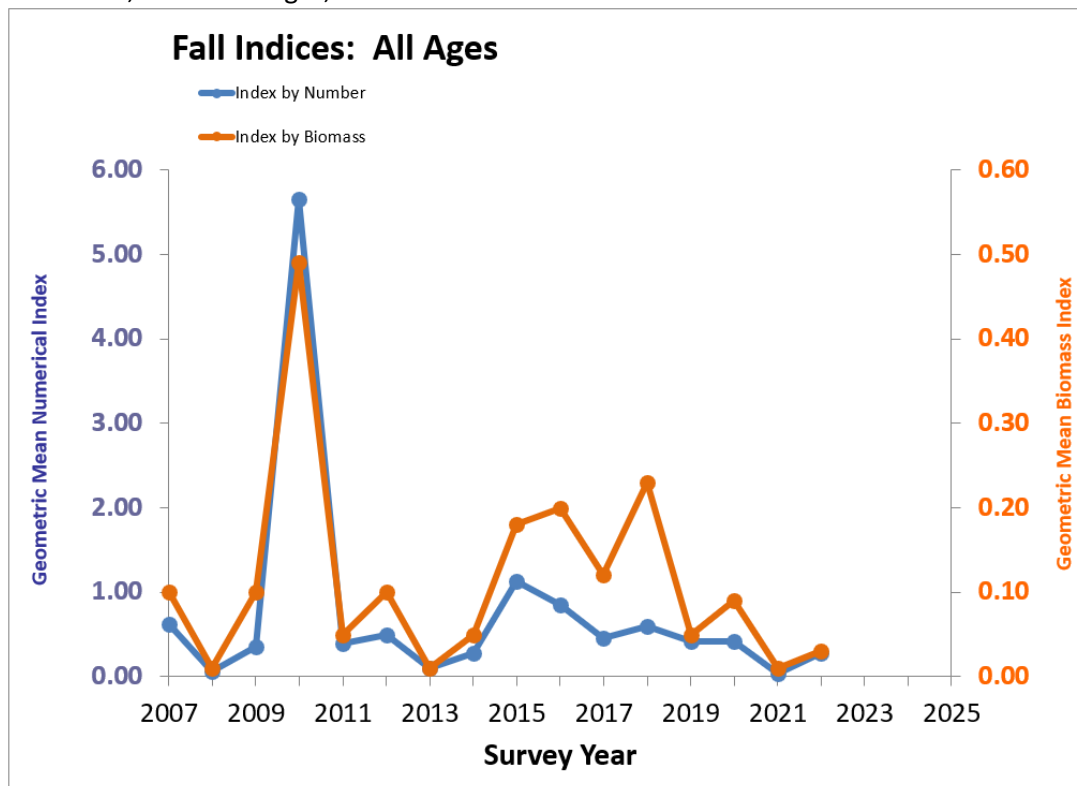
NEAMAP, Blueback Herring all ages, Spring



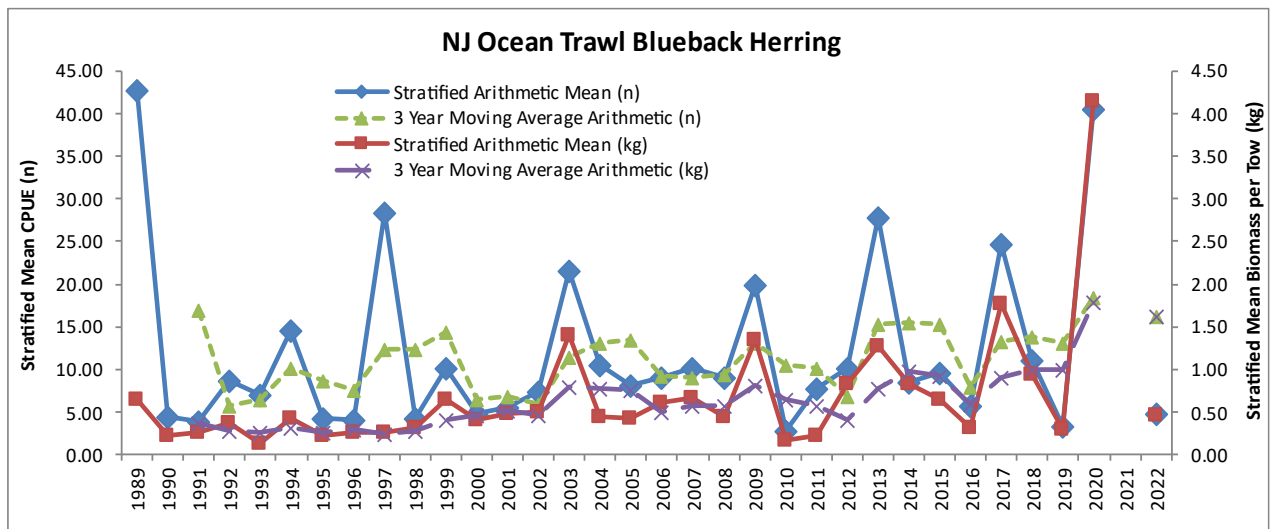
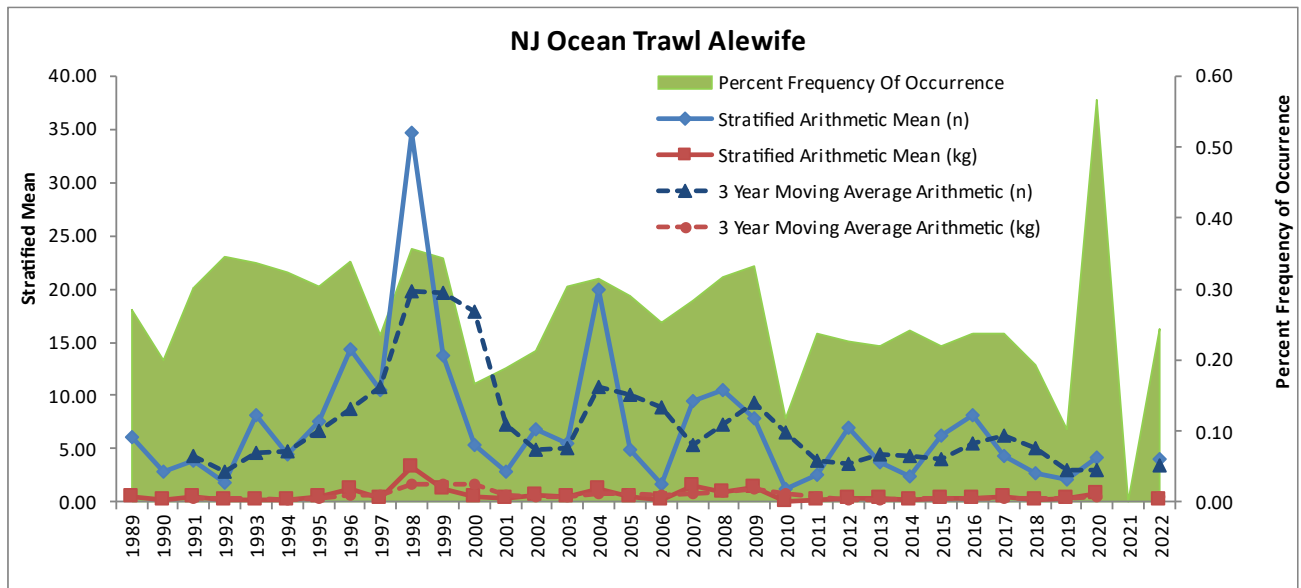
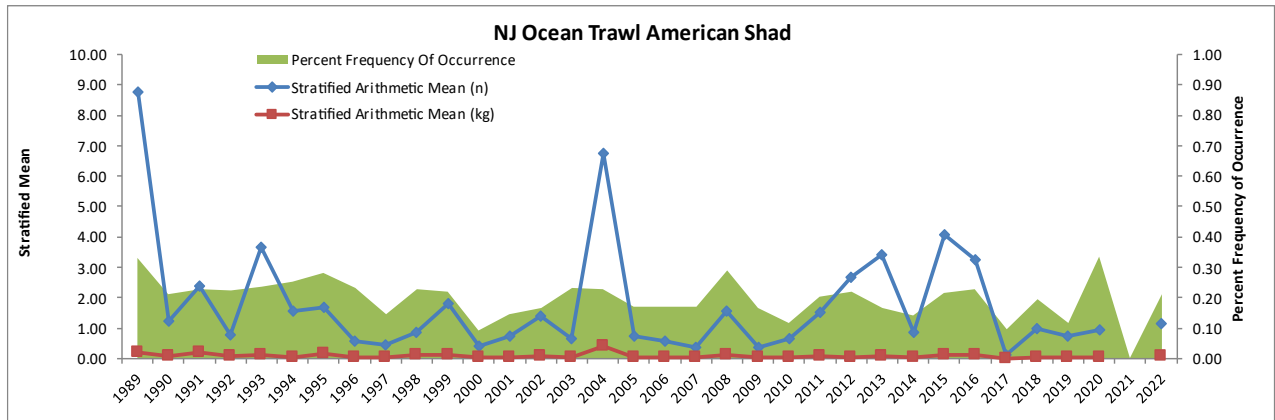
NEAMAP, Alewife all ages, Spring



NEAMAP, Alewife all ages, Fall



New Jersey Ocean Trawl – Through 2022 (see notes next page)



NJ Ocean Trawl Notes Highlights

No April cruise in 2019 (due to vessel/crew issues)

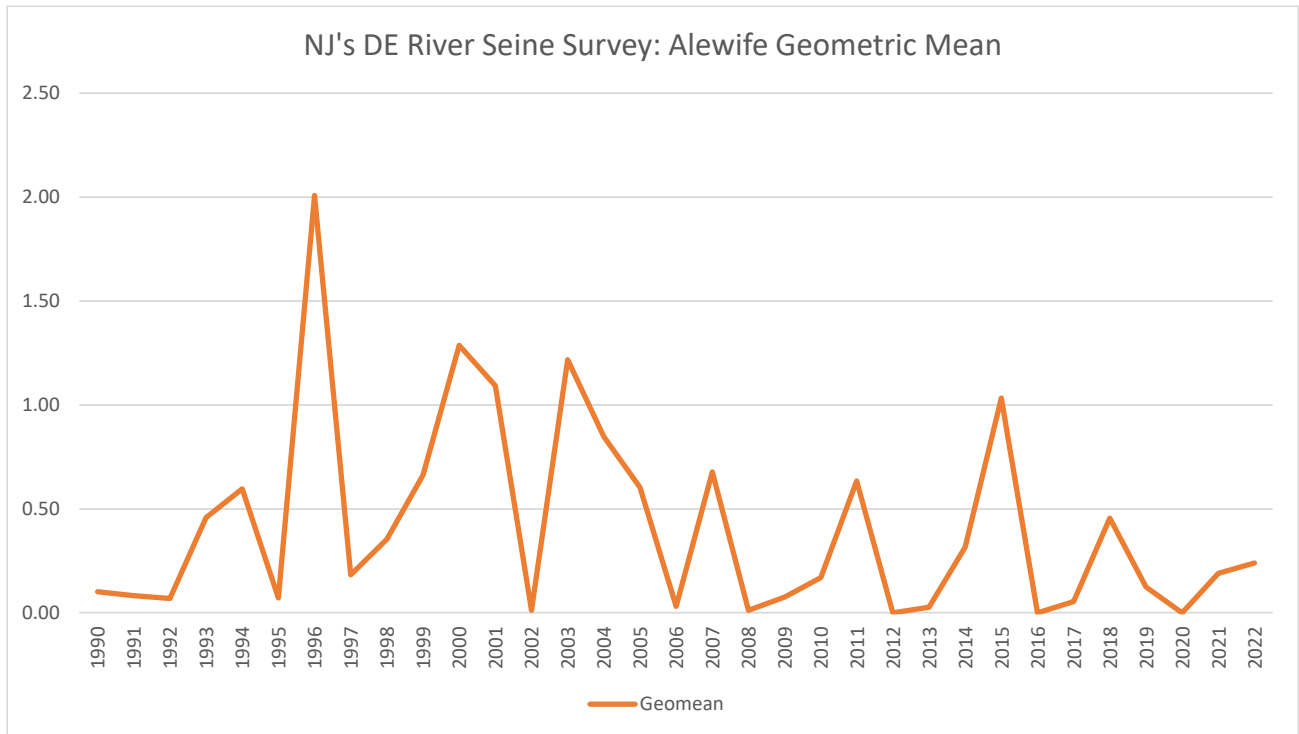
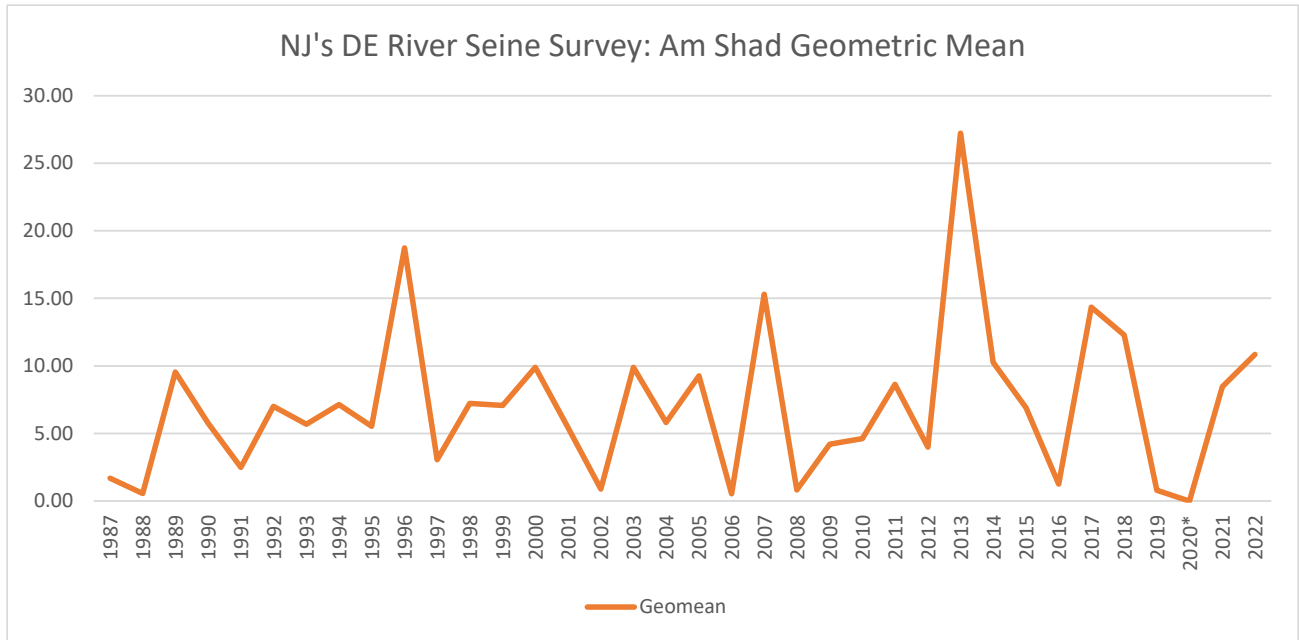
Only January cruise for 2020 (April to October cruises suspended due to COVID)

No sampling in 2021 (Again due to COVID)

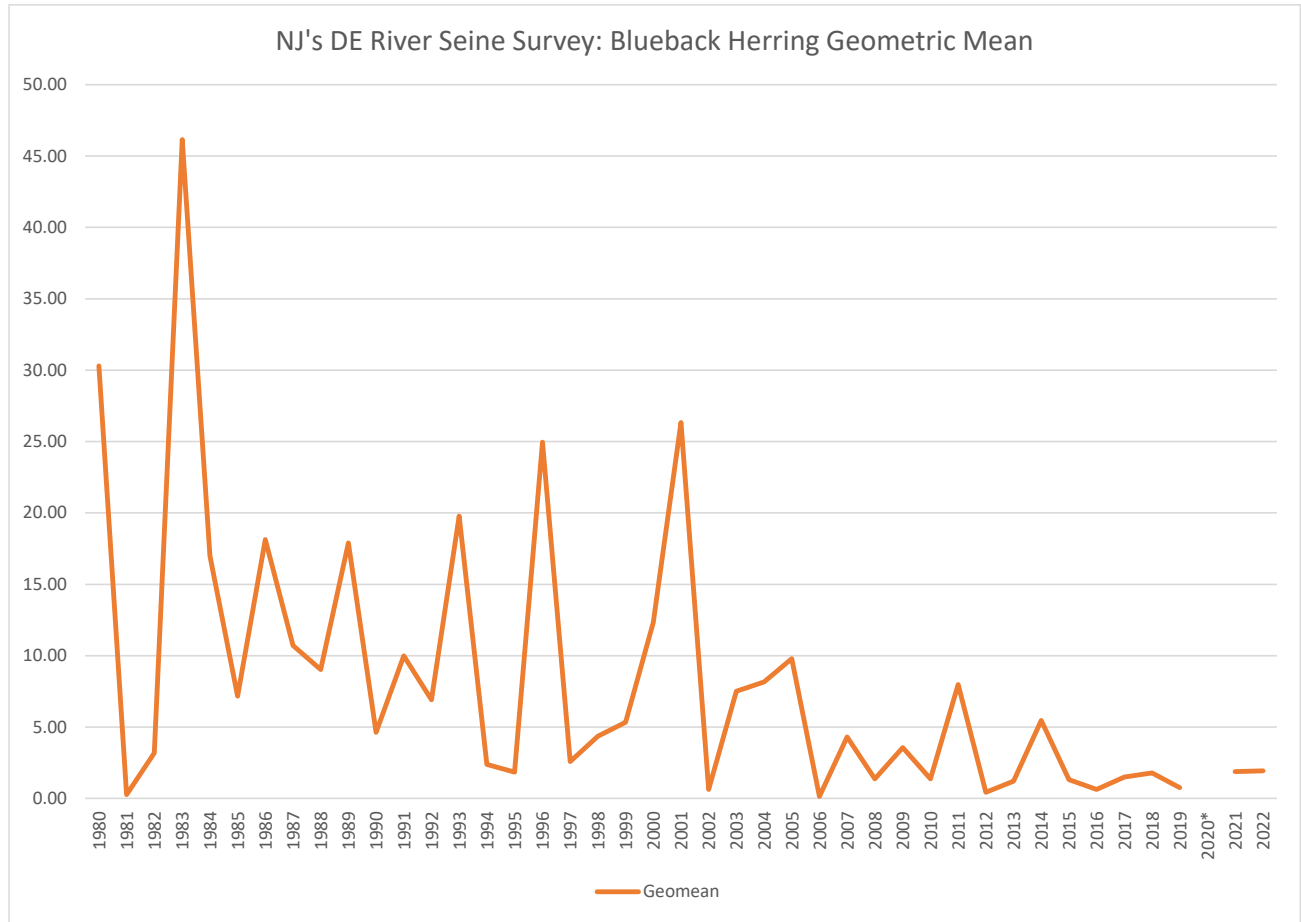
No January cruise for 2022 (Sampling resumed in April)

There was also a decrease in the number of samples in October 2022 from the normal 39 down to 30 samples due to budgeting issues.

NJ Upper Tidal Delaware River Seine (striped bass recruitment focus)

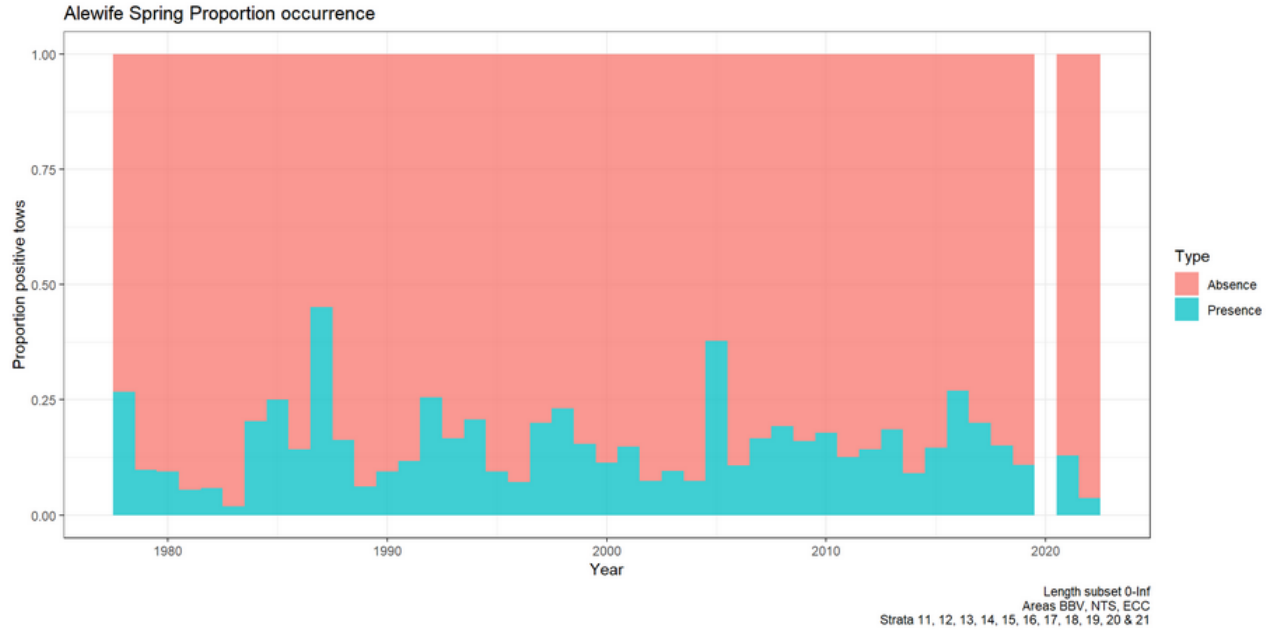


NJ Upper Tidal Delaware River Seine (striped bass recruitment focus)



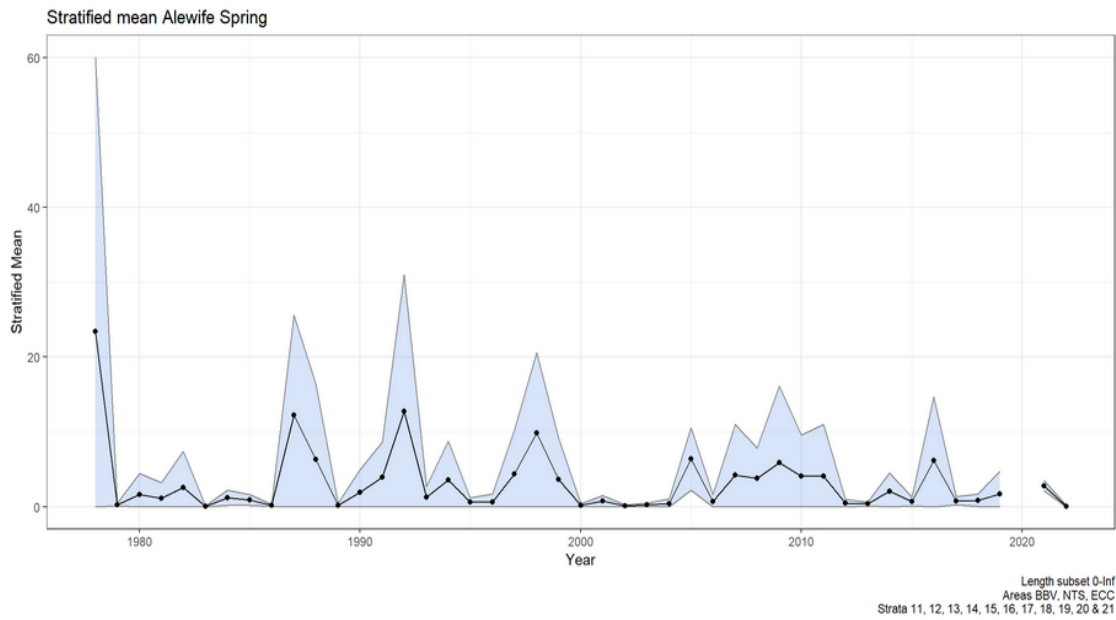
Massachusetts Inshore Survey – through 2022

Alewife Spring Regions 1-3 (B. Bay/V. Sound/N. Sound/East of CC) Percent occurrence by year



Stratified mean and 95% CI

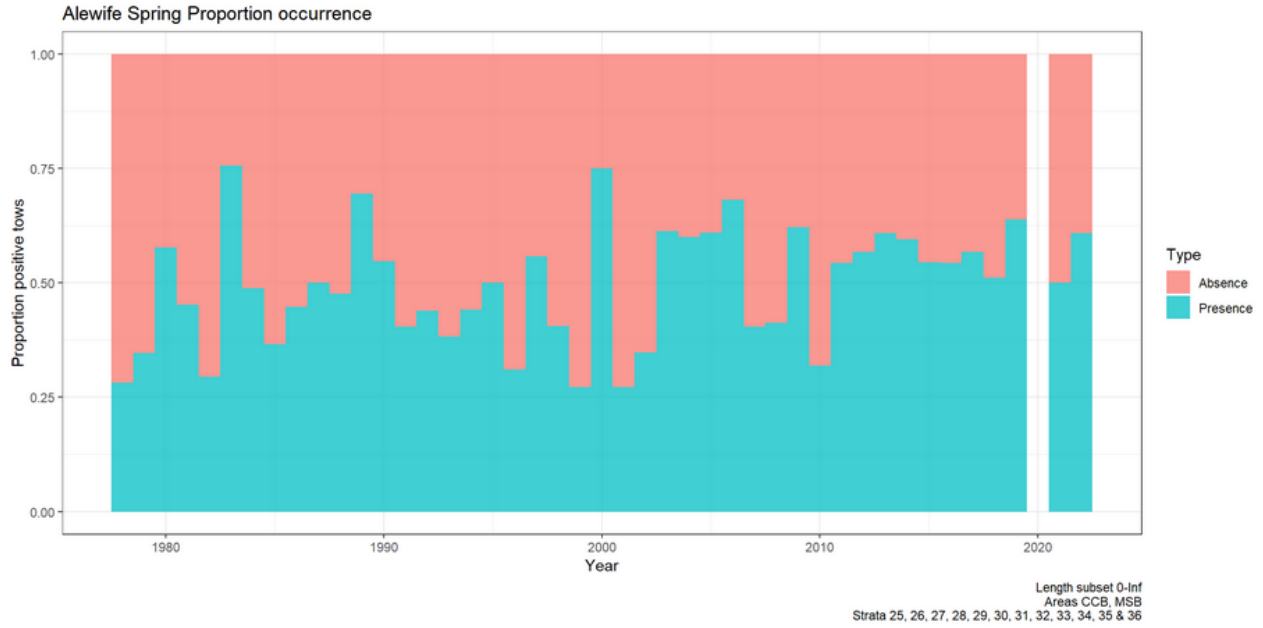
Numbers index



Massachusetts Inshore Survey – through 2022

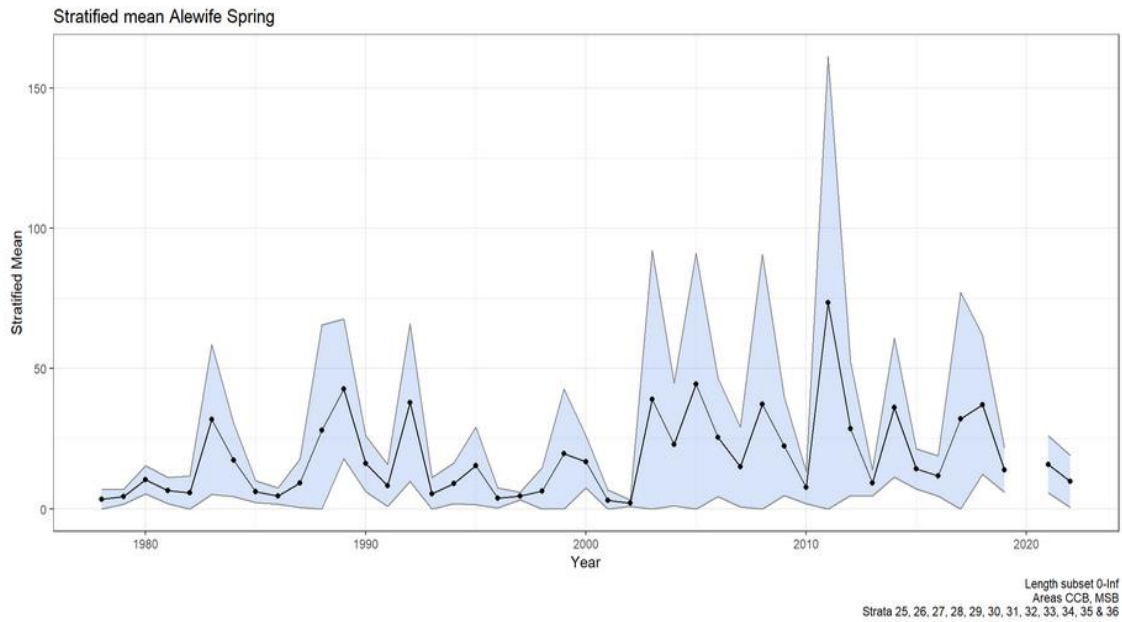
Alewife Spring Regions 4-5 (Cape Cod Bay/Mass Bay/Ipswich Bay)

Percent occurrence by year



Stratified mean and 95% CI

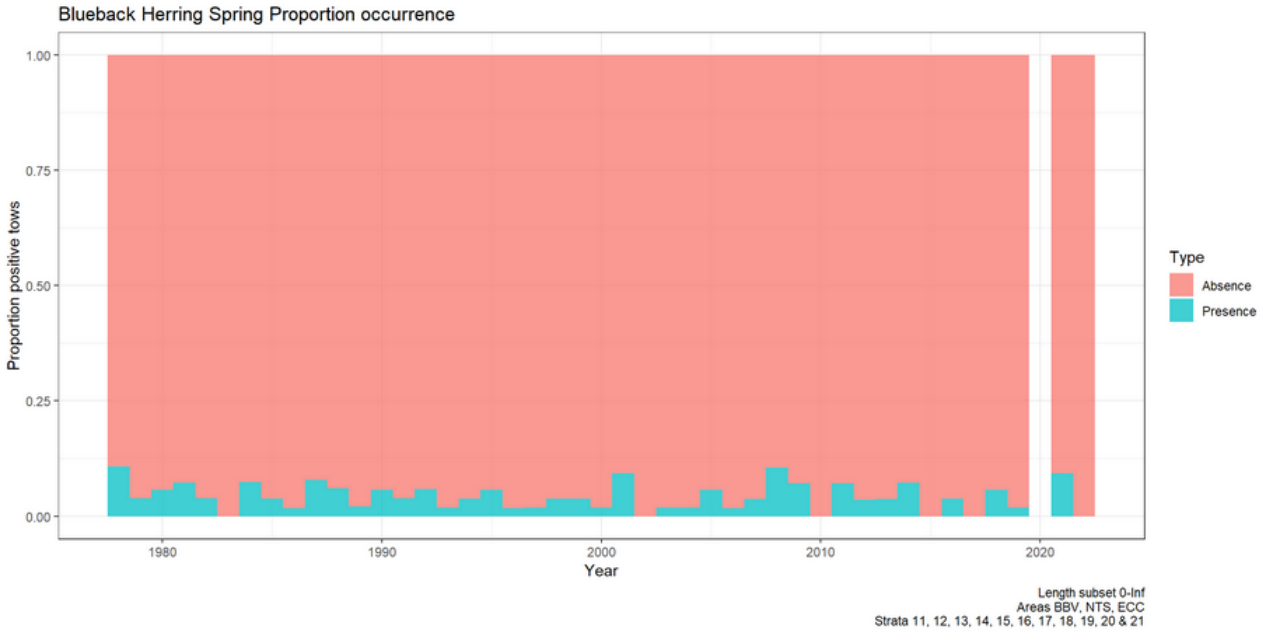
Numbers index



Massachusetts Inshore Survey – through 2022

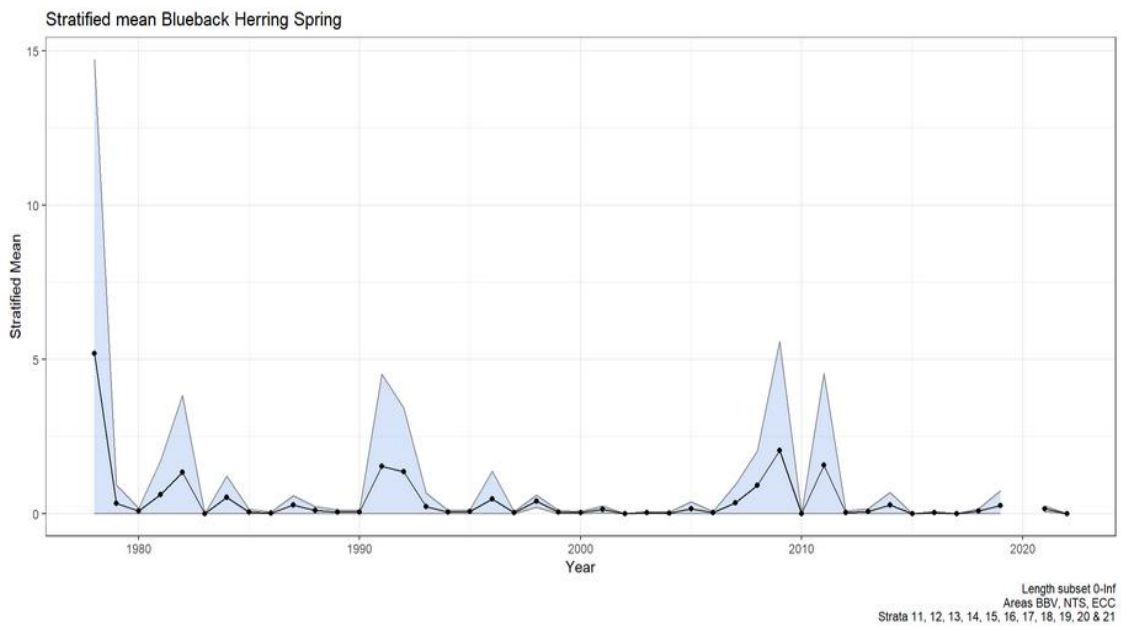
Blueback Spring Regions 1-3 (Cape Cod Bay/Mass Bay/Ipswich Bay)

Percent occurrence by year



Stratified mean and 95% CI

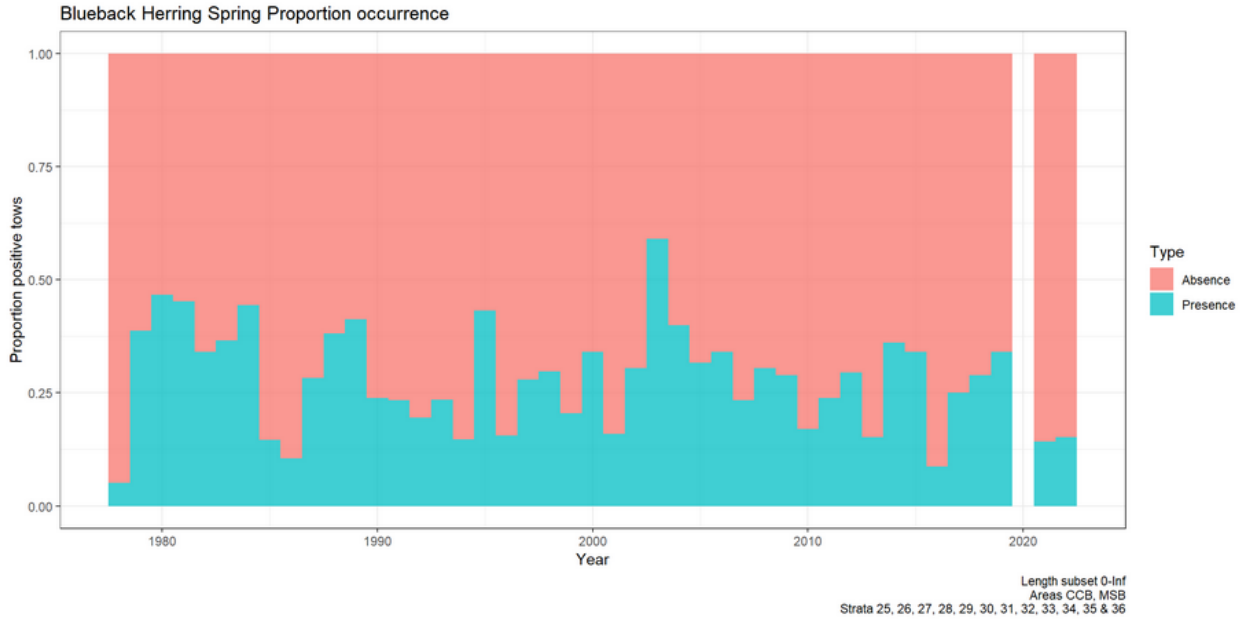
Numbers index



Massachusetts Inshore Survey – through 2022

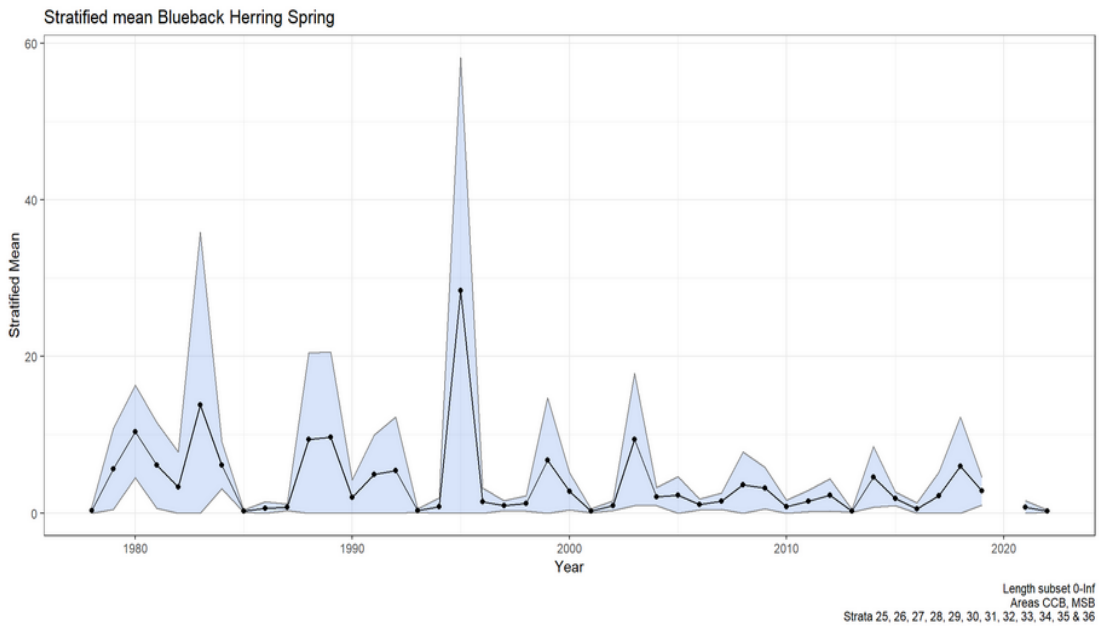
Blueback Spring Regions 4-5 (Cape Cod Bay/Mass Bay/Ipswich Bay)

Percent occurrence by year

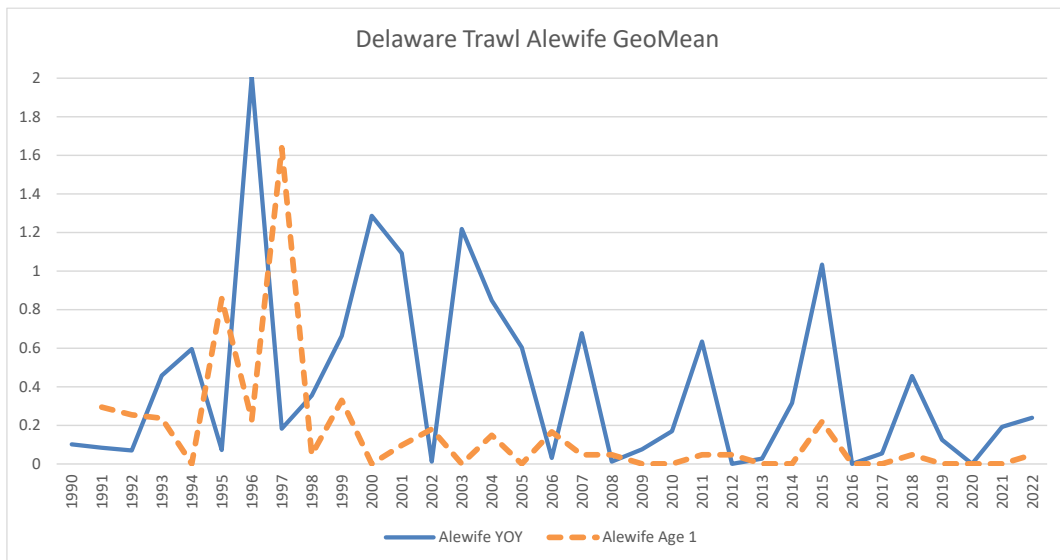
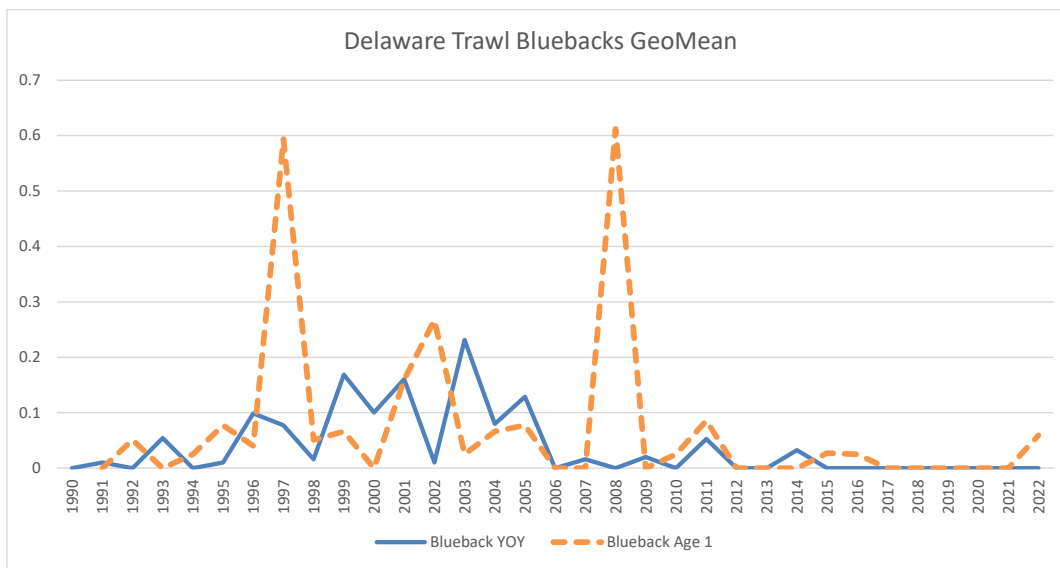
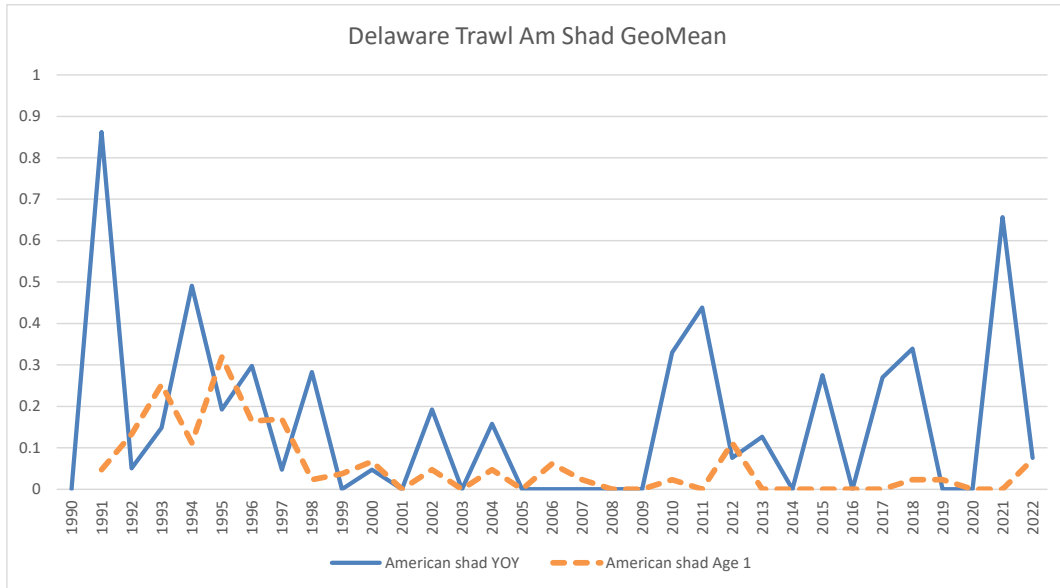


Stratified mean and 95% CI

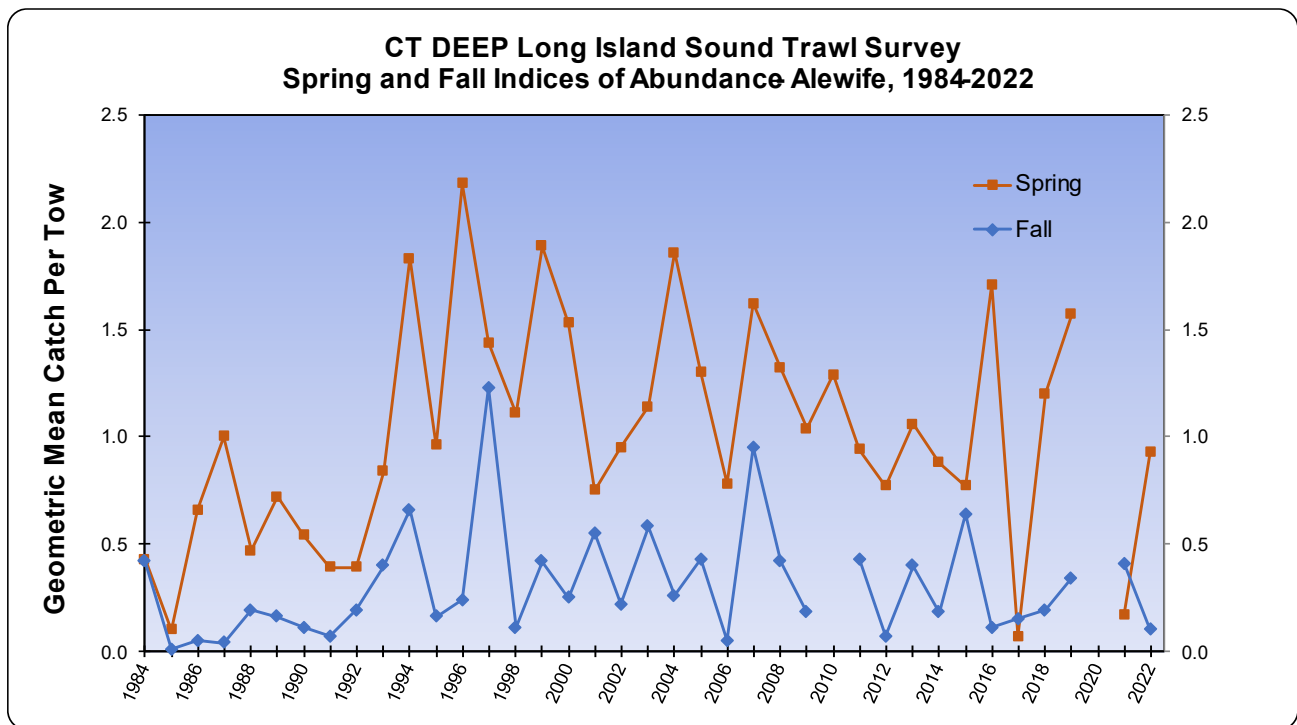
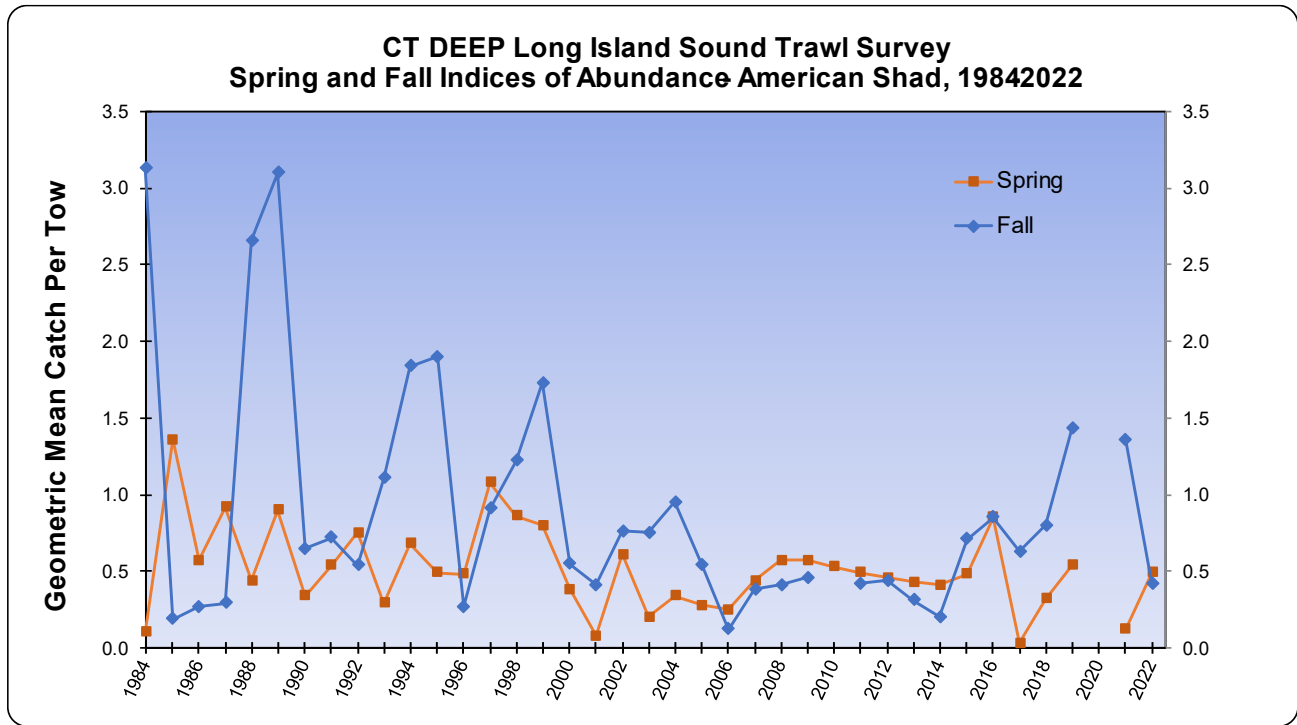
Numbers index



Delaware Trawl Survey – through 2022



CT - Long Island Sound Indices – through 2022



CT - Long Island Sound Indices – through 2022

