

Black Sea Bass 2017 Catch and Survey Information for Stock North of Cape Hatteras, NC

Report to the Mid-Atlantic Science and Statistical Committee

NOAA Fisheries Service
Northeast Fisheries Science Center
166 Water Street
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Introduction

The 2016 Black Sea Bass stock assessment (NEFSC 2017) was conducted for two geographic regions, split roughly north and south along the Hudson Canyon, then combined for determining final stock status. The information in this data update has been provided by region where possible. The increase in quota instituted following the assessment is reflected in both the commercial and recreational fisheries. The strong 2011 cohort identified in the assessment remains a dominant year class in the fisheries and surveys in the northern region. The 2015 cohort appears to be above average in both the northern and southern surveys, as well as fishery discards.

Commercial Landings

Black sea bass landings in 2017 were 1,761 mt, predominately from otter trawls and fish pots (Tables 1 and 2), an increase from 1,133 mt in 2016. The majority of landings were reported from the Mid-Atlantic statistical areas between New York and Delaware and were the highest in the time series beginning in 1982. Landings size composition differed between trawl and pot gears (Figure 1) and overall was dominated by the 2011 cohort (Figure 3).

Table 1. 2017 commercial Black Sea Bass landings (mt) by market category and region.

| | unclassified | jumbo | large | medium | small | Grand Total |
|-------------|--------------|-------|-------|--------|-------|-------------|
| North | 130.3 | 631.3 | 541.6 | 76.7 | 10.3 | 1,390.3 |
| South | 21.3 | 107.8 | 103.1 | 120.6 | 18.1 | 370.8 |
| Grand Total | 42.0 | 411.7 | 459.4 | 194.5 | 25.8 | 1,761.1 |

Table 2. 2017 commercial Black Sea Bass landings (mt) by gear type, and region.

| | Handline | Trawl | Pot | Other | Total |
|---------|----------|--------|-------|-------|--------|
| North | 195.1 | 948.1 | 194.8 | 52.3 | 1390.3 |
| South | 17.2 | 152.7 | 193.3 | 7.6 | 370.8 |
| Total | 212.3 | 1100.8 | 388.1 | 59.9 | 1761.1 |
| North % | 11.1% | 53.8% | 11.1% | 3.0% | |
| South % | 1.0% | 8.7% | 11.0% | 0.4% | |
| | 12.1% | 62.5% | 22.0% | 3.4% | |

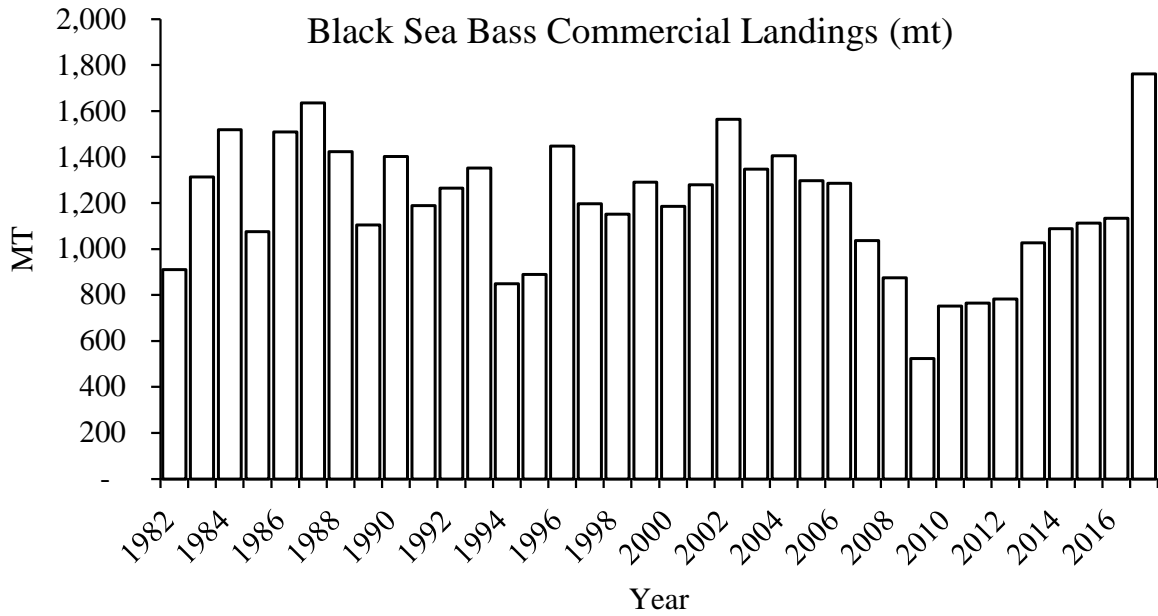


Figure 1. Total commercial landings (mt) for Black Sea Bass stock north of Cape Hatteras, NC, 1982-2017.

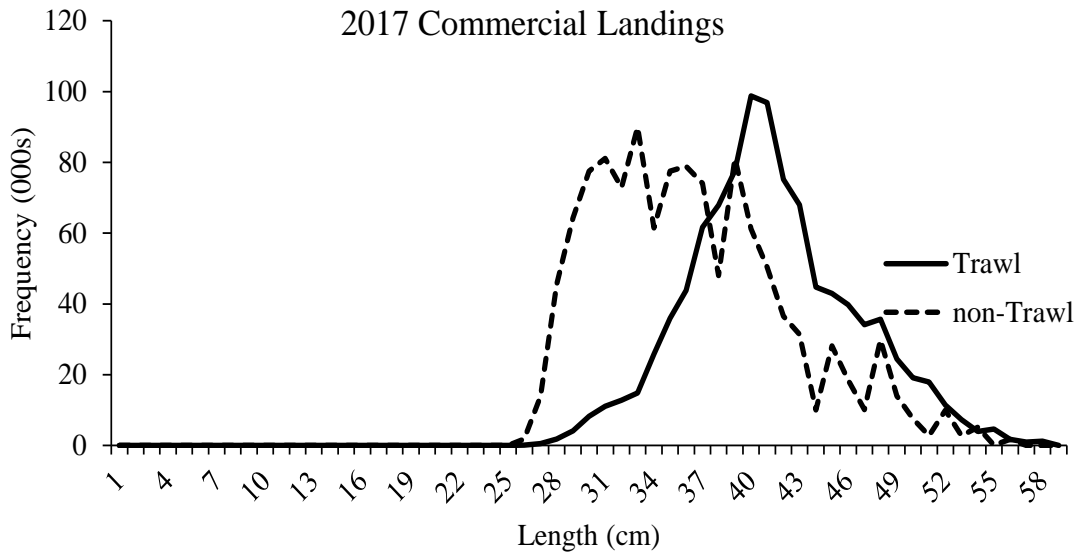


Figure 2. Length (cm) frequency of 2017 Black Sea Bass commercial landings by gear category.

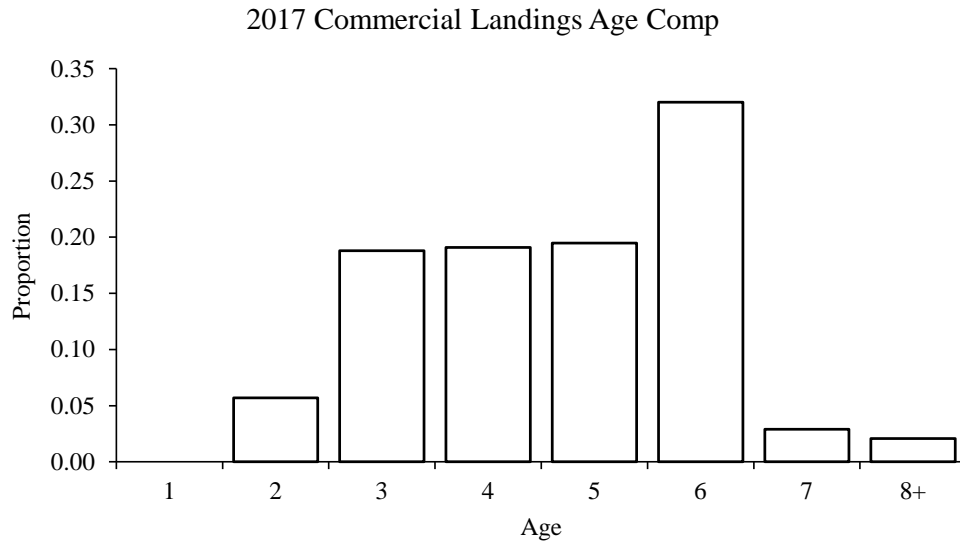


Figure 3. Age composition of 2017 commercial Black Sea Bass landings.

Commercial Discards

Commercial discards from otter trawls were estimated from Northeast Fisheries Observer trips discard to kept all ratios (Table 3). All other gears were estimated from discarded sea bass recorded in Vessel Trip Reports by gear and are likely underestimates. Observer coverage of pot fisheries in the southern region has increased in 2017, allowing more accurate estimates of discards. Initial results suggest that dead discards from pot fisheries are on the order of 709 mt rather than 2.1 mt. Discard mortality rates same as used in previous assessment with 100% from trawls and gillnets and 15% for pots and hand lines. The commercial discards were dominated by the 2015 cohort in both the northern and southern regions (Figure 4).

Table 3. Commercial Black Sea Bass discards (mt) by gear and region from 2017.

| 2017 | Source | NEGEAR | MT |
|-------|--------|-------------|-------|
| NORTH | OBS | Otter trawl | 224.1 |
| | VTR | Handline | 5.2 |
| | VTR | Fish pots | 7.0 |
| | VTR | Other pots | 1.4 |
| SOUTH | OBS | Otter trawl | 560.1 |
| | OBS | Gillnet | 5.8 |
| | VTR | Handline | 0.3 |
| | VTR | Fish pots | 1.7 |
| | VTR | Other pots | 0.3 |
| TOTAL | | | 805.9 |

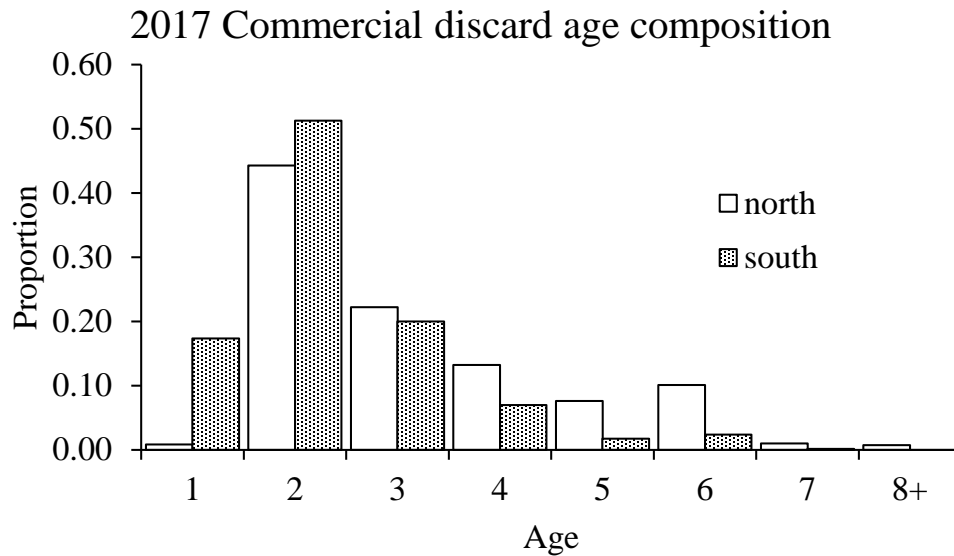


Figure 4. Age composition of 2017 commercial Black Sea Bass discards.

Recreational Fishery

Recreational landings in 2017 for Maine through Cape Hatteras, NC were 2.206 million fish equal to 2,042 mt. Total discards (B2 only) were 12.862 million fish. Assuming a discard mortality rate of 15%, discard losses equal 1.929 million fish and 576 mt. Black sea bass catch from vessel trip reports for January-February party/charter vessels was negligible. Recreational catch split into North and South regions as used in the assessment show the majority of the landings and discards occurred in the north (NY and north as a proxy for north of Hudson Canyon). Length compositions differed by region due to differences in minimum size regulations (Figures 5 and 7). The 2011 cohort was only dominant in the landings within the northern region (Figure 6) whereas the 2015 cohort dominated discards in both regions (Figure 8).

Table 4. 2017 Recreational Black Sea Bass catch (number in 000s and MT) by year. A mortality rate of 15% applied to live discards (B2).

| | Number (000s) | MT |
|---------------|----------------|----------------|
| North AB1 | 1,206.2 | 1,411.2 |
| North B2*0.15 | 1,203.4 | 410.3 |
| South AB1 | 999.7 | 631.0 |
| South B2*0.15 | 725.8 | 165.7 |
| Total | 4,135.1 | 2,618.2 |

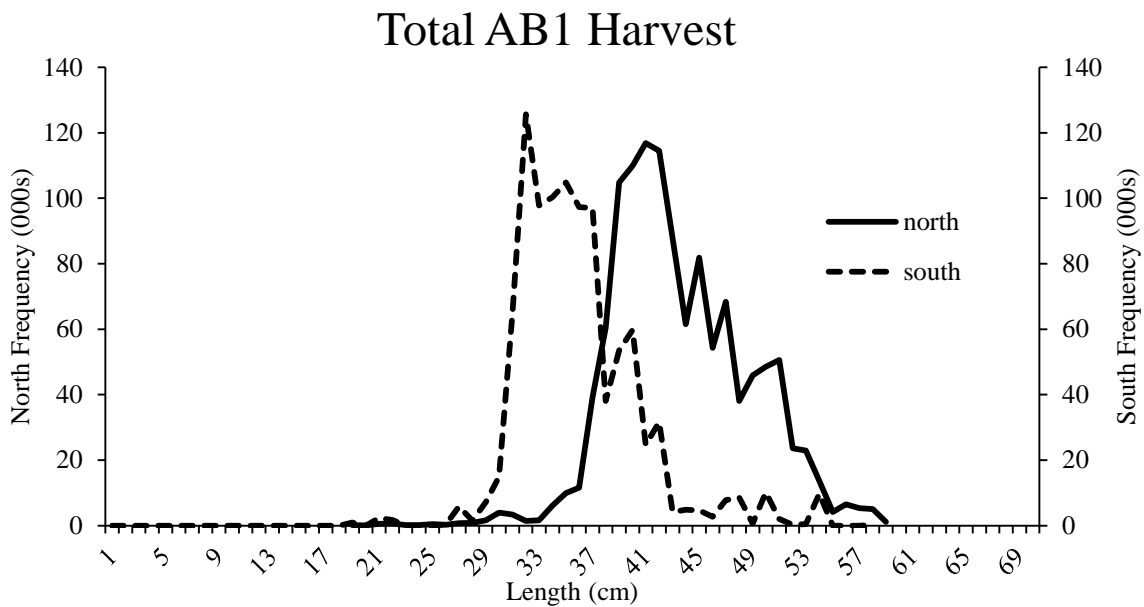


Figure 5. Length frequency (TL cm) of 2017 Black Sea Bass recreational harvest (AB1), by region (Cape Hatteras, NC –NJ, NY-ME). Note that minimum sizes south of New Jersey are 12” (30.5 cm).

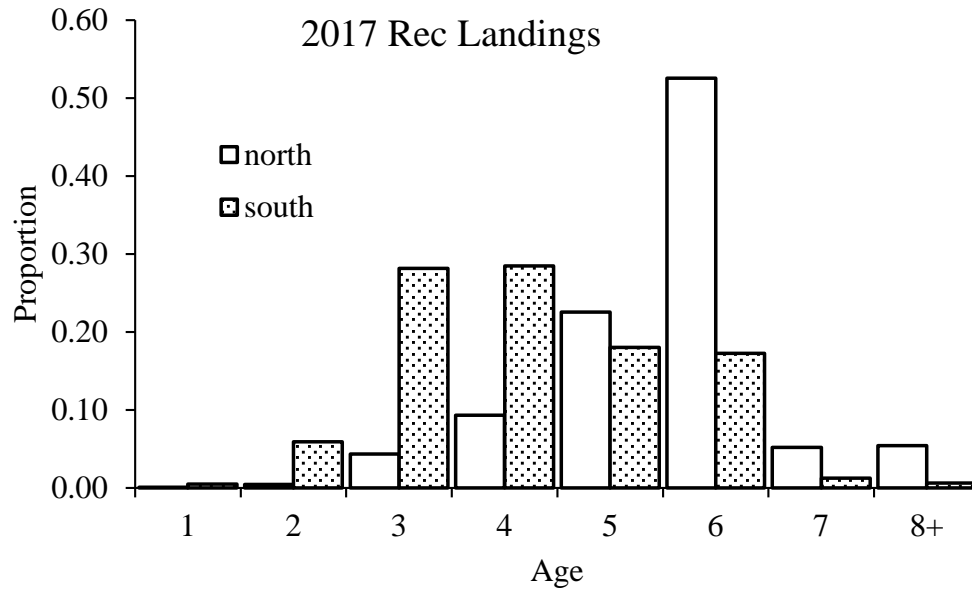


Figure 6 . Age composition of Black Sea Bass recreational landings (AB1) by region.

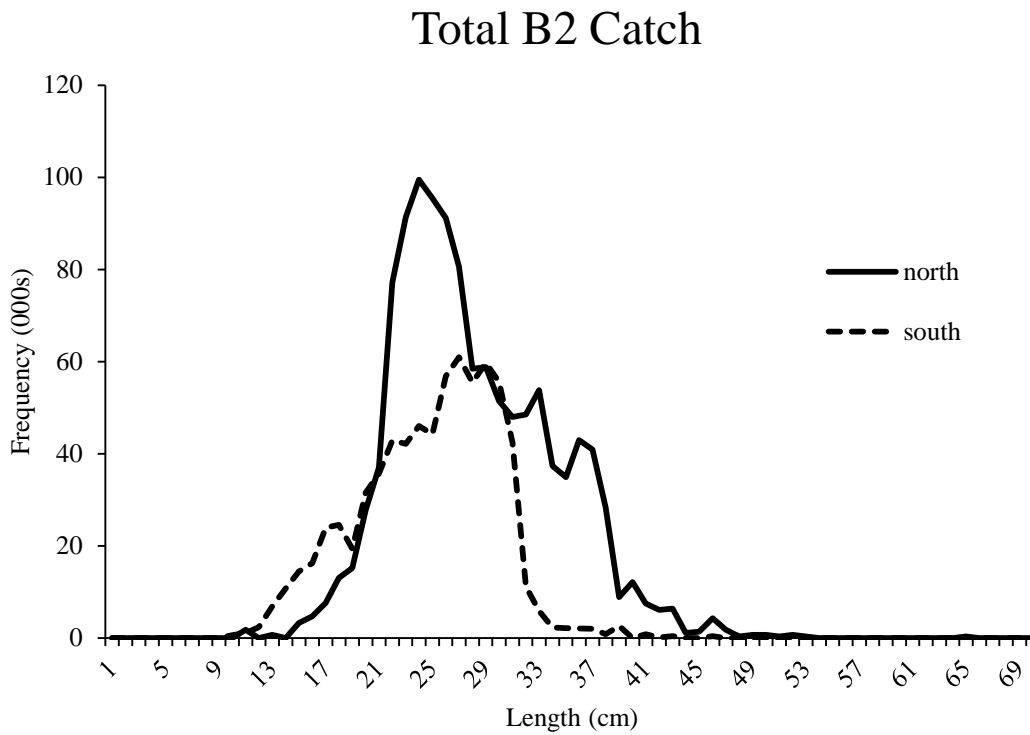


Figure 7. Length frequency (TL cm) of 2017 Black Sea Bass recreational discards (B2*15%), by region (Cape Hatteras, NC-NJ, NY-ME).

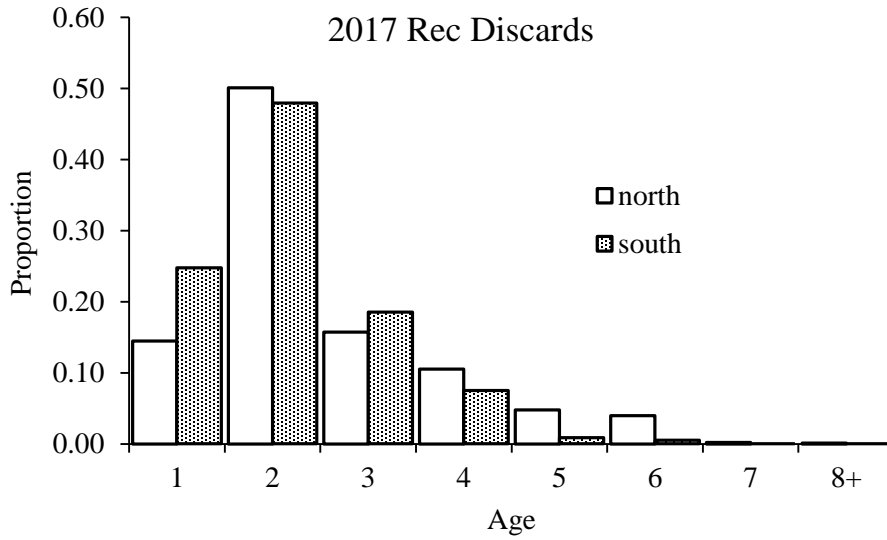


Figure 8. Age composition of Black Sea Bass recreational discards (B2) by region.

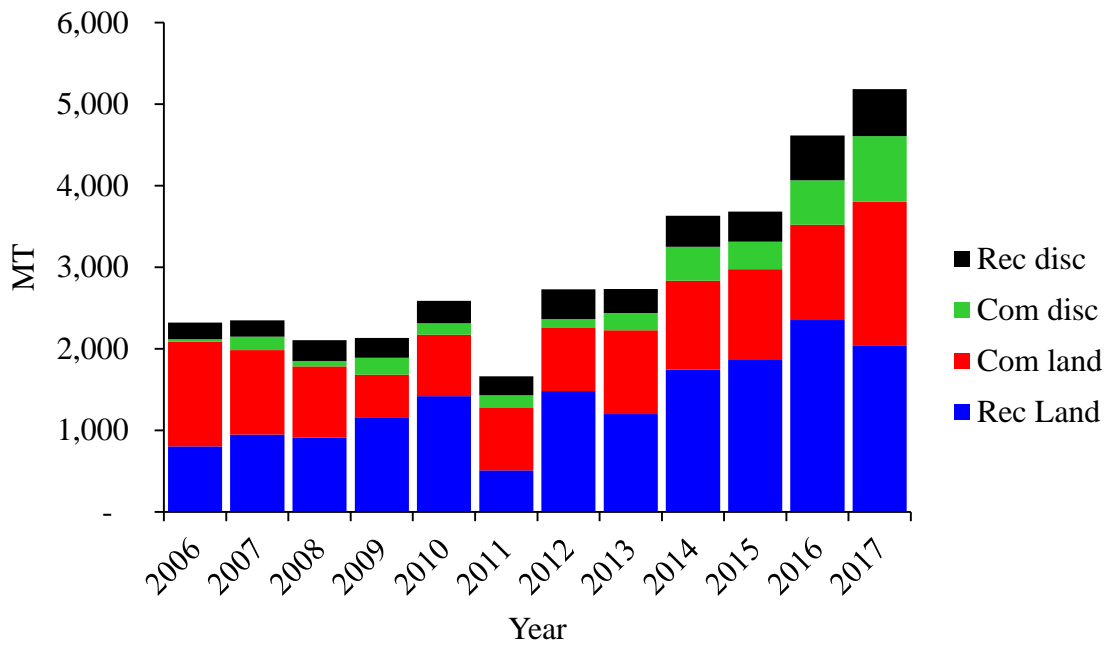


Figure 9. Black Sea Bass catch, Maine to Cape Hatteras, North Carolina 2006-2017.

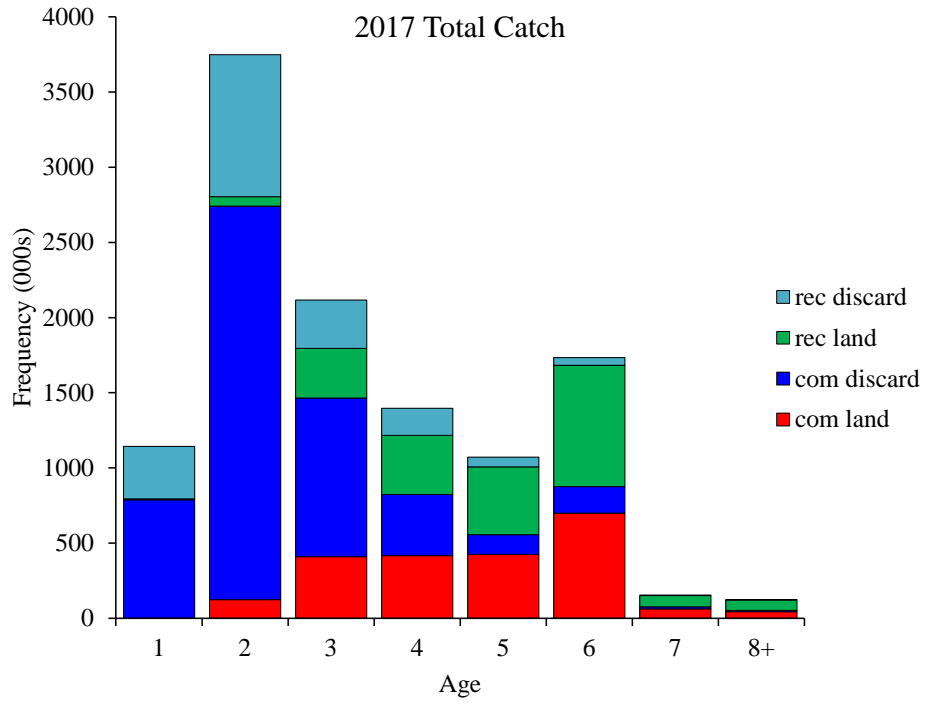


Figure 10. Age composition of Black Sea Bass catch, Maine to Cape Hatteras, North Carolina Black Sea Bass 2017.

Table 5. Summary of Black Sea Bass total catch (mt), 2006-2017.

| Year | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Min ¹ | Max ¹ |
|-------------------------------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|------------------|------------------|
| Commercial landings | 875 | 523 | 751 | 765 | 782 | 1,027 | 1,088 | 1,113 | 1,169 | 1,761 | 523 | 1,564 |
| Commercial discard | 66 | 209 | 142 | 157 | 103 | 211 | 416 | 335 | 546 | 806 | 25 | 806 |
| Recreational landings | 909 | 1,159 | 1,421 | 507 | 1,480 | 1,198 | 1,745 | 1,864 | 2,352 | 2,042 | 473 | 2,352 |
| Recreational discards | 257 | 241 | 273 | 232 | 364 | 296 | 382 | 371 | 551 | 576 | 46 | 771 |
| Catch used in assessment | 2,107 | 2,132 | 2,587 | 1,662 | 2,729 | 2,733 | 3,631 | 3,683 | - | - | 1,662 | 4,346 |
| Spawning stock biomass | 5,594 | 6,460 | 8,215 | 8,258 | 9,878 | 12,833 | 17,158 | 16,552 | - | - | 2,485 | 17,158 |
| Recruitment (age 1, millions) | 27.5 | 22.4 | 22.6 | 22.1 | 68.9 | 27.6 | 17.8 | 24.9 | - | - | 11.9 | 68.9 |
| F full ² | 0.57 | 0.50 | 0.45 | 0.30 | 0.35 | 0.33 | 0.29 | 0.24 | - | - | 0.24 | 1.34 |

¹ Years 1989-2017

² F on fully selected ages 4-7. Note that table values are not retro adjusted.

Survey Indices

Survey data is presented for the northern and southern regions as defined in the SARC62 black sea bass stock assessment (<https://www.nefsc.noaa.gov/publications/crd/crd1703/>). The strong 2011 cohort which was dominant in the northern region continues to be a large component of surveys north of Hudson Canyon. The abundance indices from the NEFSC 2018 spring survey shows a low index of abundance in the north and above average indices in the southern region. A shift in spring distribution relative to the demarcation line between north and south resulting from changes in survey timing likely influenced the 2018 index. The 2015 cohort appears to be above average to strong in many of the state surveys, (with the exception of NJ and VA) as well as the preliminary 2018 NEFSC survey.

NEFSC Survey – Northern Region

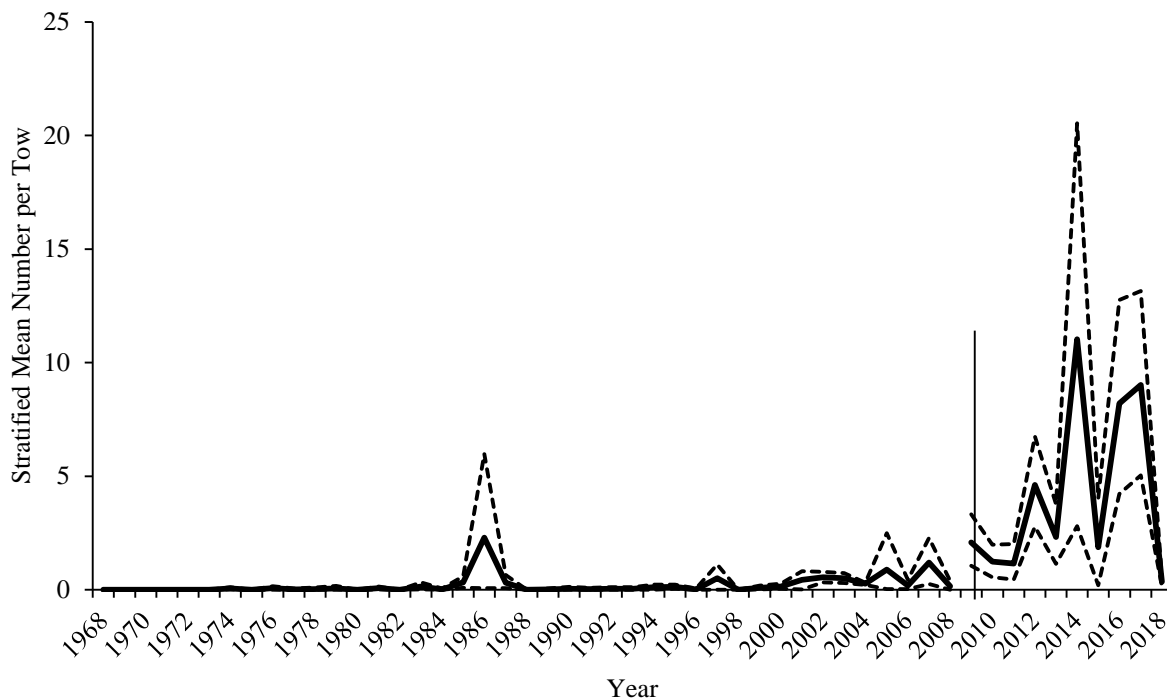


Figure 11. NEFSC spring north offshore stratified mean number per tow (\pm 90% CI) of Black Sea Bass, 1968-2018. Vertical line identifies split between the *Albatross* and *Bigelow* survey series. *Bigelow* data presented as separate series for 2009-2018.

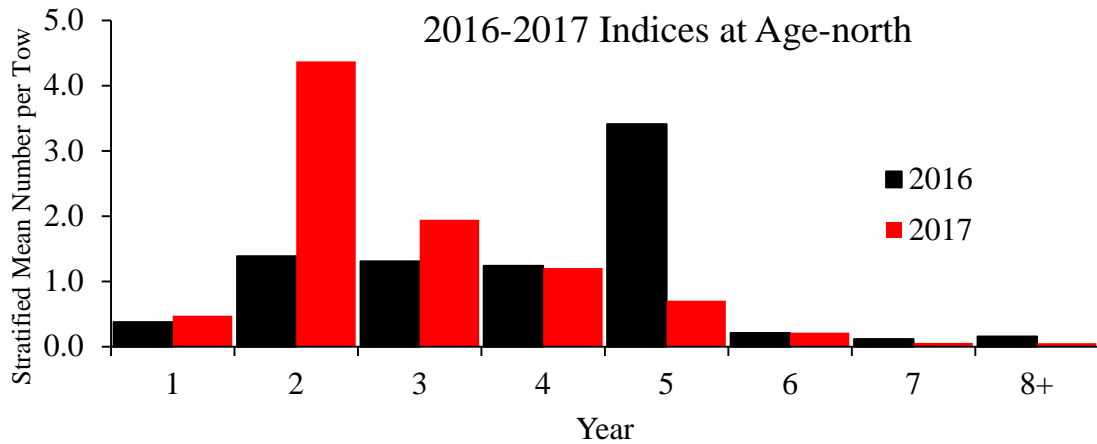


Figure 12. NEFSC Black Sea Bass spring indices at age from northern region.

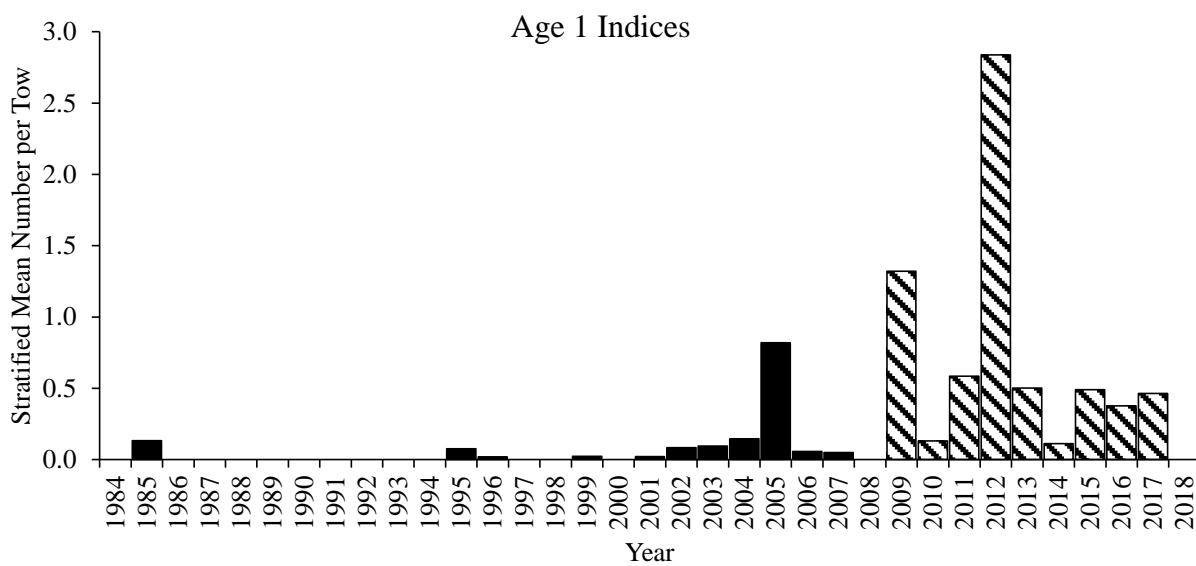


Figure 13. Indices of Black Sea Bass recruitment (mean #/tow, age 1) in northern region from NEFSC spring offshore survey, 1984-2018. Bigelow indices from 2009-2018 not calibrated to Albatross units. The 2018 index (mean number per tow at age 1 = 0) is approximated from length distribution.

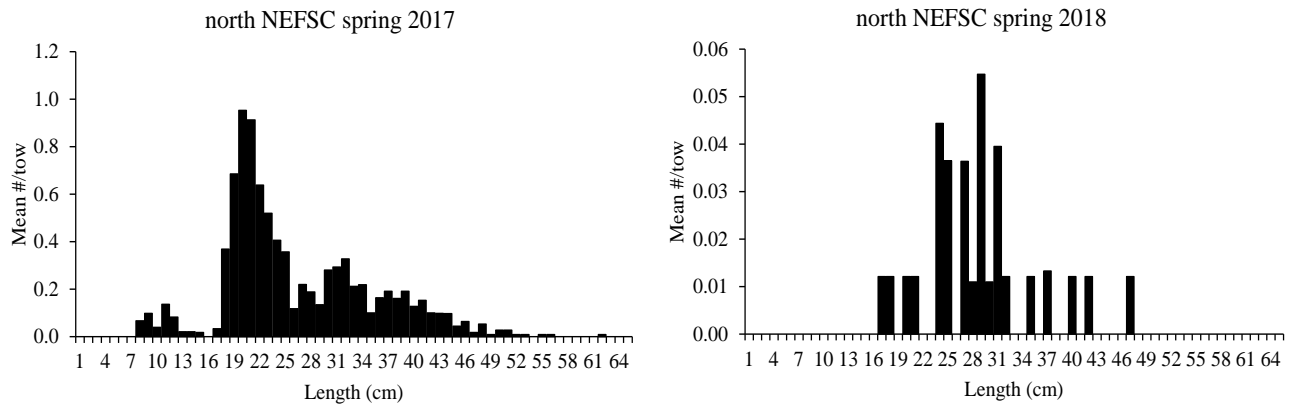


Figure 14. Length composition of NEFSC spring survey in northern region, 2017 and 2018.

NEFSC Survey – Southern Region

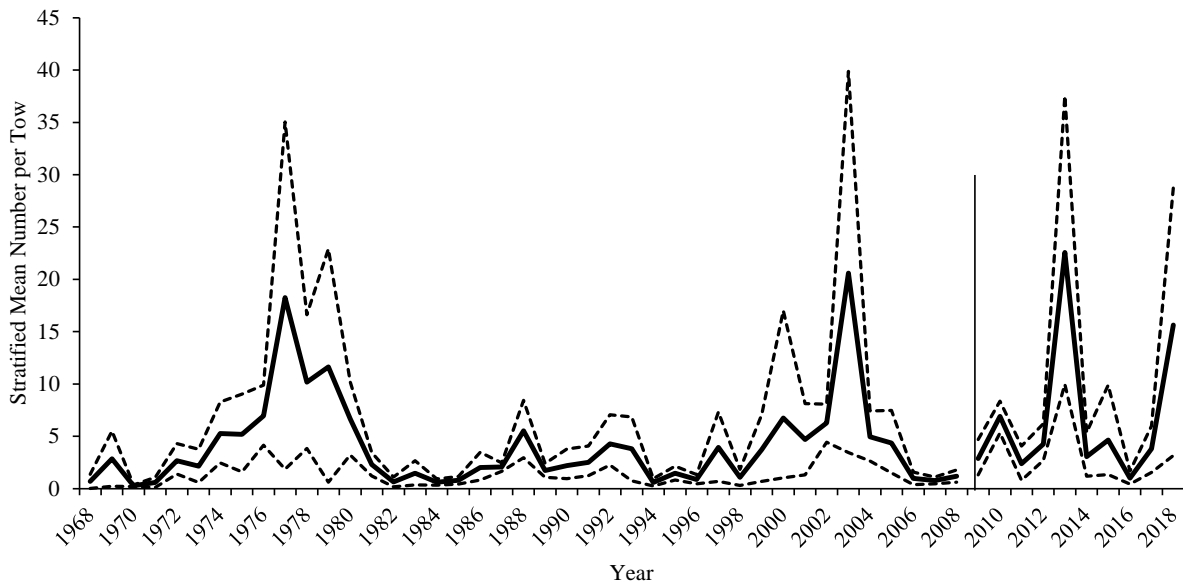


Figure 15. NEFSC spring south offshore stratified mean number per tow (\pm 90% CI) of Black Sea Bass, 1968-2018. Vertical line identifies split between the Albatross and Bigelow survey series. Bigelow data presented as separate series for 2009-2018.

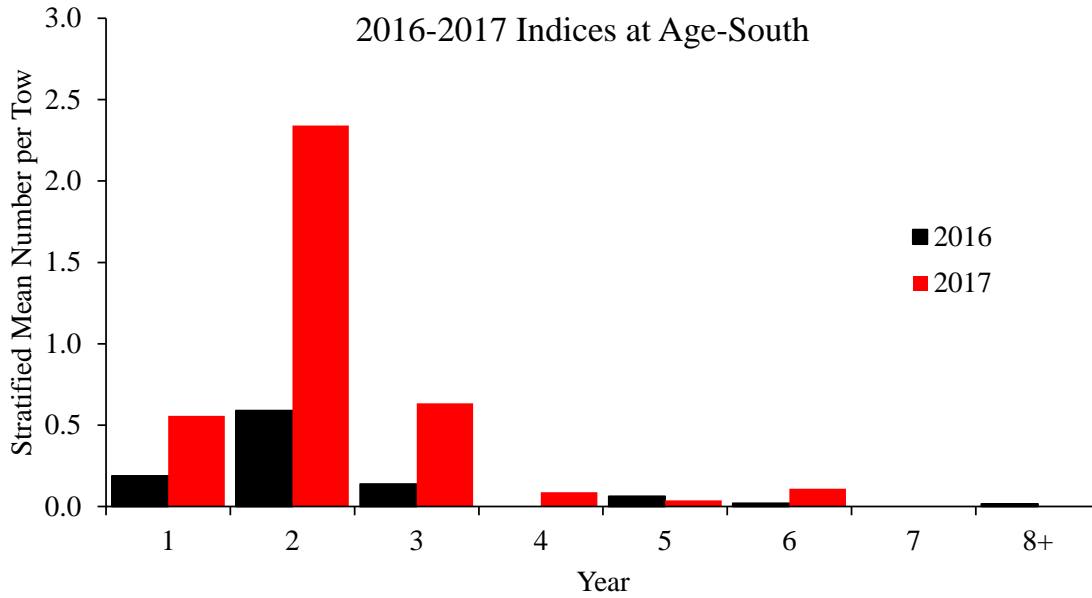


Figure 16. NEFSC spring mean number per tow at age from southern region for 2016 and 2017.

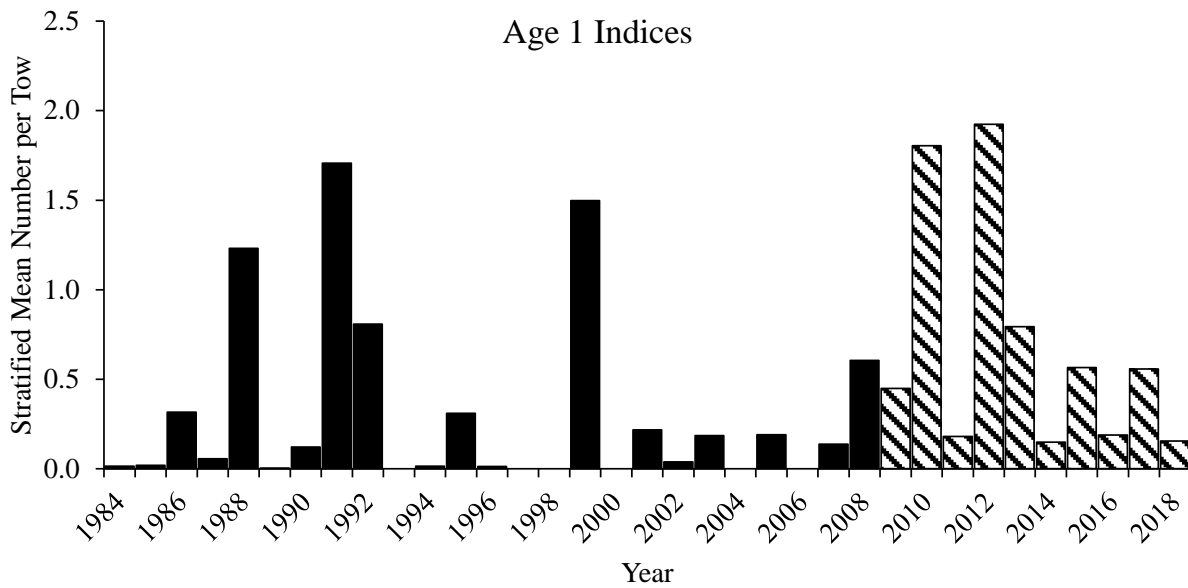


Figure 17. Indices of Black Sea Bass recruitment (mean #/tow, age 1) in southern region from NEFSC spring offshore survey, 1984-2017. Bigelow indices from 2009-2018 not calibrated to Albatross units. 2018 index approximated from length distribution.

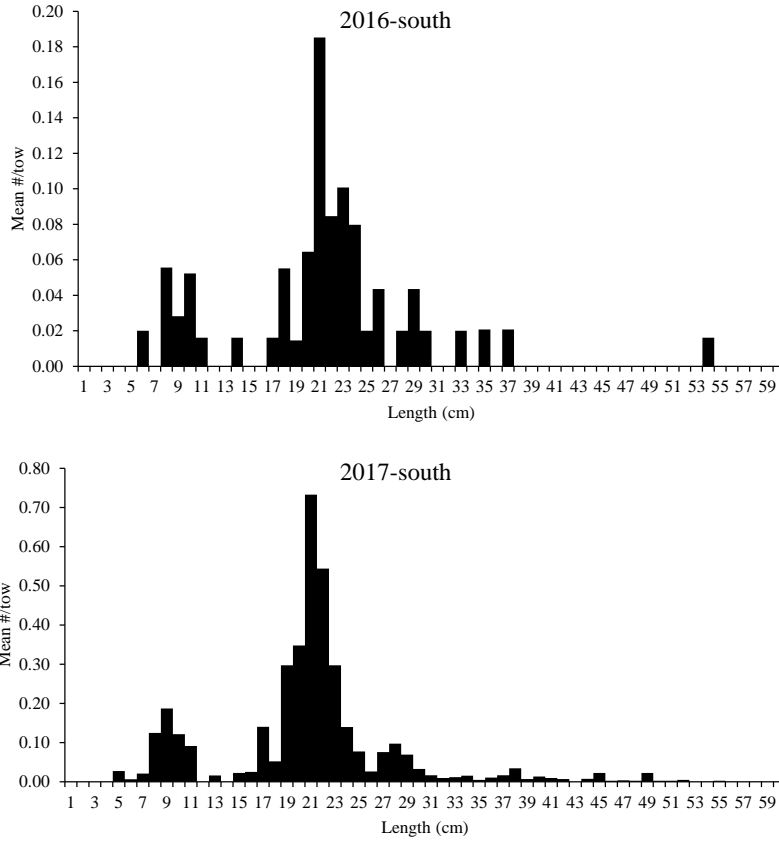


Figure 18. Length composition of NEFSC spring survey in southern region, 2016 and 2017.

NEAMAP Survey-Northern Region

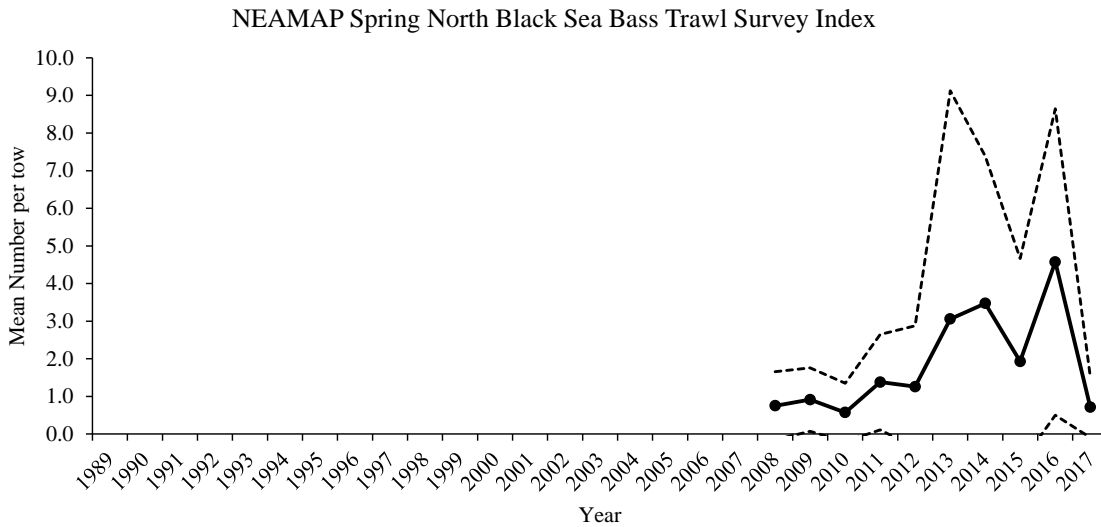


Figure 19. NEAMAP spring Northern stratified mean number per tow (\pm 90% CI) of Black Sea Bass, 2008-2017.

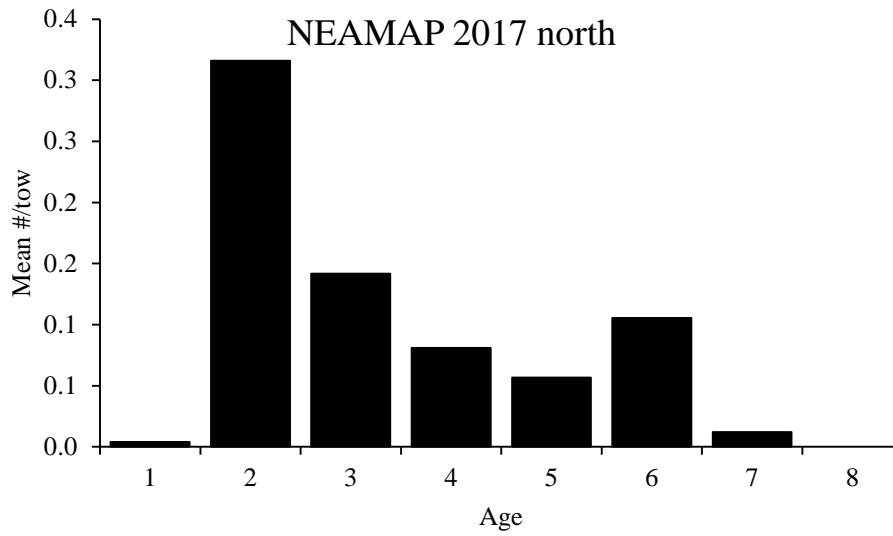


Figure 20. NEAMAP 2017 spring Northern stratified mean number per tow at age of Black Sea Bass.

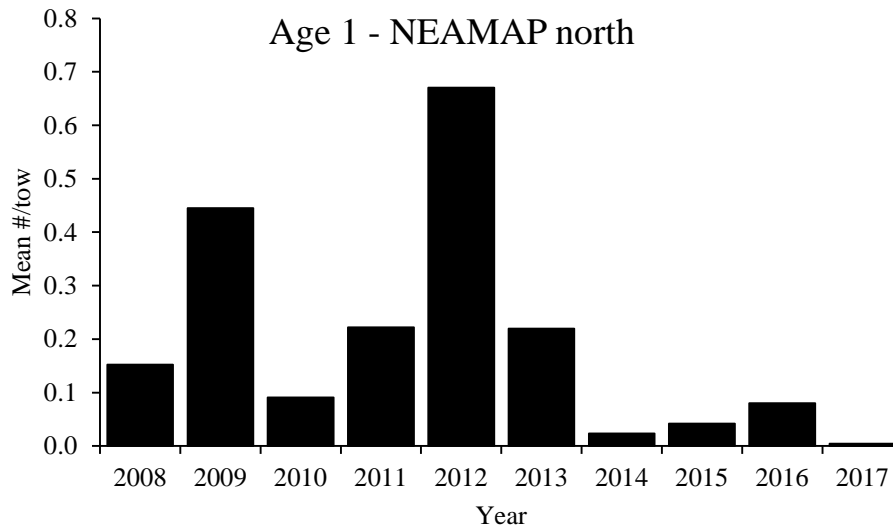


Figure 21. NEAMAP spring Northern stratified mean number per tow at age one of Black Sea Bass, 2008-2017.

NEAMAP Survey-Southern Region

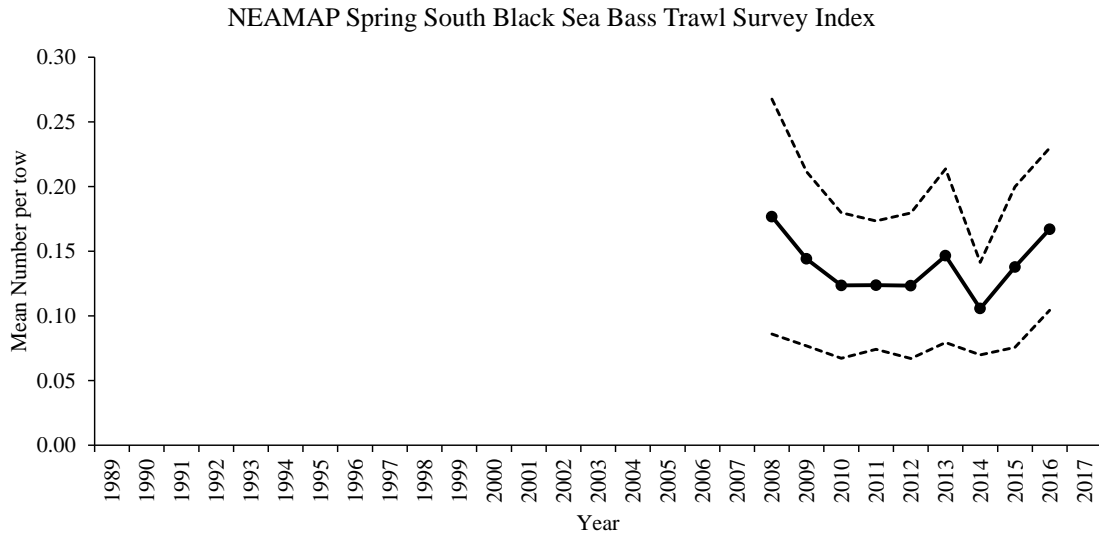


Figure 22. NEAMAP spring Southern stratified mean number per tow (\pm 90% CI) of Black Sea Bass, 2008-2016. 2017 index is not available due to logistical issues sampling strata in the southern region.

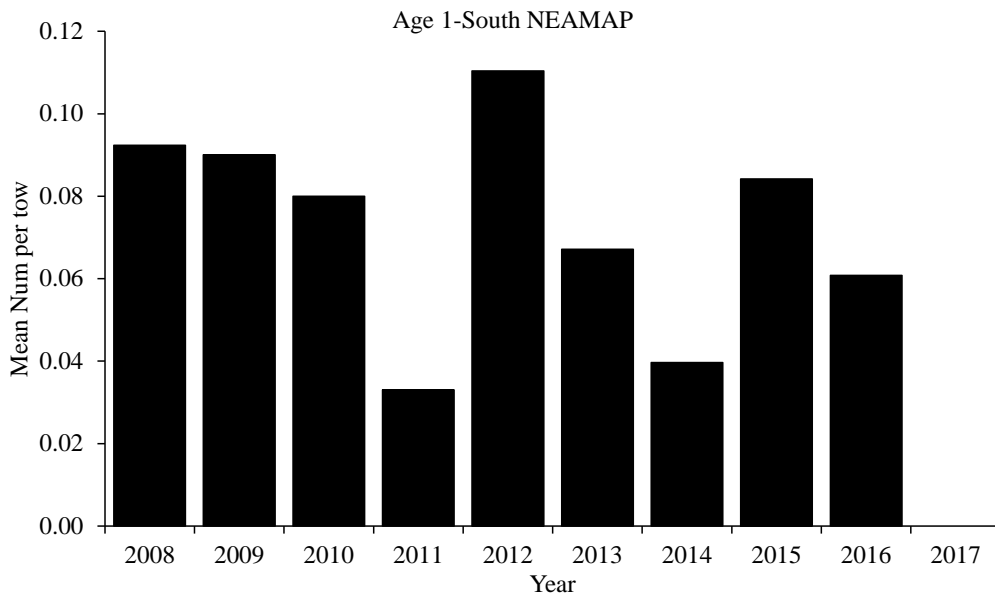


Figure 23. NEAMAP spring southern stratified mean number per tow at age one of Black Sea Bass, 2008-2016. 2017 index is not available due to logistical issues sampling strata in the southern region.

State Surveys- Northern Region

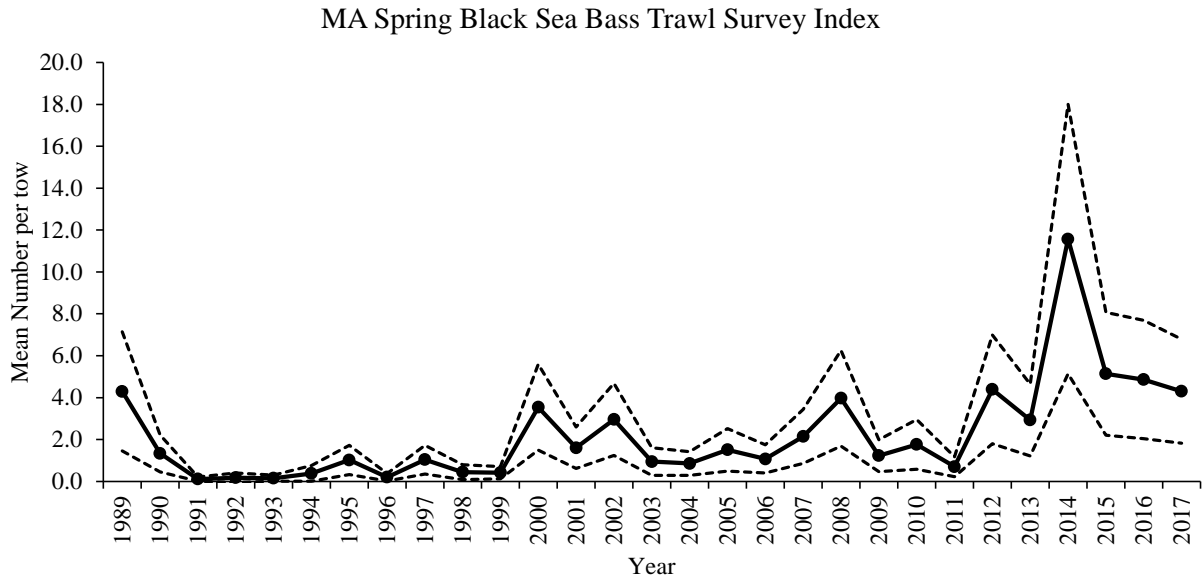


Figure 24. MADMF spring stratified mean number per tow (\pm 90% CI) of Black Sea Bass, 1989-2017.

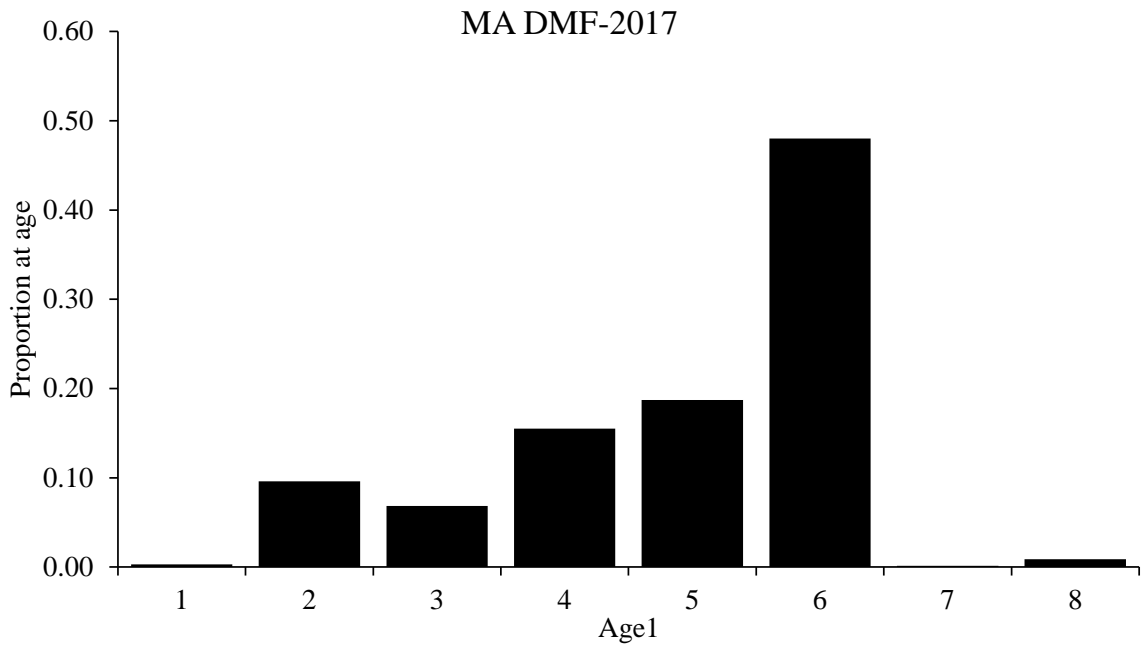


Figure 25. MADMF 2017 spring stratified mean number per tow at age of Black Sea Bass.

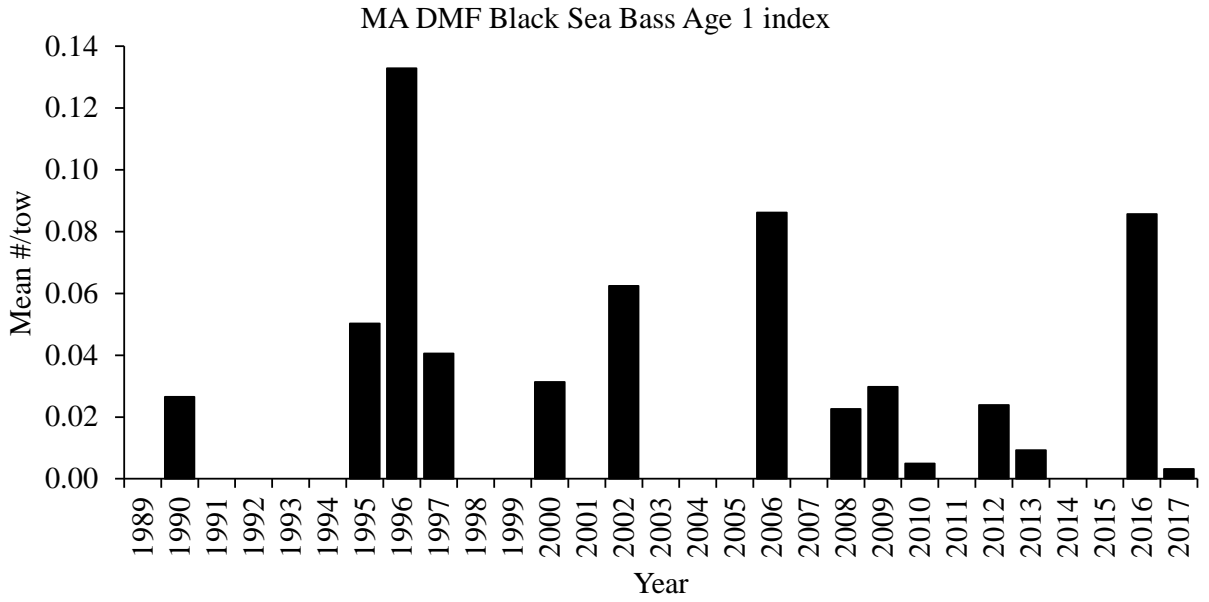


Figure 26. MADMF spring stratified mean number per tow at age one of Black Sea Bass, 1989-2017.

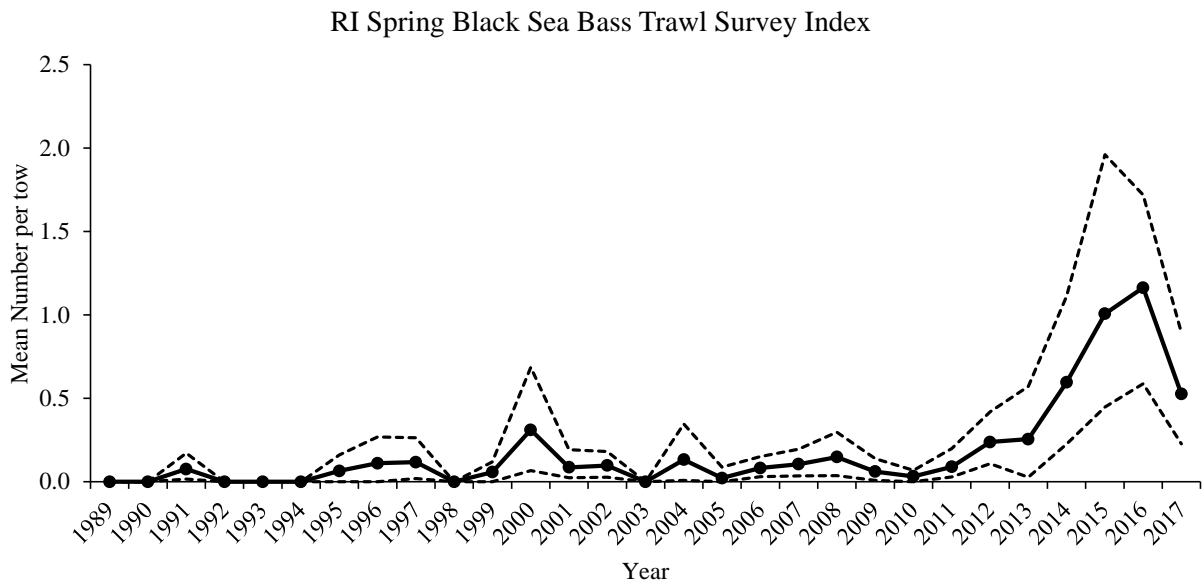


Figure 27. RIDEM spring stratified mean number per tow (\pm 90% CI) of Black Sea Bass, 1989-2017.

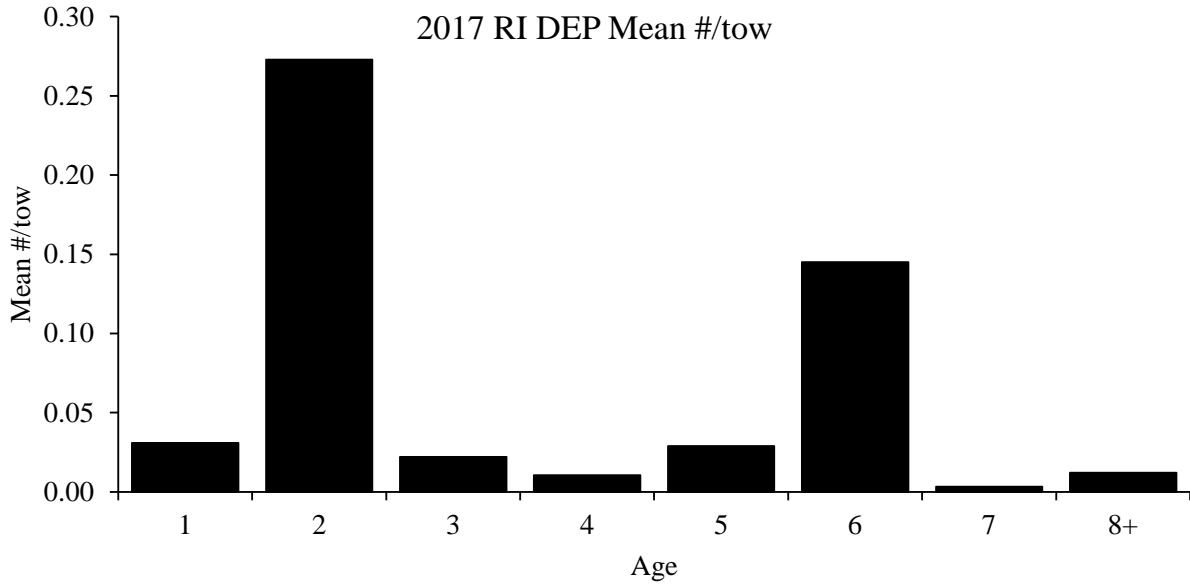


Figure 28. RI DEM 2017 spring stratified mean number per tow at age of Black Sea Bass.

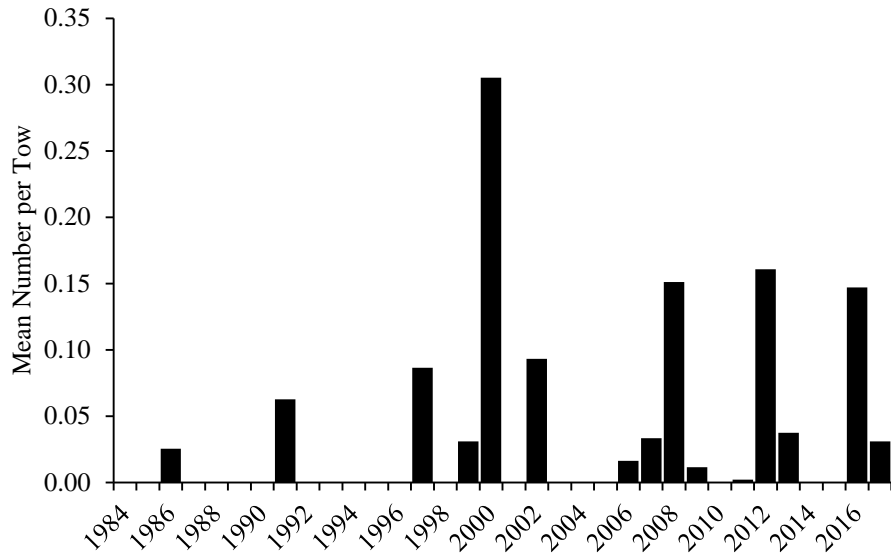


Figure 29. RI DEM spring stratified mean number per tow at age one of Black Sea Bass, 1984-2017.

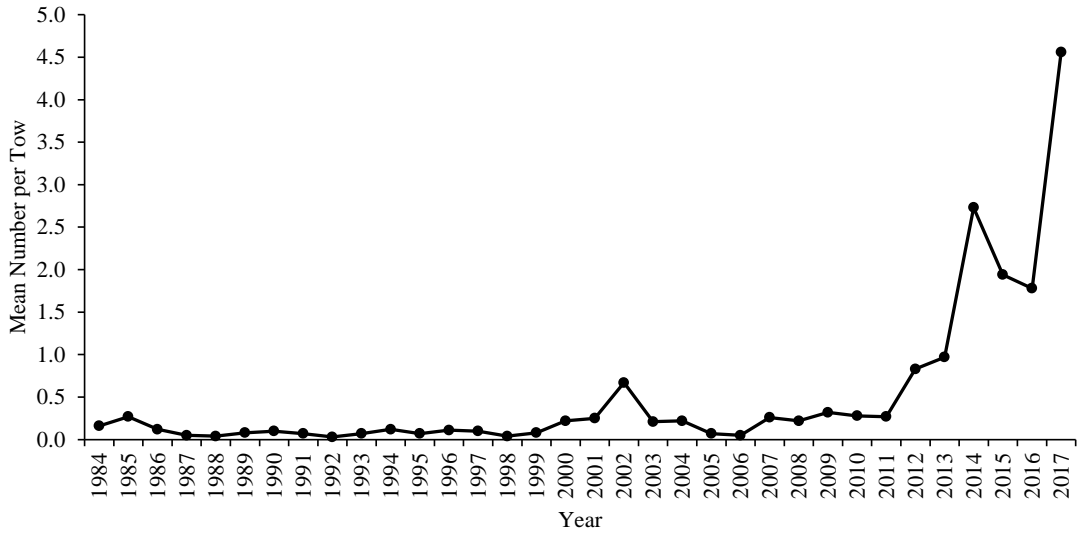


Figure 30. CT DEP nominal spring stratified mean number per tow of Black Sea Bass, Long Island Sound 1984-2017.

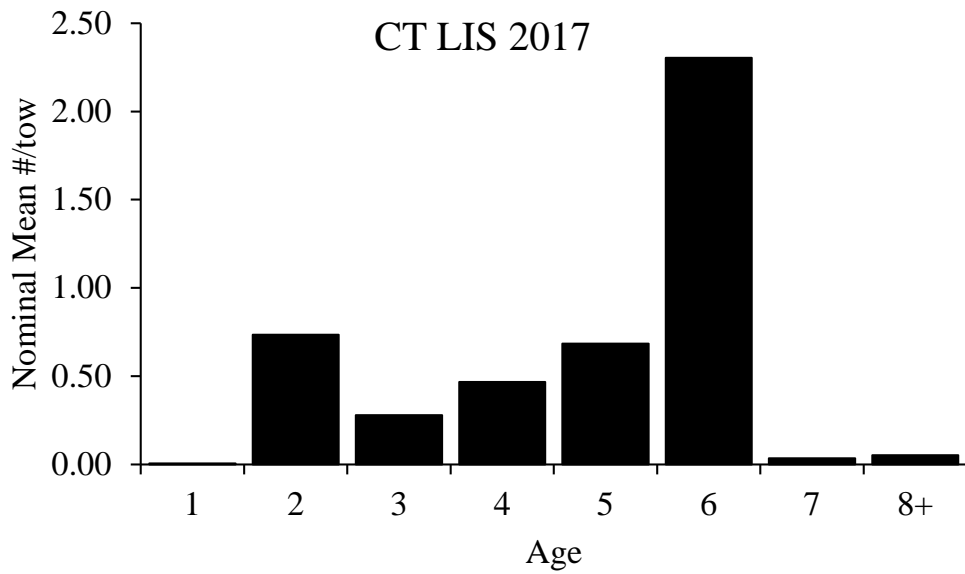


Figure 31. Age composition of CT DEP nominal spring stratified mean number per tow of Black Sea Bass, Long Island Sound 1984-2017.

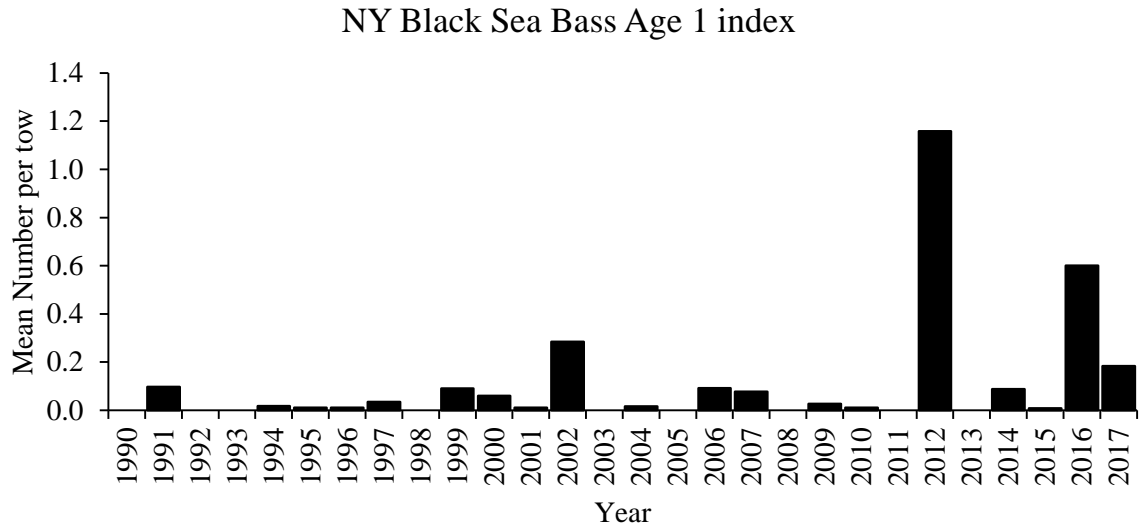


Figure 32. NY DEC spring stratified mean number per tow at age one of Black Sea Bass, 1989-2017.

State Surveys- Southern Region

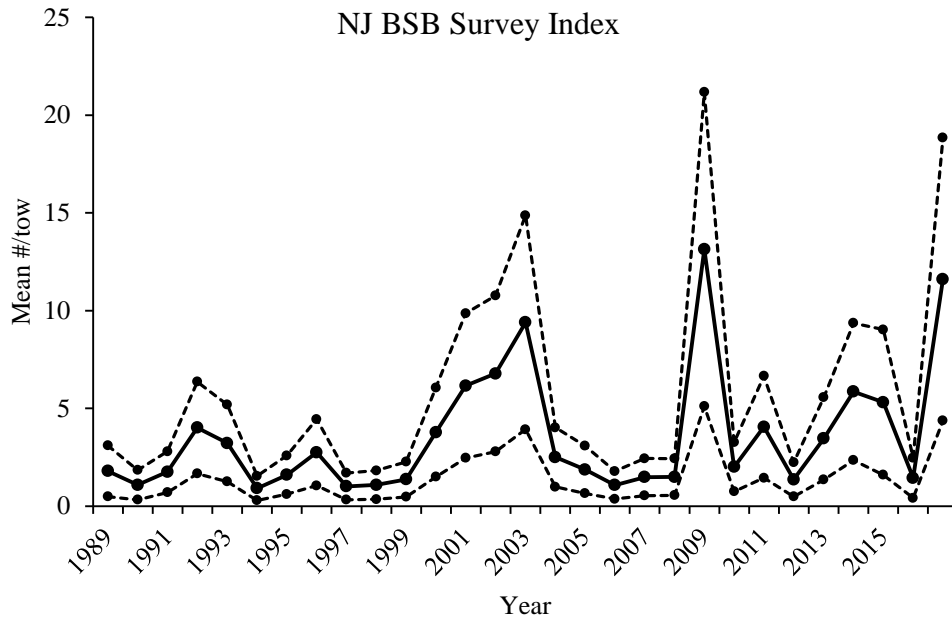


Figure 33. NJ DEP spring stratified mean number per tow (\pm 90% CI) of Black Sea Bass, 1989-2017.

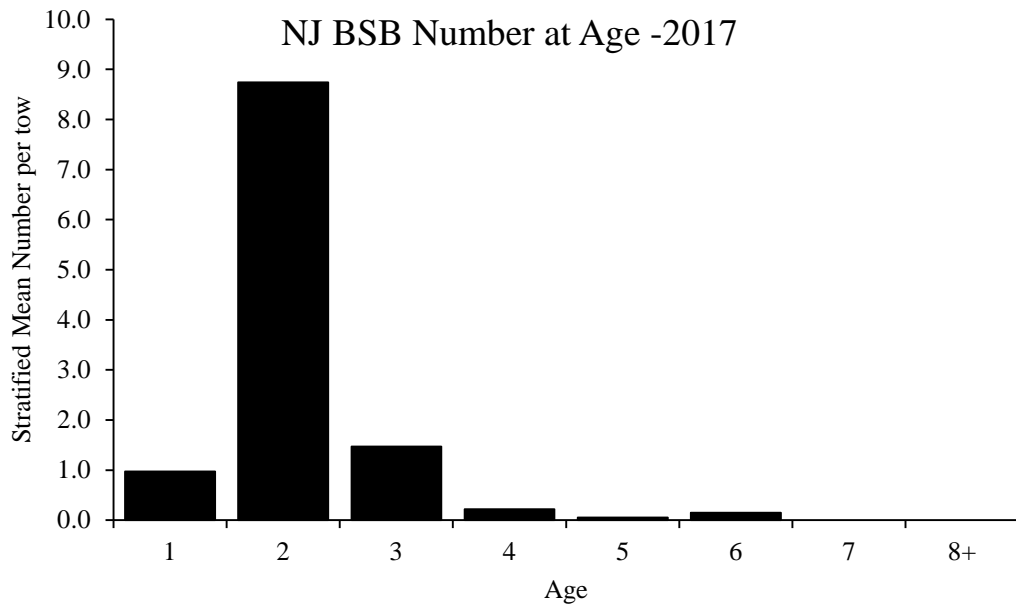


Figure 34. NJ DEP 2017 spring stratified mean number per tow at age of Black Sea Bass.

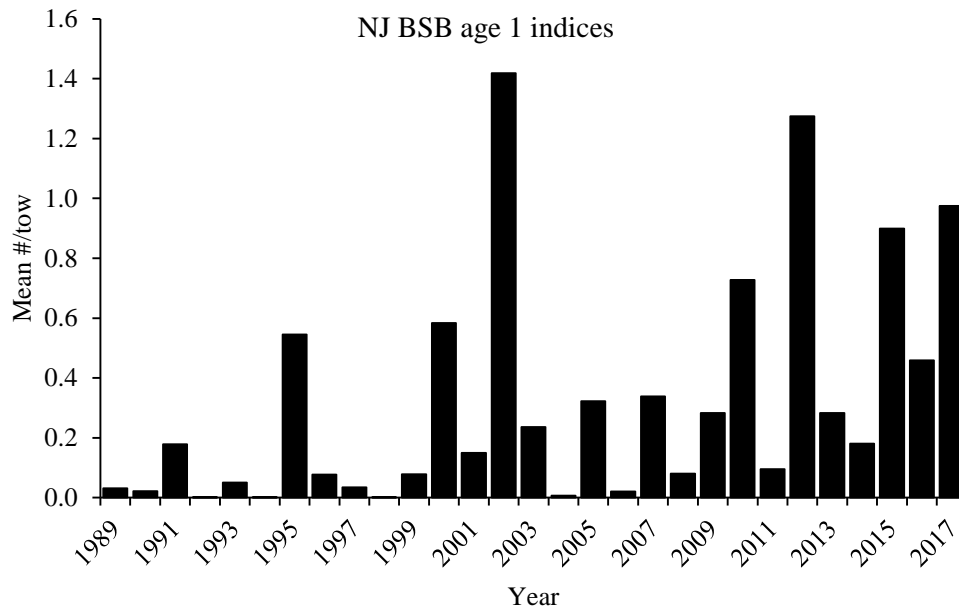


Figure 35. NJ DEP spring stratified mean number per tow at age one of Black Sea Bass, 1989-2017.

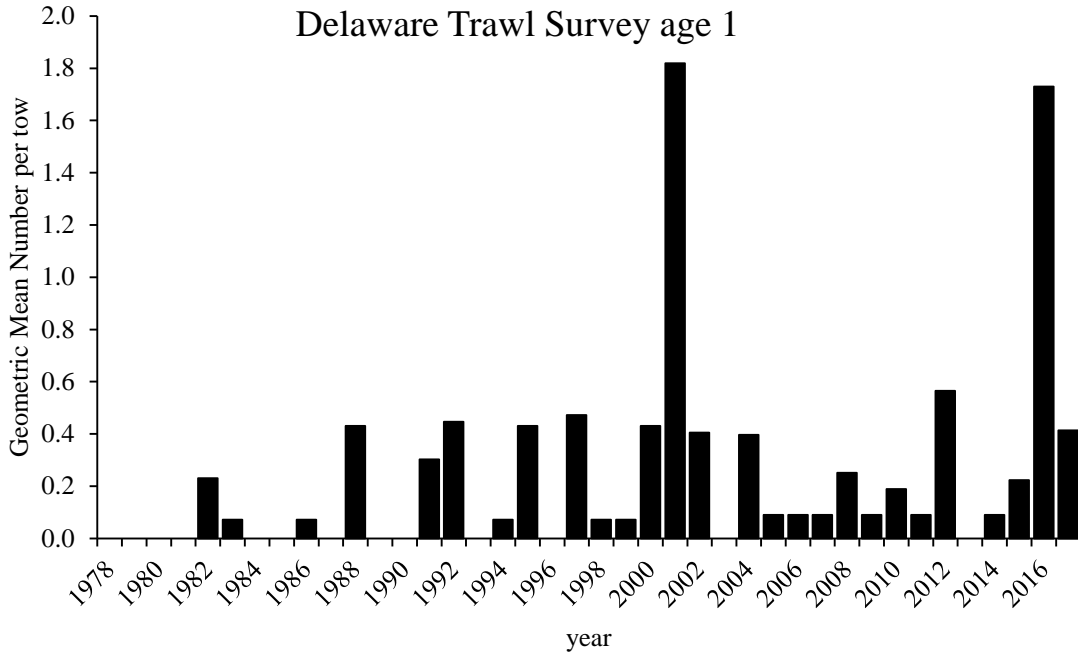


Figure 36. DE DFW spring stratified mean number per tow at age one of Black Sea Bass, 1978-2017.

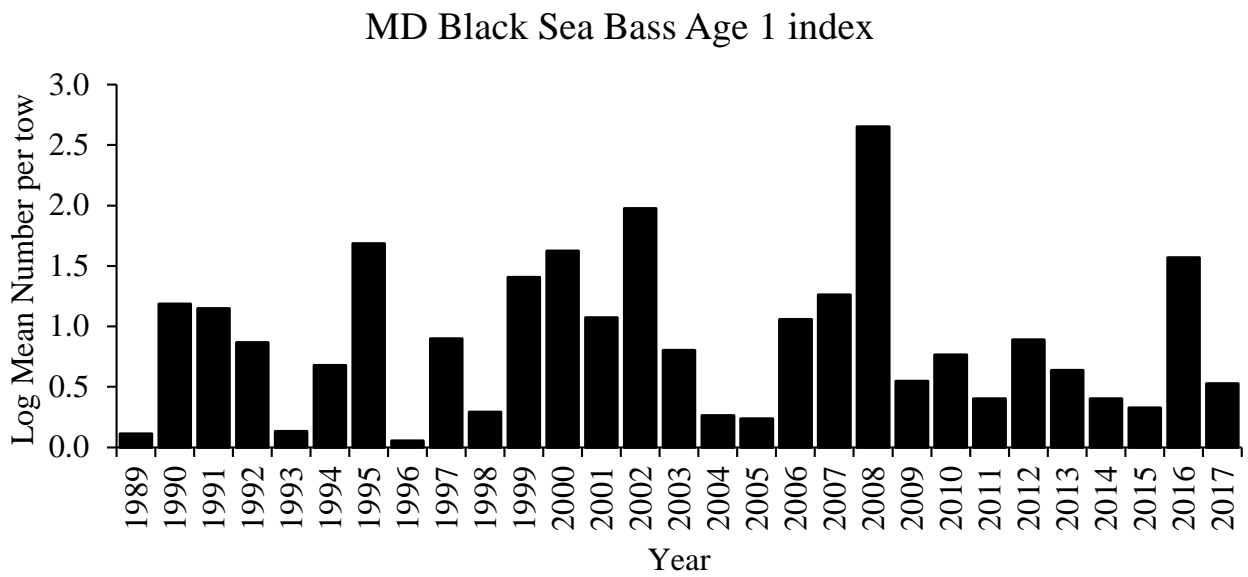


Figure 37. MD DNR spring stratified mean number per tow at age one of Black Sea Bass, 1989-2017.

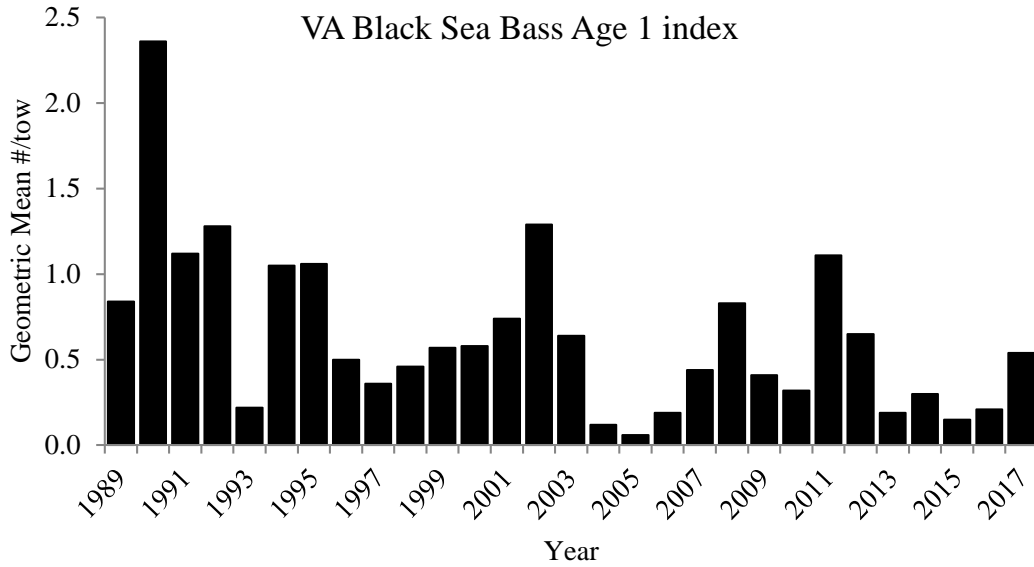


Figure 38. VIMS spring stratified mean number per tow at age one of Black Sea Bass, 1989-2017.

Recreational Catch per Angler Trip

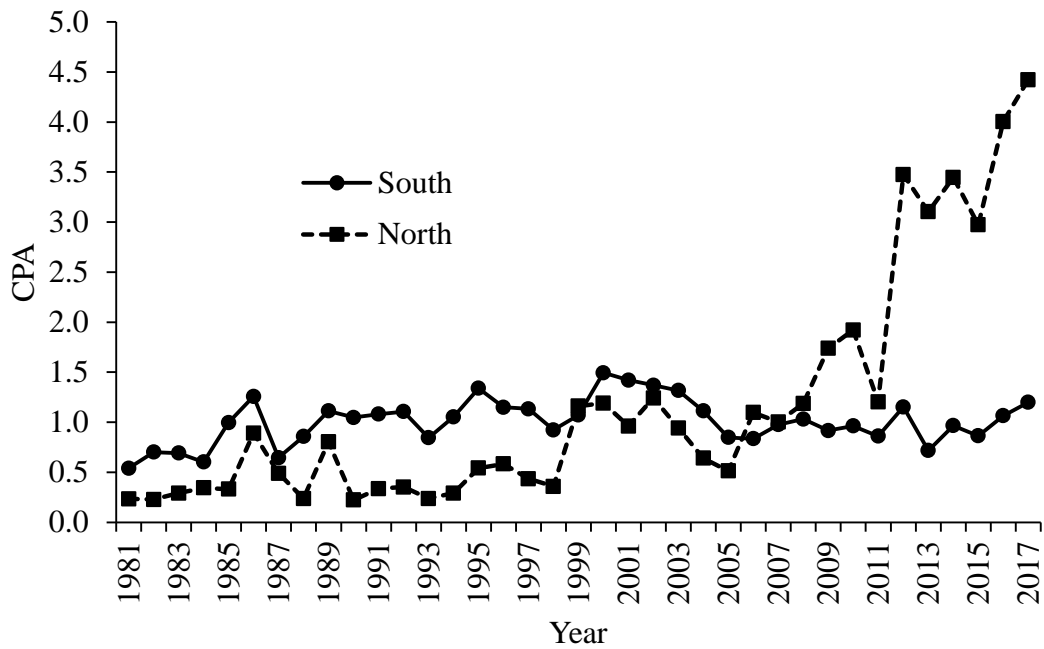


Figure 39. MRIP recreational catch (AB1B2) per angler for northern and southern regions, 1981-2017. Effort based on catch per angler trip within a regional guild of species.

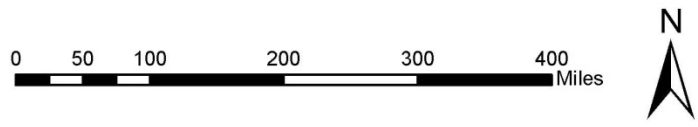
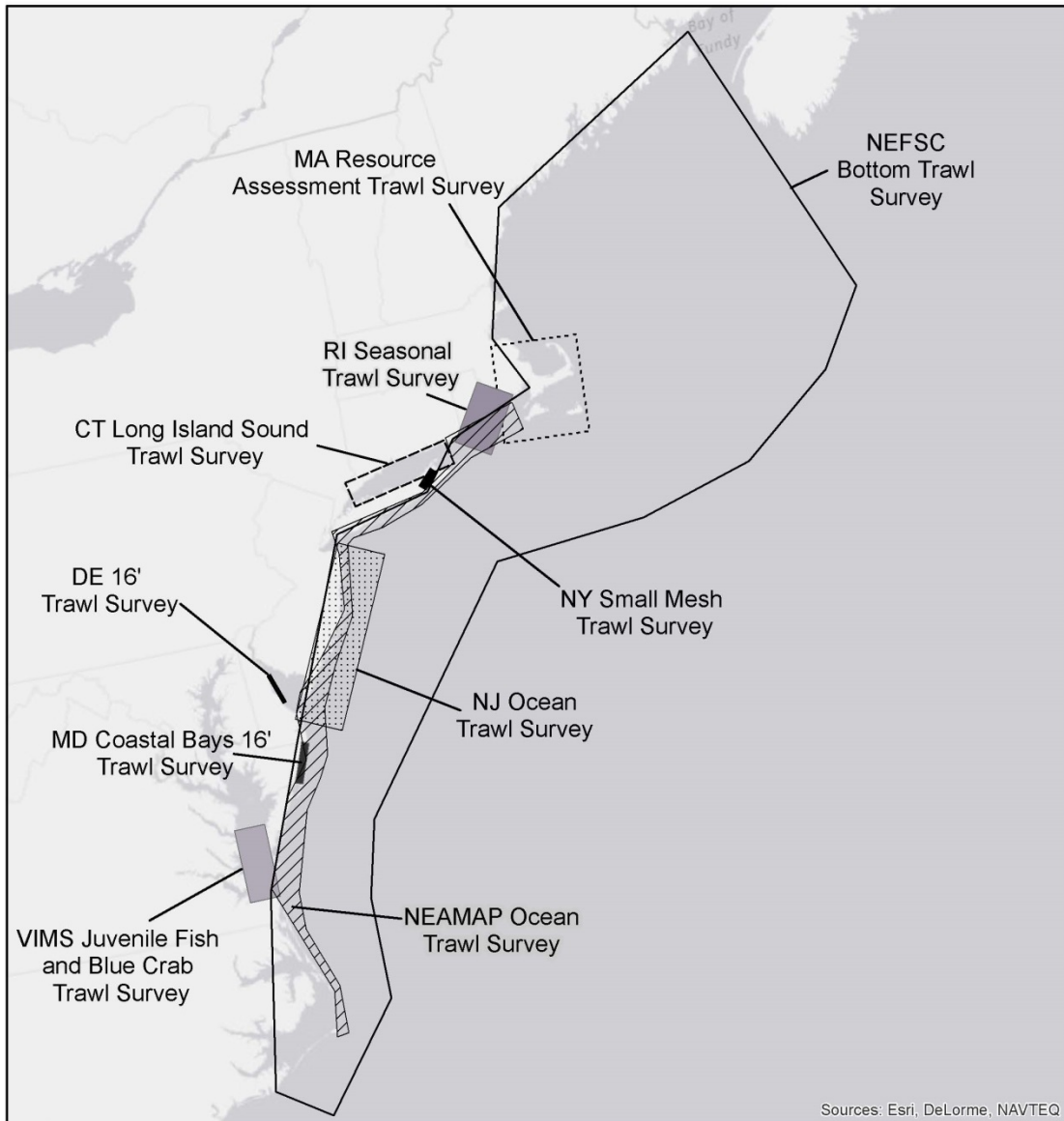
Reference Documents

Northeast Fisheries Science Center. 2017. 62nd Northeast Regional Stock Assessment Workshop (62nd SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 17-03; 822 p. (doi:10.7289/V5/RD-NEFSC-17-03) Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at <http://nefsc.noaa.gov/publications/>

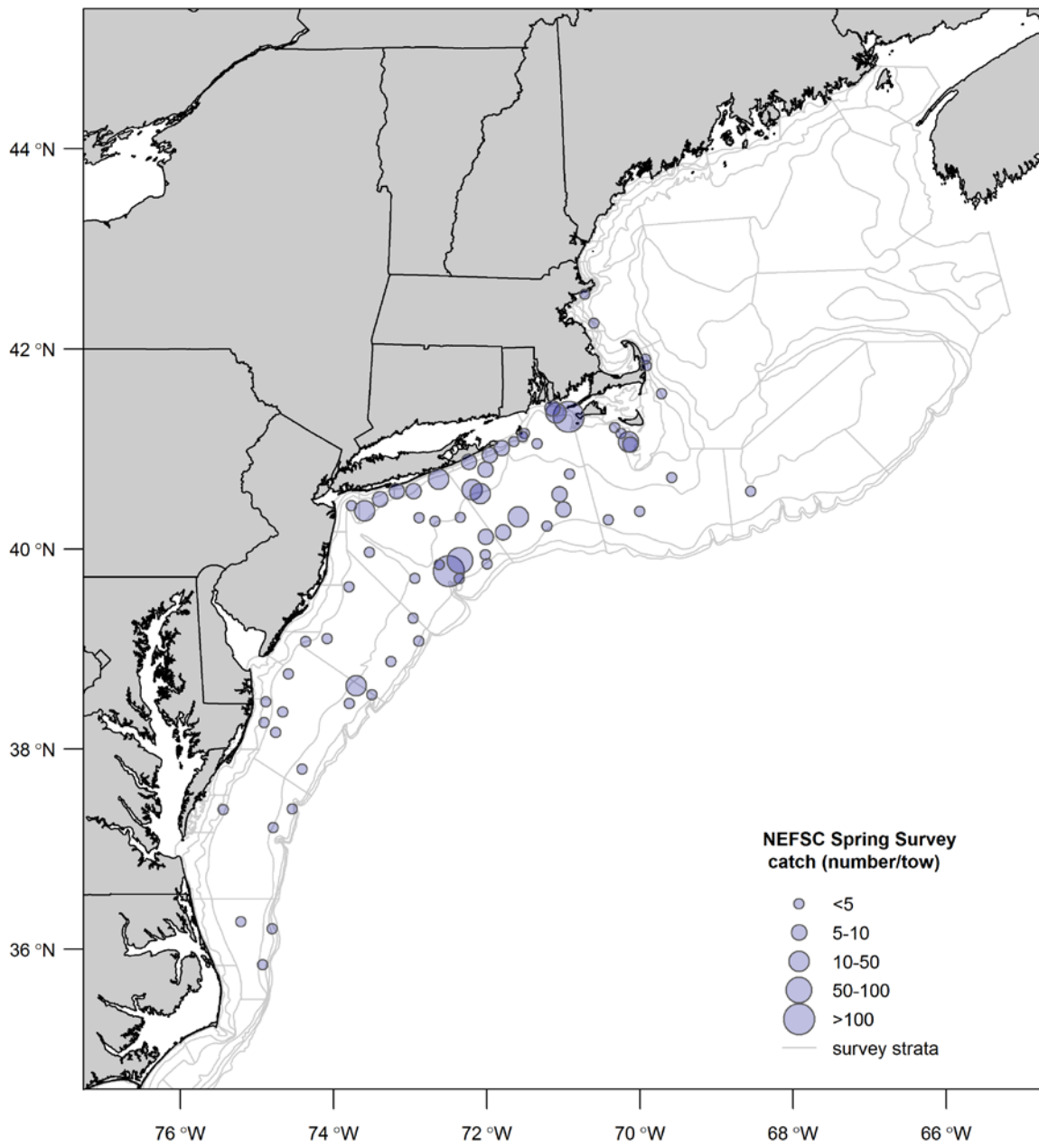
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Spatial extent of state and federal surveys contributing to the assessment

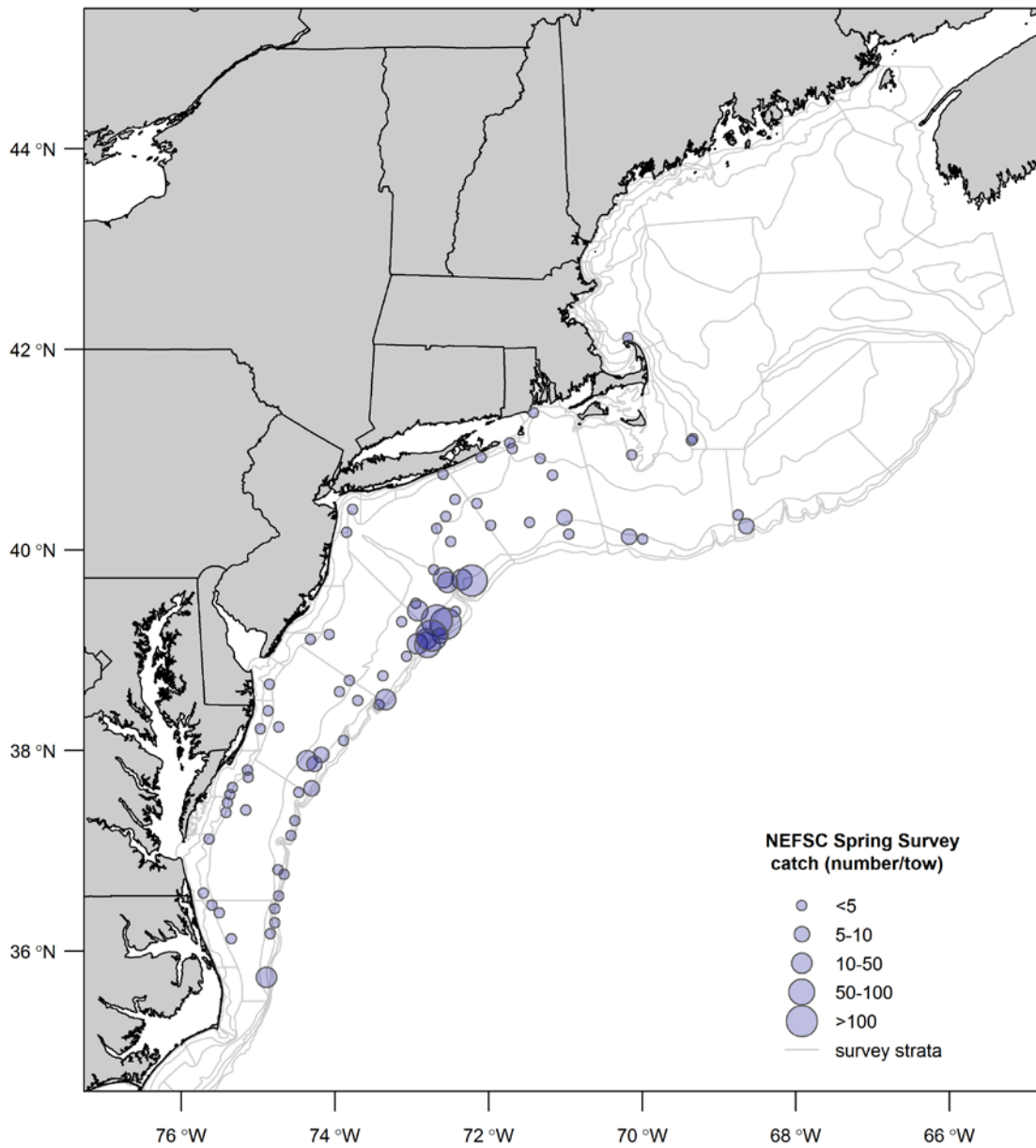


SPRING 2016



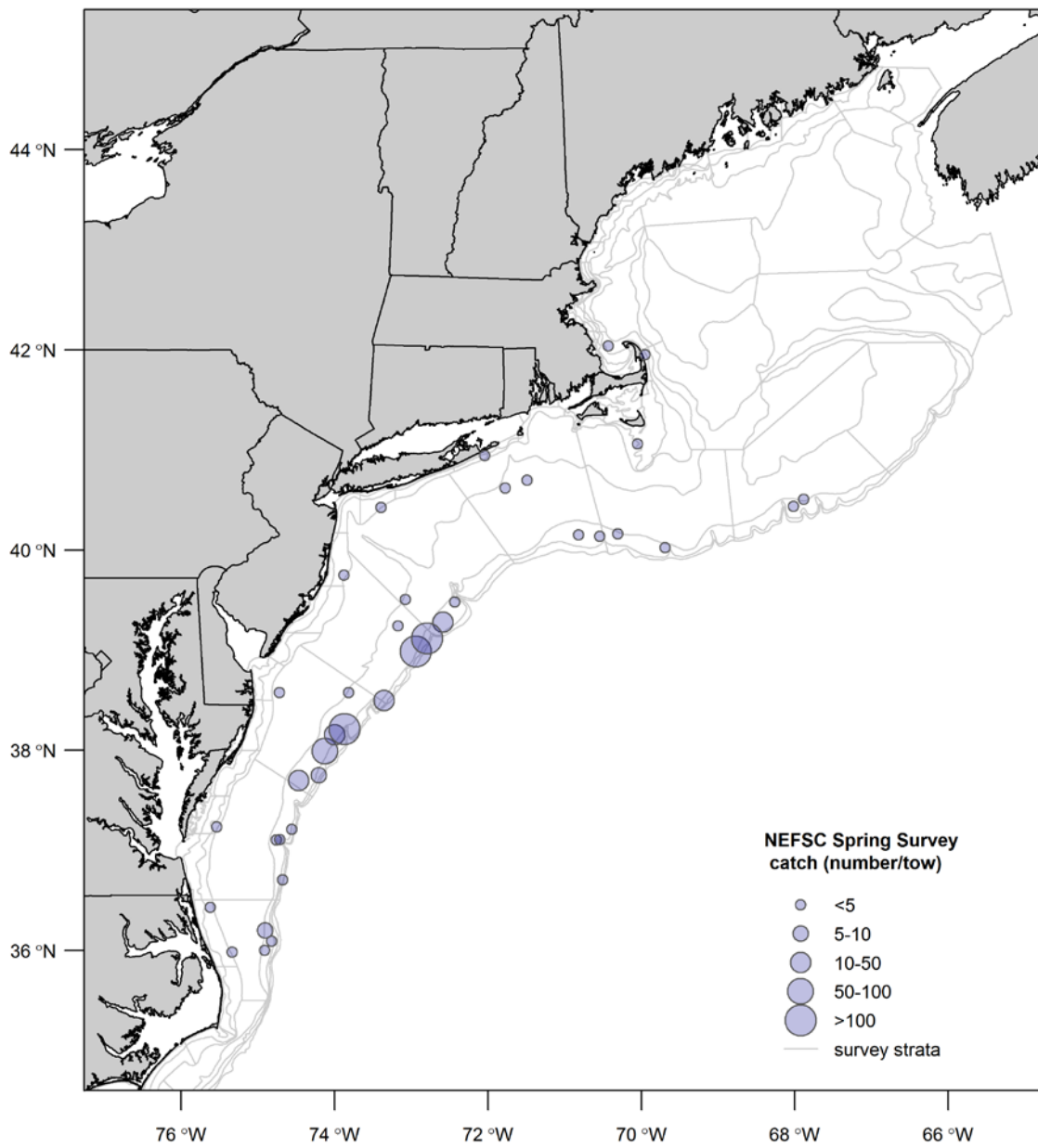
Appendix Figure 1. Black Sea Bass distribution from 2016 NEFSC spring survey.

SPRING 2017



Appendix Figure 2. Black Sea Bass distribution from 2017 NEFSC spring survey.

SPRING 2018



Appendix Figure 3. Black Sea Bass distribution from 2018 NEFSC spring survey.