FISHERY MANAGEMENT PLAN UPDATE
SPOT
AUGUST 2025

STATUS OF THE FISHERY MANAGEMENT PLAN

Fishery Management Plan History

Original FMP Adoption:	ASMFC FMP	October 1987
Amendments:	Omnibus Amendment	August 2012
	Addendum II	August 2014
	Addendum III	February 2020
Comprehensive Review:	2027	

The original interstate Fishery Management Plan (FMP) for spot was adopted in 1987 by the Atlantic States Marine Fisheries Commission with recommendations to improve data collection to produce a stock assessment and improve information for management (ASMFC 1987). The original FMP was adopted prior to the passage of the Atlantic Coastal Fisheries Cooperative Management Act (1993) and the Atlantic States Marine Fisheries Commission (ASMFC) Interstate Fishery Management Program (ISFMP) Charter (1995). After passage of the Act, the ASMFC adopted the Charter to establish standards and procedures for the preparation and adoption of FMPs. Once an FMP was amended to incorporate the standards and procedures in the ISFMP Charter, the Commission could adopt management requirements that can be enforced through the Act.

In August 2011, the South Atlantic State/Federal Fisheries Management Board (hereafter referred to as the Board) approved the Omnibus Amendment for Spot, Spotted Seatrout, and Spanish Mackerel. The Omnibus Amendment updated the FMP with the Act and Charter requirements and initiated annual trigger exercises to monitor the status of the spot resource while also directing the board to consider management action depending on results of the trigger exercise (ASMFC 2012). Without coast-wide minimum management measures, the trigger exercises did little to provide effective management between stock assessments.

In August 2014, the Board approved Addendum II to the Omnibus Amendment which established the use of the Traffic Light Approach (TLA; Caddy and Mahon 1995; Caddy 1998; Caddy 1999; Caddy 2002) as a precautionary management framework. The TLA is preferred for fast-growing, early maturing species like spot, where it is more important to respond to multi-year trends rather than annual changes. The TLA more effectively illustrates long term trends than the triggers established by the Omnibus Amendment. The management framework utilizing the TLA (ASMFC 2014) replaced the management triggers established in the Omnibus Amendment.

In February 2020, the Board approved Addendum III to the Omnibus Amendment, which revised the TLA's trigger mechanism and management response for the recreational and commercial fisheries (ASMFC 2020a). Addendum III incorporated the use of a regional approach (Mid-Atlantic NJ-VA and South Atlantic NC-FL) to better reflect localized fishery trends and changed the TLA to trigger management action if two of the three terminal years exceed threshold levels. State-specific management action is initiated when the proportion of red exceeds specified thresholds (30% or 60%) for both harvest and abundance. If management action is triggered, the coastwide response includes recreational bag limits and quantifiable measures to achieve percent reductions in commercial harvest. Response requirements vary depending on which threshold is exceeded. Addendum III also defines the mechanism by which triggered management actions may be removed, after abundance characteristics are no longer triggering management action. The TLA is reviewed annually in September. For additional information and links to the above-mentioned FMP,

amendments, and addendums please refer to the ASMFC webpage for spot (http://www.asmfc.org/species/spot).

The North Carolina Wildlife Federation submitted a petition for rulemaking on November 2, 2016, and a modification to the petition on January 12, 2017. The petitioner put forth seven rules to designate nursery areas, restrict gear and seasonality in the shrimp trawl fishery to reduce bycatch of fish (including spot, Atlantic croaker, and weakfish), and establish an eight-inch minimum size limit for spot and a 10-inch minimum size limit for Atlantic croaker. At its February 2017 business meeting, the North Carolina Marine Fisheries Commission passed a motion to approve the petitioned rules and begin the rulemaking process. Upon review by the Office of State Budget and Management, it was determined that sufficient state funds are not available to implement the proposed rule changes without undue detriment to the agency's existing activities, and the rules were never adopted.

To ensure compliance with interstate requirements, North Carolina also manages spot under the North Carolina Fishery Management Plan for Interjurisdictional Fisheries. The goals of the North Carolina FMP for Interjurisdictional Fisheries is to adopt FMPs, consistent with North Carolina Law, approved by the Mid-Atlantic Fishery Management Council (MAFMC), South Atlantic Fishery Management Council (SAFMC), or the Atlantic States Marine Fisheries Commission (ASMFC) by reference and implement corresponding fishery regulations in North Carolina to provide compliance or compatibility with approved FMPs and amendments, now and in the future. The goal of the councils and ASMFC plans, established under the Magnuson-Stevens Fishery Conservation Management Act (federal councils) and the Atlantic Coastal Fisheries Cooperative Management Act (ASMFC) are similar to the goals of the N.C. Fisheries Reform Act of 1997 to "ensure long-term viability" of the fisheries (NCDMF 2015).

Management Unit

Delaware through the east coast of Florida.

Goal and Objectives

The primary goal of the Omnibus Amendment is to bring the FMPs for Spanish mackerel, spot, and spotted seatrout under the authority of the Act, providing for more efficient and effective management and changes to management in the future. The objectives for spot under this amendment are to:

- Increase the level of research and monitoring of spot bycatch in other fisheries, and to complete a coast-wide stock assessment.
- Manage the spot fishery to encourage reduced mortality on spot stocks until age-1.
- Develop research priorities that will further refine the spot management program to maximize the biological, social, and economic benefits derived from the spot population. The Omnibus Amendment does not require specific fishery management measures in either the recreational or commercial fisheries for states within the management unit range.

DESCRIPTION OF THE STOCK

Biological Profile

Spot (*Leiostomus xanthurus*) are short-lived, estuarine dependent members of the drum family, ranging from the Gulf of Maine to Florida but are most abundant from Chesapeake Bay to South Carolina. Spot generally reach maturity by age one or two, rarely reaching a maximum age of six years. Length at 50 percent maturity is generally between seven- and 11-inches total length. Juvenile and adult spot are bottom feeders, eating mostly worms, small crustaceans, and mollusks. Post-larvae and young-of-the-year spot prey on planktonic organisms (ASMFC 2010).

Adult spot migrate seasonally between estuarine and nearshore ocean waters but are rarely found in the upper reaches of the estuary (Hildebrand and Schroeder 1928; Dawson 1958; Hoese 1973; Odell et al.

2017). Spot move offshore to spawn during cooler months from late fall to early spring (Hildebrand and Schroeder 1928; Roelofs 1951; Dawson 1958; Hoese 1973). Wind and currents carry the young into the upper reaches of the estuaries where they remain throughout the spring (Warlen and Chester 1985; Govoni and Spach 1999; Hare et al. 1999; Odell et al. 2017). Spot are most susceptible to commercial and recreational fishing activity during the fall when schools migrate from estuarine to oceanic waters (Pacheco 1962).

Stock Status

Currently, there is no approved stock assessment and the stock status for spot with relation to overfishing or overfished is unknown.

To evaluate the status of the stock between stock assessments, the TLA established under Addendum II and revised under Addendum III, is reviewed annually in years when an assessment is not already being conducted.

Results of the 2024 TLA (2023 terminal year) indicated that landings remain low relative to the reference period (2002–2012), but it is unclear if this is due to harvest restrictions implemented in 2021 or changes in the stock. The harvest composite characteristic index exceeded the 30% red threshold in two of the three terminal years for the Mid-Atlantic region, while the South Atlantic index exceeded 30% red in all three terminal years (Figure 1; ASMFC 2024). Harvest composite indices for 2023 cannot be used to trigger management because catch restrictions have been in effect since 2021. The adult abundance composite characteristic index, which combines fishery independent surveys, triggered at the 30% level in the Mid-Atlantic region, but not in two of the three terminal years, so overall the abundance index did not trigger for that region. The South Atlantic abundance index did not trigger at the 30% or 60% levels in any of the three terminal years (Figure 2; ASMFC 2024).

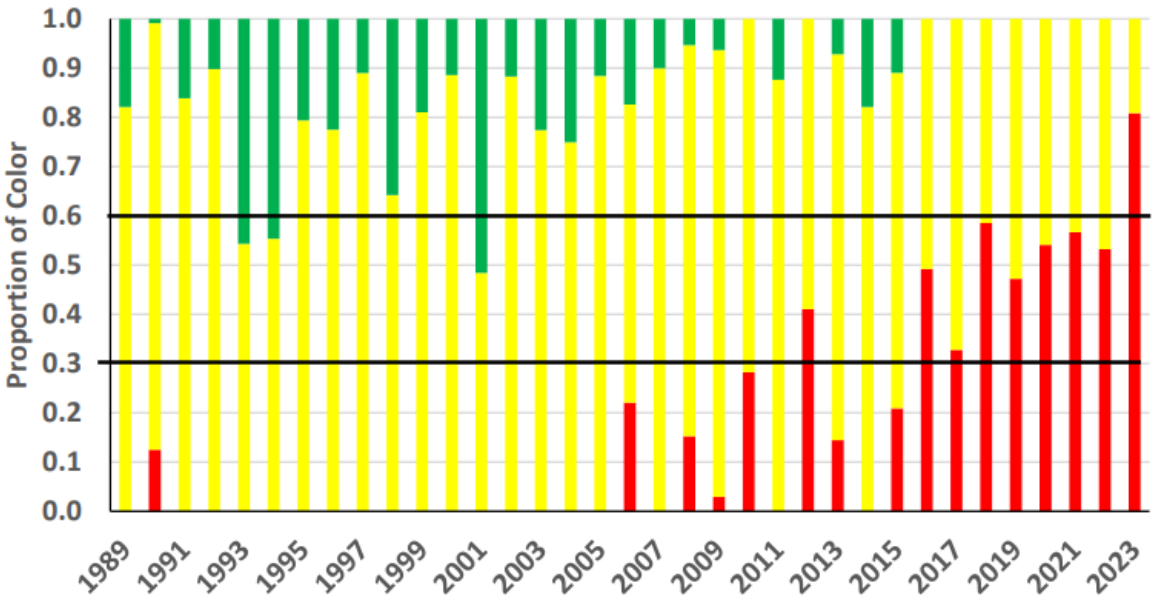

Figure 1. Annual harvest composite TLA color proportions for South Atlantic region (NC-FL) spot recreational and commercial landings, 1989 – 2023 (ASMFC 2024). The reference period is 2002–2012.

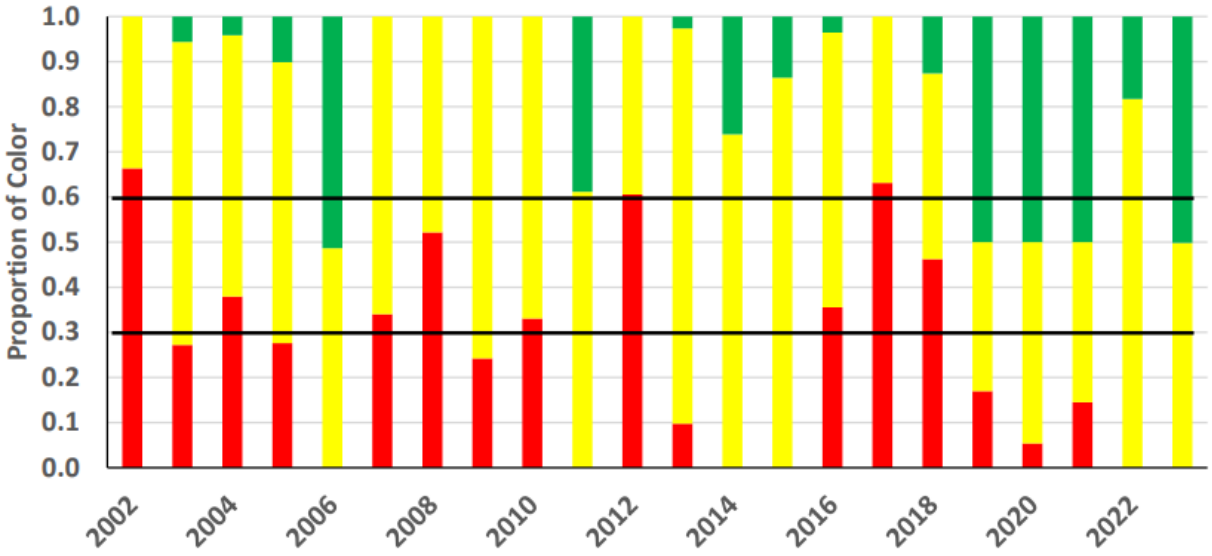

Figure 2. Annual abundance composite TLA color proportions for the South Atlantic region (NC-FL) adult spot (age 1+) from fishery-independent indices (SEAMAP and NCDMF Program 195), 2002–2023 (no 2020 or 2021 data due to limited sampling; ASMFC 2024). The reference period is 2002–2012.

Stock Assessment

The next Spot Benchmark Stock Assessment is scheduled for 2027. The most recent and first benchmark Stock Assessment, completed in 2017, did not pass peer review and will not be used for management (ASMFC 2017, ASMFC 2020). The assessment was not recommended for management because of concern over uncertainty in assessment results due to disagreement between trends in harvest and abundance. Abundance in fishery-independent surveys has generally been increasing whereas commercial and recreational harvest has been declining. The review panel noted that discard estimates from the shrimp trawl fishery were an improvement, and recommended shrimp trawl discard estimates be incorporated into annual monitoring using the TLA.

DESCRIPTION OF THE FISHERY

Current Regulations

The 2020 TLA review (2019 terminal year) for spot triggered at the 30% threshold and coastwide management action as outlined in Addendum III was enacted in March 2021 (ASMFC 2020b). The management response outlined in Addendum III specifies, non de minimis states are required to implement a 50 fish bag limit for their recreational fishery and must reduce commercial harvest by 1% of the average state commercial harvest from the previous 10 years.

In North Carolina, the 50 fish per person per day recreational bag limit was effective April 15th, 2021 (FF-23-2021) and has remained in place. The commercial spot fishery closed December 10th, 2021, through April 4th, in 2021, 2022, 2023, and 2024, to meet the required 1% reduction (FF-66-2021; FF-57-2022; FF-60-2023; FF-51-2024). Management measures are required to remain in place for at least two years and future TLA updates will determine future management action after this time. In 2024, the ASMFC Sciaenids Board selected to maintain current management measures for longer than the required two years, until results of the benchmark stock assessment planned for completion in 2027 are available for consideration.

Commercial Fishery

Two gear types (gill nets and haul seines) are used in directed commercial trips and harvest of spot. Other gear types, including sciaenid pound nets, beach seines, swipe nets, and crab pots contribute minimally to commercial landings. Higher commercial landings were reported in the 1990's but declined from 2001 to 2018 to the lowest value in the time series (Table 1; Figure 4). Landings have increased in recent years (since 2018), averaging 556,473 pounds since 2019 (Table 1; Figure 4). In 2024, commercial landings were 571,590 pounds, which is a 25% decrease from 2023, when 761,604 pounds were landed. 2023 landings were the highest since 2014. Commercial spot landings have exceeded recreational harvest since 2020. Spot are a component of the scrap or bait fishery in North Carolina, but this component generally makes up a small percentage of landings.

Table 1. Spot recreational harvest and number released (Marine Recreational Information Program), commercial harvest (North Carolina Trip Ticket Program), and total harvest, 1994–2024. All weights are in pounds.

Year	Recreational			Commercial	
	Number Landed	Number Released	Weight Landed (lb)	Weight Landed (lb)	Total Weight Landed (lb)
1994	14,032,650	2,365,031	4,571,386	2,937,311	7,508,697
1995	8,199,743	2,214,819	3,214,061	3,006,845	6,220,906
1996	6,729,366	2,234,354	2,461,892	2,290,000	4,751,892
1997	4,529,620	1,110,650	2,129,481	2,627,925	4,757,406
1998	11,797,824	2,379,578	4,596,119	2,396,979	6,993,098
1999	5,736,185	2,343,795	2,565,546	2,262,175	4,827,721
2000	6,121,384	1,366,746	2,598,813	2,829,818	5,428,631
2001	10,043,845	2,804,349	4,519,545	3,093,872	7,613,417
2002	8,456,981	1,569,579	3,017,466	2,184,032	5,201,498
2003	9,717,824	2,970,990	4,220,534	2,043,387	6,263,921
2004	7,845,322	2,899,319	3,682,623	2,317,169	5,999,792
2005	10,105,205	4,407,100	3,652,186	1,714,597	5,366,783
2006	11,109,551	8,196,592	3,995,432	1,364,743	5,360,175
2007	8,728,295	4,049,250	2,737,144	879,091	3,616,235
2008	3,970,431	3,817,529	1,382,428	736,484	2,118,912
2009	4,197,640	4,847,202	1,427,956	1,006,500	2,434,456
2010	3,830,384	3,615,808	1,173,173	572,315	1,745,488
2011	6,480,714	4,993,544	2,201,947	936,970	3,138,917
2012	2,677,082	2,995,879	760,276	489,678	1,249,954
2013	6,120,985	5,513,732	1,789,251	768,943	2,558,194
2014	8,343,467	4,043,710	2,877,483	766,224	3,643,707
2015	2,572,738	2,984,629	833,390	377,028	1,210,418
2016	1,928,716	1,831,415	558,799	241,044	799,843
2017	2,418,331	1,902,281	909,796	415,465	1,325,261
2018	2,068,865	2,062,163	597,511	167,696	765,207
2019	2,822,884	2,356,120	851,998	392,206	1,244,204
2020	920,512	1,673,676	297,813	542,870	840,683
2021	1,199,080	2,357,567	435,231	527,464	962,695
2022	1,197,145	2,331,484	375,168	543,104	918,272
2023	855,729	2,737,778	300,052	761,604	1,061,656
2024	388,715	1,690,124	120,652	571,590	692,242
Mean	5,649,910	2,989,251	2,092,102	1,347,262	3,439,364

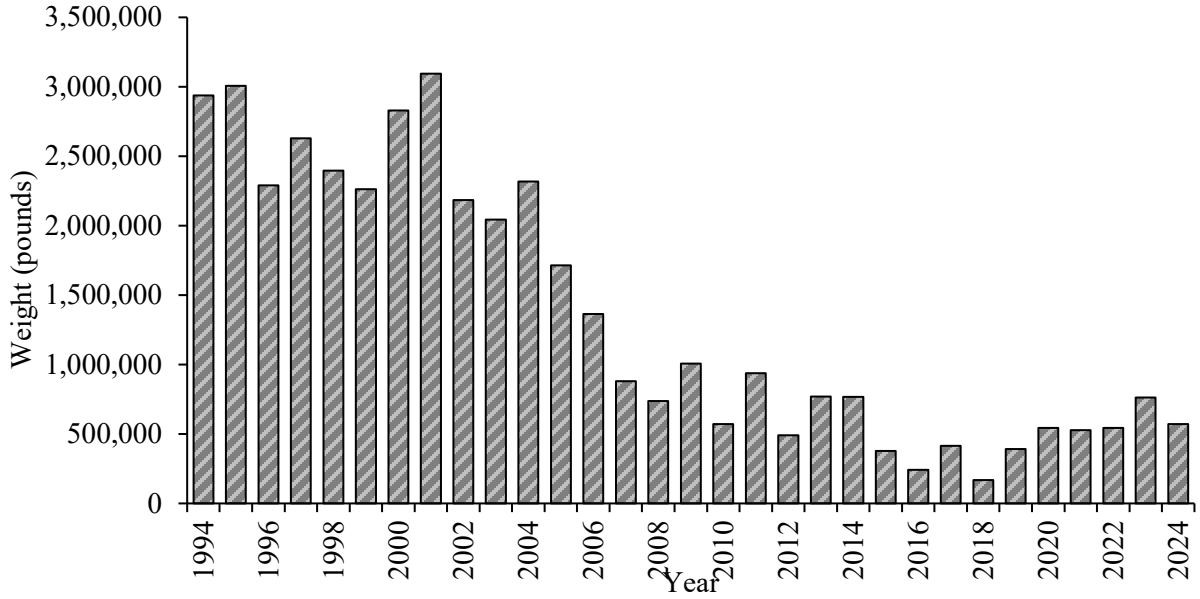

Figure 4. Annual commercial landings (North Carolina Trip Ticket Program) in pounds for spot in North Carolina, 1994–2024.

Recreational Fishery

Recreational estimates across all years have been updated and are based on the Marine Recreational Information Program (MRIP) Fishing Effort Survey-based calibrated estimates. For more information on MRIP see https://www.fisheries.noaa.gov/topic/recreational-fishing-data. From 1994 through 2024 recreational harvest of spot in North Carolina ranged from 120,652 to 4,596,119 pounds or between 388,715 and 11,797,824 fish, with the lowest landings in both count and weight occurring in 2024 (Table 1; Figures 5 and 6). Harvest by weight was generally stable prior to 2007 when there was a notable decline in the time series. Harvest in the last 10 years has been consistently low. The three lowest values in the time series occurred in the last five years. Recreational harvest in 2024 was 388,715 fish or 120,652 pounds, a 55% decrease in number of fish and a 60% decrease in weight from 2023. Recreational harvest in 2023 was the third lowest in the time series, with harvest in 2020 being the second lowest (297,813 pounds).

The number of recreational releases were relatively low from 1994 to 2004, remaining below 4 million fish. In 2005, there was a noticeable increase in releases peaking at 8,196,592 fish in 2006. Releases remained relatively high until dropping in 2016, remaining between 1.6 million fish and 2.7 million fish into 2024 (Figure 6). The percentage of released recreational catch has steadily increased over the time series from 14% in 1994 to 81% in 2024, when anglers released 1,690,124 fish. The number of released fish has exceeded the number of fish landed recreationally since 2020.

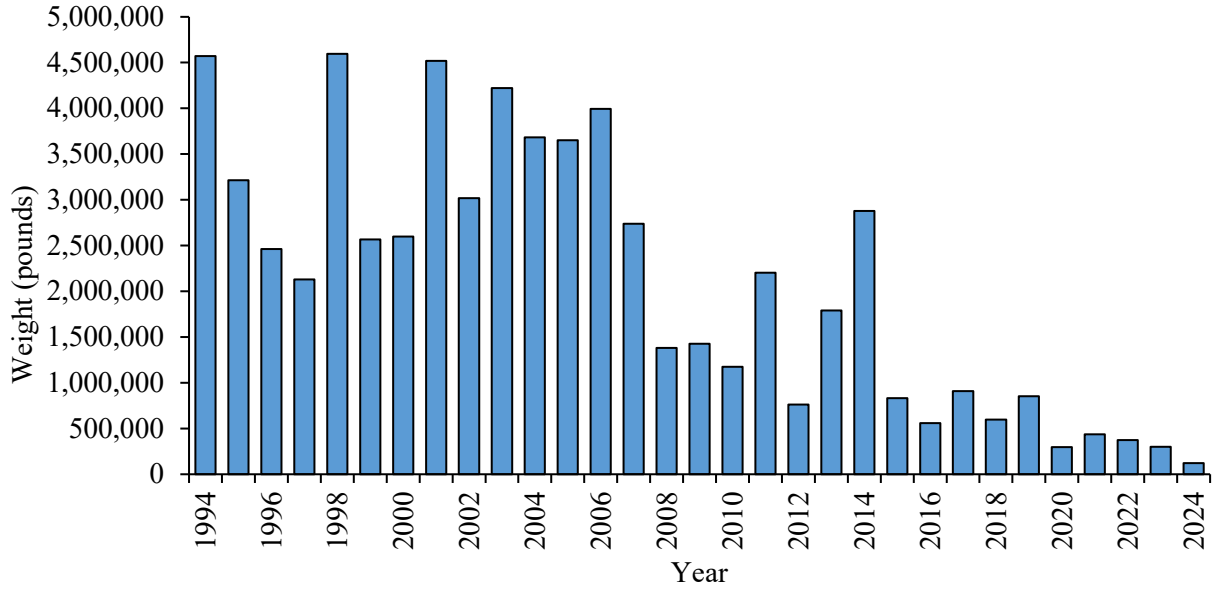

Figure 5. Annual recreational harvest (Marine Recreational Information Program) in pounds for spot in North Carolina, 1994–2024.

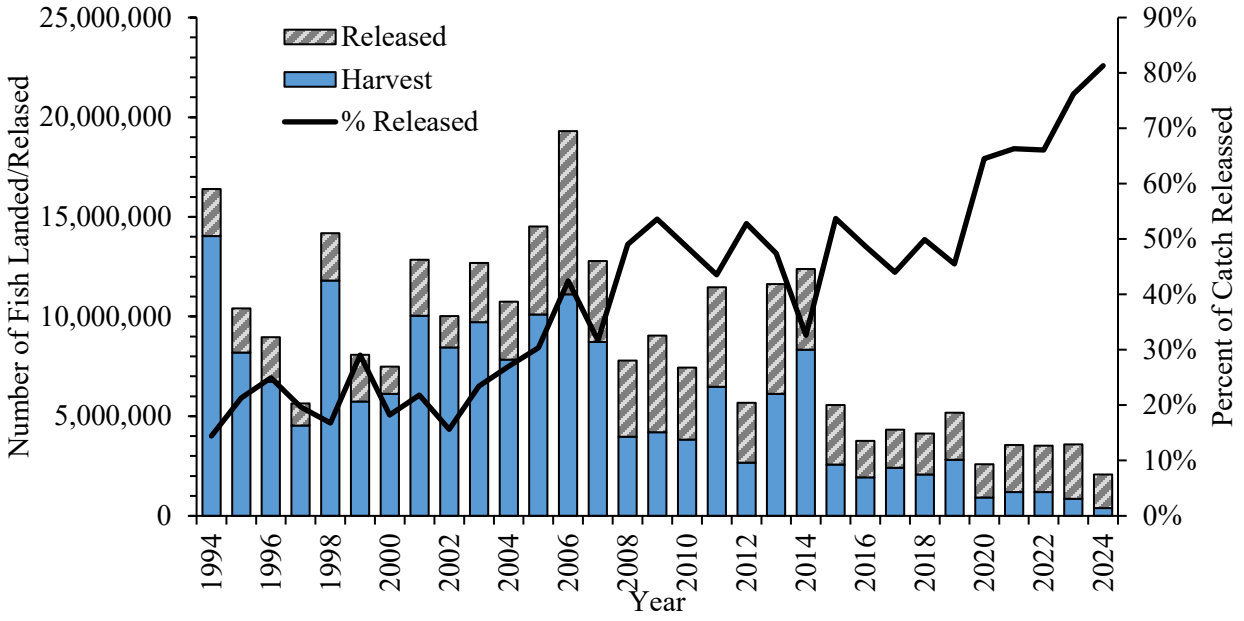

Figure 6. Recreational catch (landings and releases, in numbers) and the percent of catch that is released, 1994–2024 from the MRIP.

The number of spot measured during MRIP sampling has generally declined since 2011, with only 61 individuals measured in 2023 and 23 individuals measured in 2024, which is the lowest in the time series (Table 2). Mean fork length (FL) in 2024 was 8.1 inches and there has been little fluctuation since 1994 with mean length ranging from 7.6 to 9.2 inches. Maximum FL in 2024 was 10.5 inches, and minimum FL was 8.1 inches. Most of the recreational catch consists of spot from 6.0 to 9.0 inches FL with little change in length composition since 1994 (Figure 7; Figure 8). However, in the 1990s and early 2000s, a wider range of lengths were harvested in the recreational fishery relative to recent years. Primarily, spot over 12 inches FL have not been observed in the recreational fishery for over ten years. Length distribution from

2024 recreational catches ranged from 6 to 10 inches (Figure 8). The modal length class observed in recreational harvest for 2024 was 7 inches with 55 percent of the recreational catch within this size class.

Table 2. Mean, minimum, maximum fork length (inches), and total number of spot measured by Marine Recreational Information Program (MRIP) sampling in North Carolina, 1994–2024.

Year	Mean Fork Length	Minimum Fork Length	Maximum Fork Length	Total Number Measured
1994	8.2	5.7	35.5	2,633
1995	8.5	4.3	19.4	2,040
1996	8.5	4.9	11.6	2,376
1997	8.7	5.7	15.6	1,762
1998	8.6	6.3	12.4	1,632
1999	9.1	5.5	11.5	1,159
2000	8.6	5.5	20.5	1,223
2001	8.8	5.4	13.9	1,627
2002	8.3	6.3	12.0	860
2003	8.7	4.6	14.2	1,403
2004	9.2	4.8	12.8	2,034
2005	8.4	5.2	16.2	1,286
2006	8.9	4.8	13.5	1,216
2007	9.1	5.7	12.0	1,243
2008	8.3	5.0	12.2	1,344
2009	8.4	5.0	10.8	682
2010	8.1	5.8	12.0	1,096
2011	8.2	5.9	11.1	1,534
2012	7.9	5.6	11.7	611
2013	7.9	4.5	11.5	484
2014	8.2	4.8	11.9	344
2015	8.1	6.1	11.9	214
2016	8.0	6.3	11.0	107
2017	8.1	6.3	10.6	98
2018	8.4	5.7	10.9	125
2019	7.7	5.0	10.1	276
2020	8.1	5.0	10.1	131
2021	8.0	4.7	10.1	67
2022	8.1	6.4	11.8	69
2023	7.8	4.4	11.0	61
2024	8.1	6.5	10.5	23

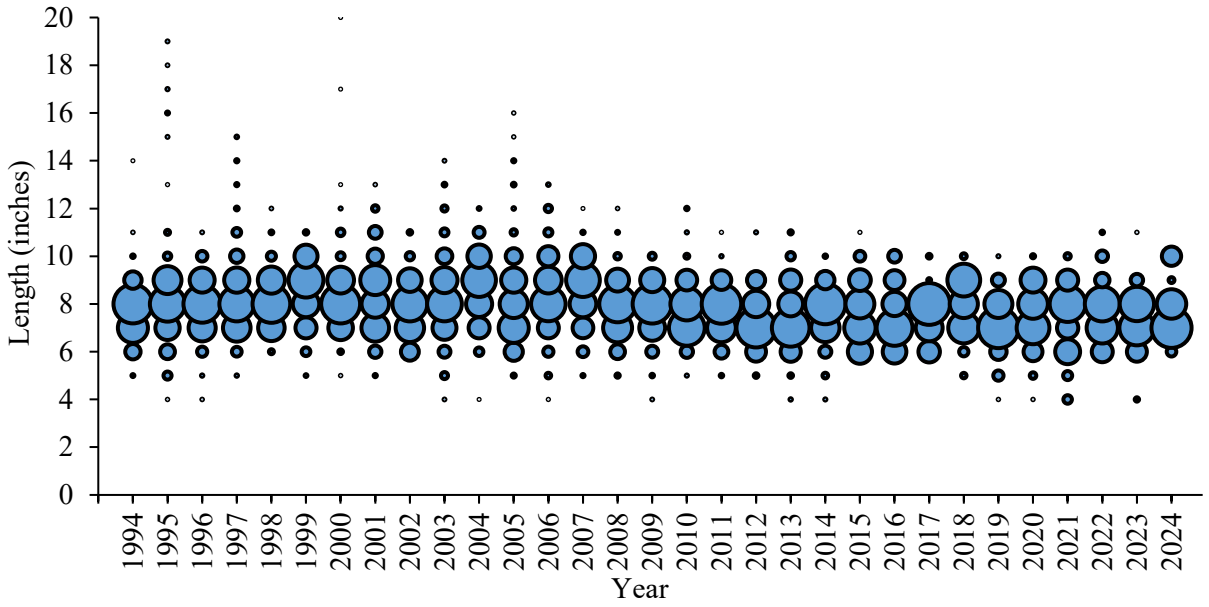

Figure 7. Recreational length frequency (fork length, inches) of spot harvested in North Carolina, 1994–2024 (MRIP, n= 29,760). Bubbles represent fish at length and the bubble size is proportional to the number of fish at that length.

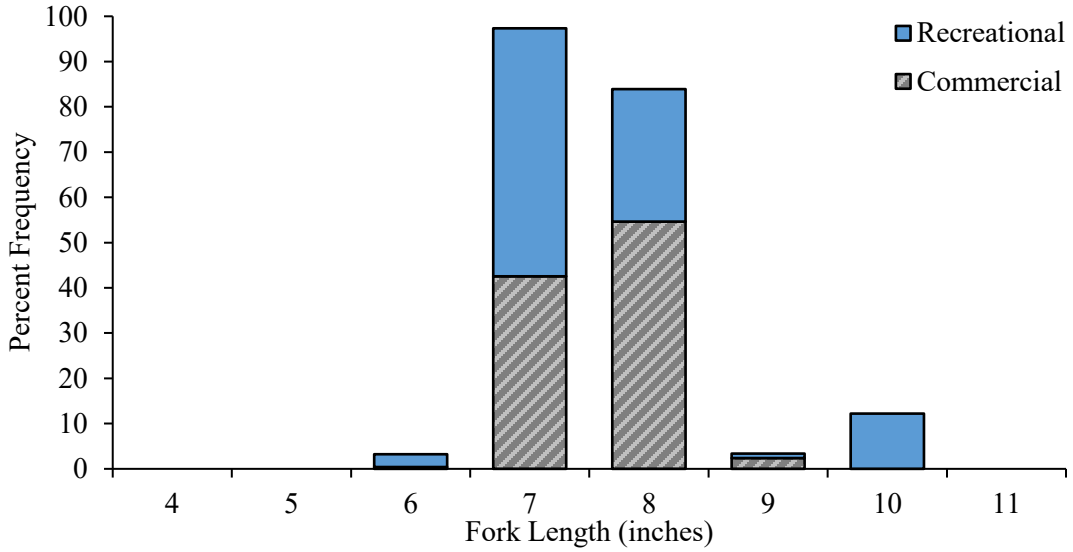

Figure 8. Commercial (n=1,135) and recreational (n=23) length frequency distribution for spot harvested in North Carolina, 2024.

Spot are targeted recreationally by shore-based anglers and those fishing from private vessels during the fall. Harvest data from the Recreational Commercial Gear License (RCGL) were collected from 2002 to 2008. The program was discontinued in 2009 due to a lack of funding. From 2002 to 2008, an average of 203,383 pounds was harvested per year, ranging from 97,753 to 339,077 pounds (NCDMF 2021).

MONITORING PROGRAM DATA

Fishery-Dependent Monitoring

In 2024, 1,135 spot lengths were obtained from commercial fish house sampling with a mean FL of 8.1 inches, and lengths ranging from 6.7 to 9.8 inches. The minimum length observed in 2024 was 6.7 inches and was the highest minimum length for any year in the time series. Mean FL has been relatively stable across the time series ranging from 6.7 to 8.9 inches. The number of spot lengths obtained from commercial fish house sampling has generally decreased since 2005 ranging from a low of 1,135 lengths in 2024 to 15,616 in 2000 (Table 3). Bait samples are not included in minimum, maximum, and mean length calculations.

Table 3. Mean, minimum, maximum fork length (inches), and total number of spot measured from North Carolina commercial fish house samples, 1994–2024. Bait samples are not included.

Year	Mean Length	Minimum Length	Maximum Length	Number Measured
1994	6.7	3.9	11.9	9,066
1995	6.7	3.9	11.4	11,026
1996	7.3	3.9	11.8	14,010
1997	7.3	3.9	13.3	15,331
1998	7.4	3.9	12.2	11,726
1999	7.7	3.9	11.7	9,176
2000	7.9	3.9	17.6	15,616
2001	8.5	3.9	12.4	15,584
2002	8.4	3.9	17.8	13,029
2003	8.6	3.9	13.9	12,907
2004	8.8	3.9	15.0	12,366
2005	8.9	4.0	13.1	15,532
2006	8.3	4.1	13.2	13,503
2007	7.9	3.9	12.0	13,889
2008	7.9	3.9	13.3	10,744
2009	8.1	3.9	11.7	9,087
2010	8.1	3.9	11.6	7,491
2011	8.1	4.3	13.1	8,906
2012	8.0	4.1	11.8	4,457
2013	8.3	4.2	13.3	4,699
2014	8.2	4.1	13.1	6,650
2015	8.3	4.3	11.6	4,543
2016	8.0	4.9	12.8	2,250
2017	8.3	4.4	11.7	2,648
2018	7.9	4.2	10.9	2,241
2019	7.9	4.4	12.9	3,719
2020	8.0	5.0	12.5	3,200
2021	8.0	4.9	12.0	3,085
2022	8.0	4.4	11.7	2,587
2023	8.1	4.4	10.5	2,070
2024	8.1	6.7	9.8	1,135

Modal length generally increased from 1994 to the early 2000's (Figure 9). The range of lengths harvested narrowed in the late 2000s with little change since. Size composition in 2024 commercial samples indicate a dominance of spot from the 7.0- and 8.0-inch size classes (Figure 9).

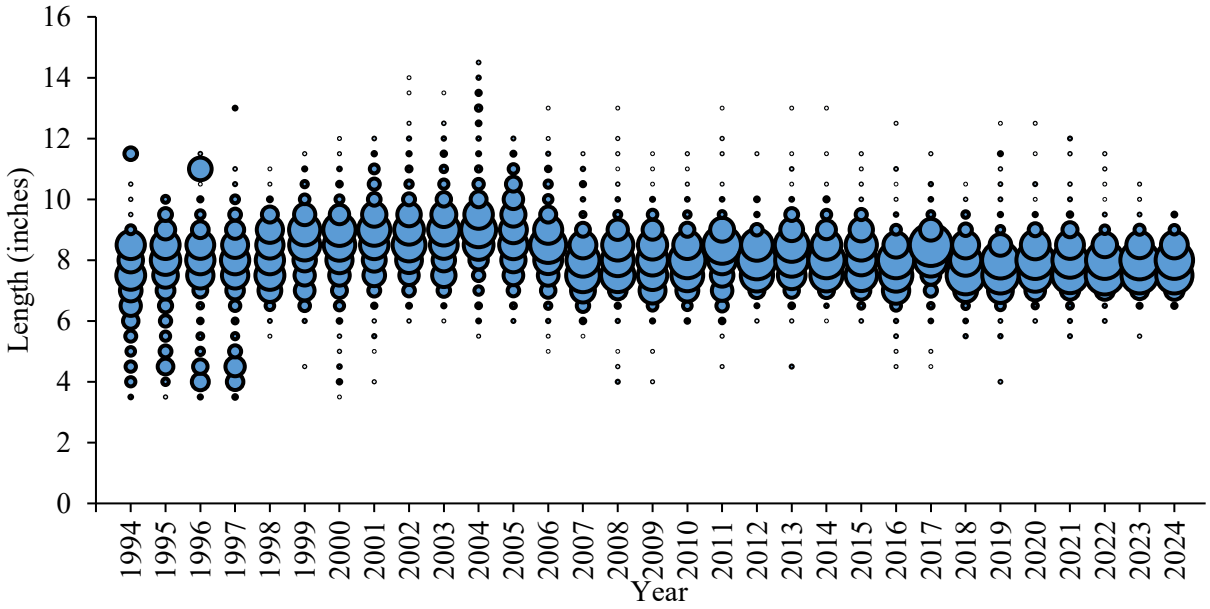

Figure 9. Commercial length frequency (fork length, inches) of spot harvested from 1994 to 2024. Bubbles represent fish at length and the bubble size is proportional to the number of fish at that length (n=262,273). Bait samples not included.

Fishery-Independent Monitoring

The number of spot aged in North Carolina's comprehensive life history program (P930) using otoliths from 1997 through 2024 has ranged from 230 to 776 (Table 4). In 2024, 680 spot were aged with a modal age of one and maximum age of four. The maximum age observed was three from 2013 to 2022. Modal age was one in every year except 2004 when modal age was two and 2016 when modal age was zero. Minimum age was zero in every year, while maximum age ranged from two to six and is most frequently three. There is substantial overlap in length at age for ages zero through three with length at age becoming less variable after age four (Figure 10).

Table 4. Modal, minimum, maximum age, and total number of spot aged in North Carolina from fishery dependent and fishery independent sampling, 1997–2024. Includes otolith ages only and only samples for which a length was recorded.

Year	Modal Age	Minimum Age	Maximum Age	Total Number Aged
1997	1	0	3	263
1998	1	0	3	603
1999	1	0	2	522
2000	1	0	3	551
2001	1	0	4	555
2002	1	0	5	603
2003	1	0	4	354
2004	2	0	6	455
2005	1	0	6	529
2006	1	0	5	501
2007	1	0	3	284
2008	1	0	3	408
2009	1	0	3	365
2010	1	0	3	268
2011	1	0	3	413
2012	1	0	4	230
2013	1	0	3	360
2014	1	0	3	687
2015	1	0	3	505
2016	0	0	3	373
2017	1	0	3	528
2018	1	0	3	516
2019	1	0	3	440
2020	1	0	3	452
2021	1	0	3	776
2022	1	0	3	392
2023	1	0	4	585
2024	1	0	4	680

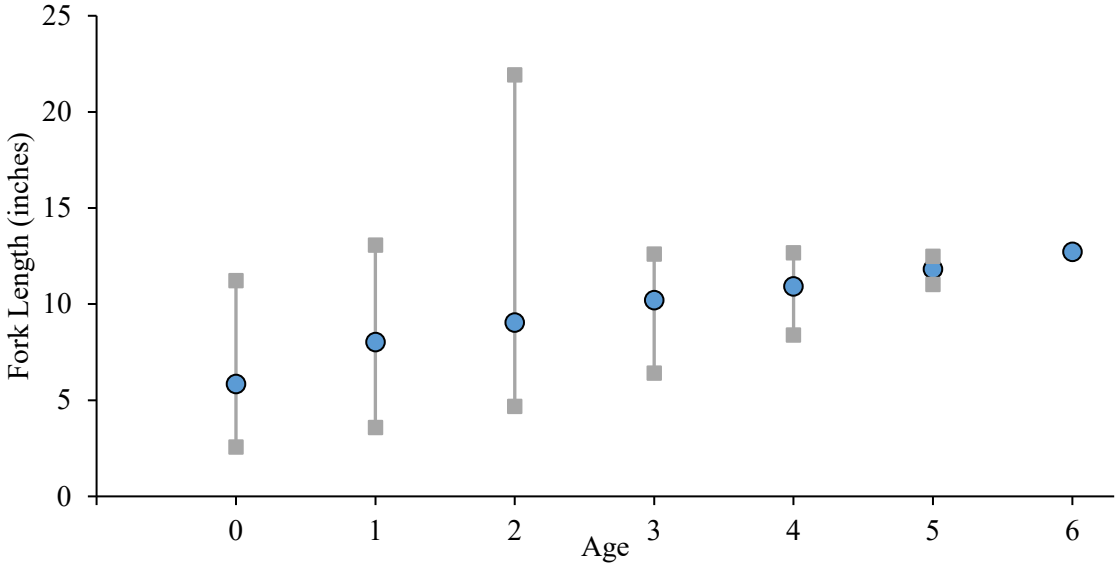

Figure 10. Spot fork length at age based on age samples collected from 1997 to 2024 (n=13,200). Blue circles represent the mean size at a given age while the grey squares represent the minimum and maximum observed size at age. Only ages derived from otoliths and from samples for which a length was recorded were used.

The Pamlico Sound Survey (Program 195) samples 54 randomly selected stations (grids) annually in June and September. Stations are randomly selected from strata based upon depth and geographic location. Tow duration is 20 minutes, using double rigged demersal mongoose trawls (9.1 m headrope, 1.0 X 0.6 m doors, 2.2-cm bar mesh body, 1.9-cm bar mesh cod end, and a 100-mesh tailbag extension). Data from this survey are used to produce juvenile abundance indices (JAI) that are incorporated into ASMFC stock assessments and reported annually to ASMFC as part of compliance reports and for incorporation into the juvenile composite TLA. Length cutoffs for juvenile spot were updated in 2022 after analyzing length distribution of age-0 and age-1 spot in P930. Juvenile spot are defined as fish <140 mm TL (5.5 inches) in June, and fish <190 mm TL (7.5 inches) in September.

The COVID pandemic impacted sampling in 2020 and 2021. Executive Order (EO) 116, issued on March 10, 2020, declared North Carolina under a State of Emergency and was soon followed by EO 120 which implemented a statewide Stay at Home Order for all non-essential State employees. In 2020, sampling was limited to 28 stations sampled in June and 35 stations sampled in September. A total of 35 stations were sampled in June 2021 and 33 stations were sampled in September 2021. Limited sampling likely impacted abundance indices calculated from Sound Survey data. An initial analysis of this impact was conducted for the 2020 spot abundance indices, and concluded the magnitude of abundance may be overestimated slightly but limited sampling was likely able to capture general abundance trends.

The spot weighted JAI from the Pamlico Sound Survey is highly variable in both June and September with a time series average of 459 and 411 respectively (Figure 11). Throughout the time series, large peaks tend to be followed by large declines. JAI reached a peak of 1,285 individuals per tow in June 2008 and 774 individuals per tow in September 2005. The June JAI declined from 2018 to 2021, dropping below the time series average in 2020 to 254 individuals per tow and 255 individuals per tow in 2021. The June JAI increased to 632 individuals per tow in 2022 before dropping to 444 individuals per tow in 2023 and again in 2024 to 249 individuals per tow. The September JAI also declined from 2018 to 2021, dropping below the time series average in 2021 to 326 individuals per tow before increasing to 582 individuals per tow in 2022 and 755 individuals per tow in 2023. The JAI for September 2023 was the second highest in the time series. The JAI for September 2024 decreased to 563 individuals per tow.

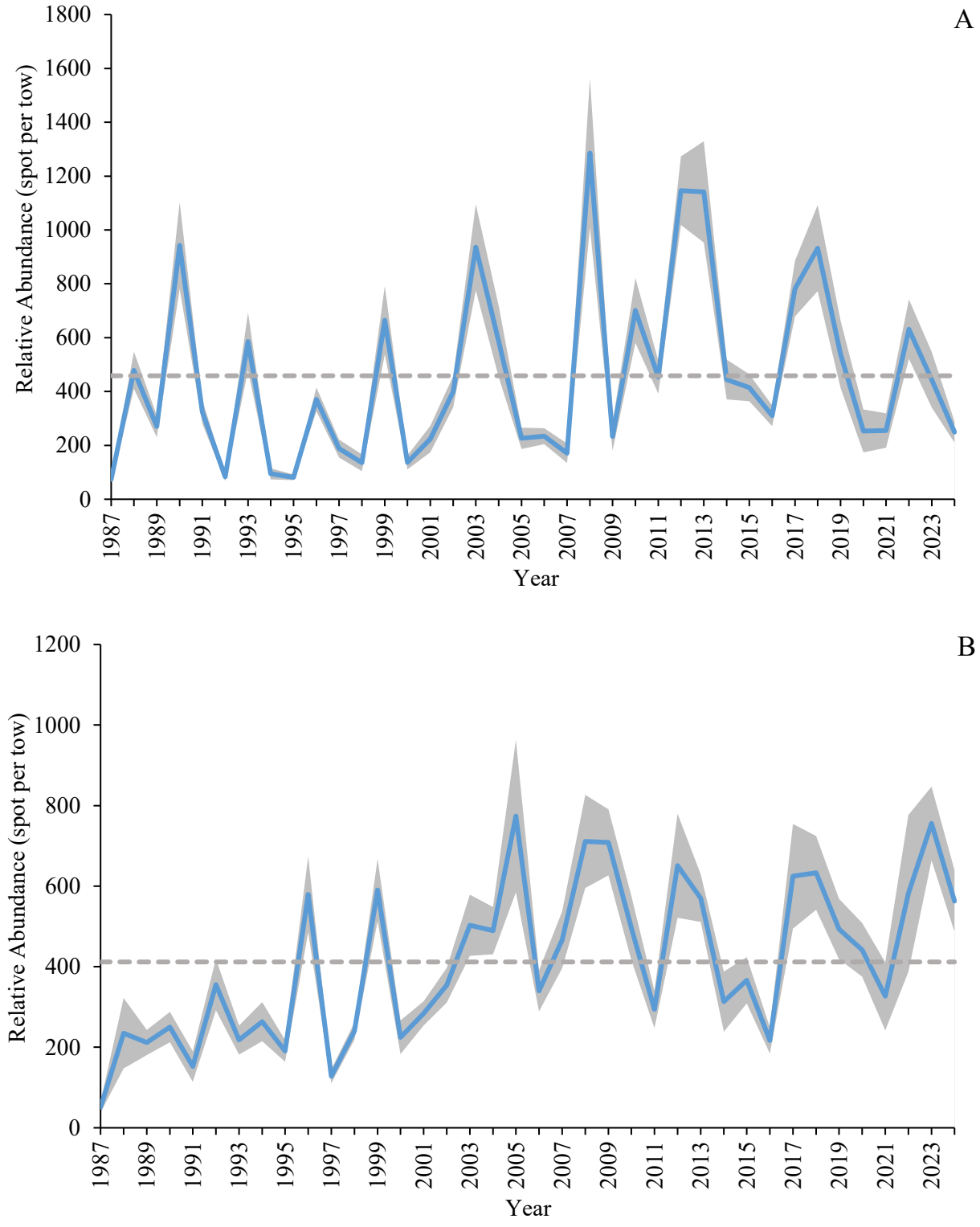

Figure 11. Spot juvenile weighted abundance index (number per tow) for A) June and B) September from the Pamlico Sound Survey, 1987–2024. Shaded area represents standard error. Dashed lines represent the time series average. Length cutoffs are <140 mm FL (5.5 in) in June and <190 mm TL (7.5 in) in September.

Most spot captured in the Pamlico Sound Survey are juveniles (age 0), but a number of age one or greater fish are captured as well, producing two distinct length modes, particularly in June. One mode is around 3.5 inches FL (age 0), and the other is around 6.0 inches FL (age 1 or greater; Figure 12). Modal length from the September portion of the Pamlico Sound Survey is more variable than June ranging from 3.0 to 5.5 inches FL with a wider range of lengths captured.

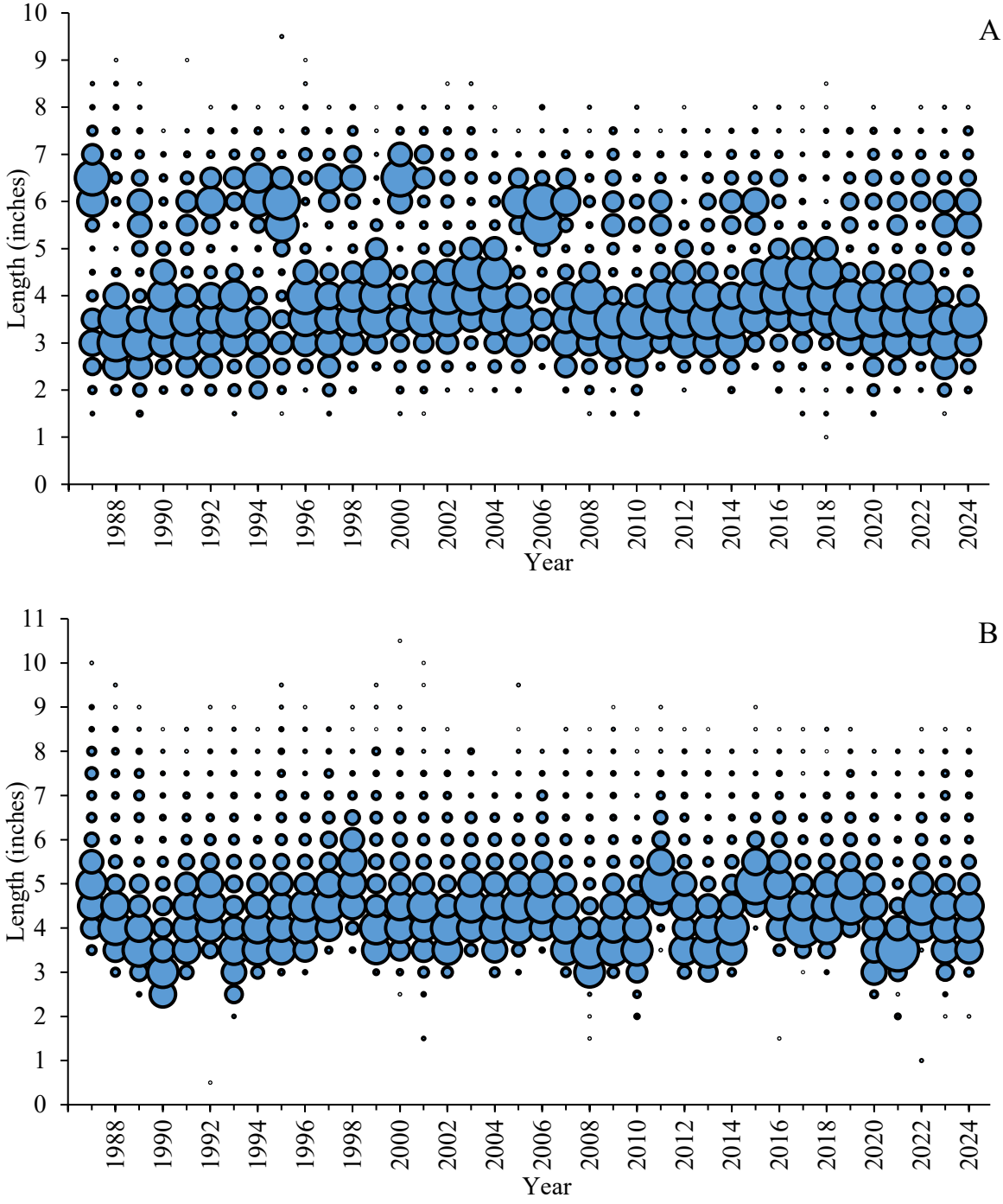

Figure 12. Length frequency (fork length, inches) of all spot captured in Pamlico Sound Survey sampling during A) June and B) September, 1987–2024. Bubbles represent fish at length and the bubble size is proportional to the number of fish at that length.

RESEARCH NEEDS

There are no research or monitoring programs required of the states except for the submission of an annual compliance report. The top three recommendations are reported below (ASMFC 2023). Additional research and monitoring recommendations can be found in the 2017 Spot Stock Assessment Peer Review Report (ASMFC 2017).

- Expand collection of life history data (age, growth, and reproduction data) from fishery dependent sources while maintaining these collections from ongoing state level fishery independent sources as well as multistate monitoring surveys. In addition, investigate identification of coastal stocks and their movement through tagging and genetic studies.
- Increase efforts to characterize commercial discards through expanded observer coverage, particularly within the shrimp trawl fishery, and develop a standardized bycatch protocol with collection of lengths and ages of discards and by-catch. Other sources for discard mortality studies include scrap and bait fisheries, commercial gears and recreational gear, and direct research and engagement of commercial harvesters.
- Investigate environmental impacts of temperature shifts, climate change and large-scale oceanic cycles (e.g., Atlantic Multi-Decadal Oscillation, AMO, and El Nino Southern Oscillation, El Nino) on recruitment SSB, stock distribution and maturity schedules for incorporation into stock assessment models.

MANAGEMENT

The TLA established under Addendum II and revised under Addendum III (approved February 2020) to the Omnibus Amendment is used as a precautionary management framework for spot. The TLA provides guidance in lieu of a current stock assessment. Addendum III incorporated the use of a regional approach (Mid-Atlantic NJ-VA and South Atlantic NC-FL) to better reflect localized fishery trends. Under this management program, if the amount of red in the Traffic Light for both population characteristics (adult abundance and harvest) meet or exceed the threshold for any two of the three most recent years, then management action is required. The harvest composite triggered at the 30% threshold in both regions in 2019. The adult abundance composite exceeded the 30% threshold in the Mid-Atlantic region but not in the South Atlantic region. Since both population characteristics were above the 30 percent threshold in at least two years (2017–2019), management actions were implemented in March 2021. Because both abundance composite indices were missing data for 2020 and 2021, a determination of whether the TLA triggered in 2021 or if management measures can be removed could not be made. The TLA was updated in 2024; however, the ASMFC Sciaenids Board selected to maintain current management measures for longer than the required two years, until results of the benchmark stock assessment planned for completion in 2027 are available for consideration.

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