## **ATLANTIC STATES MARINE FISHERIES COMMISSION**

# REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN FOR

# SPOT (*LEIOSTOMUS XANTHURUS*)

#### **2020 FISHING YEAR**



Drafted by the Plan Review Team
Approved December 2021



Sustainable and Cooperative Management of Atlantic Coastal Fisheries

## **Table of Contents**

l.	STATUS OF THE FISHERY MANAGEMENT PLAN	. 1
II.	STATUS OF THE STOCK	. 2
III.	STATUS OF THE FISHERY	. 3
IV.	STATUS OF ASSESSMENT ADVICE	. 3
V.	STATUS OF RESEARCH AND MONITORING	. 3
VI.	STATUS OF MANAGEMENT MEASURES AND ISSUES	. 5
VII.	DE MINIMIS REQUESTS	. 7
VIII.	IMPLEMENTATION OF FMP COMPLIANCE REQUIREMENTS FOR 2017	. 7
IX.	RECOMMENDATIONS OF THE PLAN REVIEW TEAM	. 7
Χ.	REFERENCES	. 8
XI.	FIGURES	. 9
XII.	TABLES	12

#### I. Status of the Fishery Management Plan

Date of FMP Approval: October 1987; Omnibus Amendment August 2011

Amendments and Addenda: Addendum II (2014); Addendum III (February 2020)

Management Area: The Atlantic coast distribution of the resource from Delaware

through Florida

Active Boards/Committees: Sciaenids Management Board; Spot Plan Review Team; Spot

Technical Committee; South Atlantic Species Advisory Panel

The Fishery Management Plan (FMP) for Spot was adopted in 1987 and includes the states from Delaware through Florida (ASMFC 1987). In reviewing the early plans created under the Interstate Fisheries Management Plan process, the ASMFC found the Spot FMP to be in need of evaluation and possible revision. A Wallop-Breaux grant from the U.S. Fish and Wildlife Service was provided to conduct a comprehensive data collection workshop for spot. The October 1993 workshop at the Virginia Institute of Marine Science was attended by university and state agency representatives from six states. Presentations on fishery-dependent and fishery-independent data, population dynamics, and bycatch reduction devices were made and discussed. All state reports and a set of recommendations were included in the workshop report (Kline and Speir 1993).

Subsequent to the workshop and independent of it, the South Atlantic State/Federal Fisheries Management Board (Management Board) reviewed the status of several plans in order to define the compliance issues to be enforced under the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA). The Management Board found recommendations in the plan to be vague and perhaps no longer valid, and recommended that an amendment be prepared to the Spot FMP to define the management measures necessary to achieve the goals of the FMP. In their final schedule for compliance under the ACFCMA, the ISFMP Policy Board adopted the finding that the FMP does not contain any management measures that states are required to implement. In August 2009, the Management Board expanded the initiated amendment to the Spanish Mackerel FMP to include spot and spotted seatrout, creating the Omnibus Amendment for Spot, Spotted Seatrout and Spanish Mackerel. The goal of the Omnibus Amendment was to update all three plans with requirements specified under the Atlantic Coastal Fisheries Cooperative Management Act (1993) and the Interstate Fishery Management Program Charter (1995). In August 2011, the Management Board approved the Omnibus Amendment for Spot, Spotted Seatrout, and Spanish Mackerel. This Amendment did not set specific management measures for spot but it did align management of the species with the requirements of ACFCMA.

In August 2014, the Board approved <u>Addendum II to the Omnibus Amendment</u>. The Addendum establishes use of a Traffic Light Analysis (TLA) to evaluate fisheries trends and develop state-

specified management actions (e.g., bag limits, size restrictions, time and area closures, and gear restrictions) when harvest and abundance thresholds are exceeded.

In February 2020, the Board approved <u>Addendum III to the Omnibus Amendment</u>, which revised the TLA's trigger mechanism and management responses for the recreational and commercial fisheries. Under Addendum III, management action is triggered if harvest and abundance thresholds within a regional or coastwide TLA analysis are met or exceeded for any two of the three terminal years. 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.

#### II. Status of the Stock

A benchmark stock assessment for spot was completed in 2017 but was not recommended for management use by the Peer Review Panel (ASMFC 2017). Therefore, stock status is unknown. The stock is monitored annually using the Traffic Light Analysis, described below.

#### Traffic Light Approach

As part of the requirements under the 2011 Omnibus Amendment, for years in-between benchmark stock assessments, the Spot PRT was tasked with conducting annual monitoring analyses. These trigger exercises compared five data sources to the 10<sup>th</sup> percentile of the data sets' time series. If two terminal values of the five data sources (at least one of which must be fishery independent) fell below the 10<sup>th</sup> percentile, the Management Board would be prompted to consider management action.

In August 2014, the Board approved Addendum II to the Omnibus Amendment. The Addendum established the Traffic Light Approach (TLA) as the new precautionary management framework to evaluate fishery trends and develop management actions. The TLA framework replaces the management trigger stipulated in the Omnibus Amendment after concern that the triggers were limited in their ability to illustrate long-term declines or increases in stock abundance. In contrast, the TLA is a statistically-robust way to incorporate multiple data sources (both fishery-independent and -dependent) into a single, easily understood metric for management advice. It is an effective method to illustrate long-term trends in the fishery.

The TLA was originally developed as a management tool for data poor fisheries. The name comes from assigning a color (red, yellow, or green) to categorize relative levels of population indicators. When a population characteristic improves, the proportion of green in the given year increases. Harvest and abundance thresholds of 30% and 60% red were established in Addendum II, representing moderate and significant concern for the fishery. If thresholds for both adult population characteristics achieved or exceeded a threshold for a two year period, then management action was enacted. Under recently approved Addendum III, management action will be triggered if harvest and abundance thresholds within a regional or coastwide TLA

analysis are met or exceeded for any two of the three terminal years. Management measures were triggered at the 30% threshold after reviewing the 2020 TLA (2019 terminal year).

#### III. Status of the Fishery

Total landings of spot in 2020 are estimated at 8.2 million pounds, an increase from 2019 (6.3 million pounds) and just under the 10 year average of 8.9 million pounds (Tables 1 and 2). The recreational fishery harvested more than the commercial fishery (76% and 23% respectively, by pounds). Although historical harvests were more evenly split between sectors, since 2005 harvests have been heavily recreational (roughly 30% commercial and 70% recreational, by pounds).

Commercial spot landings have ranged between 617,288 and 14.52 million pounds from 1950-2020 (Figure 1). In 2020, 1.9 million pounds were harvested commercially. Virginia landed approximately 62% of the commercial harvest in 2019, followed by North Carolina with 28% (Table 1). Spot are a major component of Atlantic coast scrap landings (NCDMF 2001). A scrap fishery is one in which fish species that are unmarketable as food, due to size or palatability, are sold unsorted, usually as bait. The majority of removals for spot come from the South Atlantic shrimp trawl fishery discards (ASMFC 2017).

The recreational harvest of spot along the Atlantic coast from 1981 to 2020 has varied between 12.8 and 54.4 million fish (or 3.3 and 17.3 million pounds; Figures 1 and 2). Recreational harvest has fluctuated widely throughout the time series. Harvest has generally declined from the most recent peak in 2014, with the time series low harvest occurring in 2018. In 2020, recreational landings were 20.5 million fish (6.3 million pounds), an increase of 5.5 million fish (1.6 million pounds) from 2019 (Tables 2 and 3). Anglers in Virginia harvested 73% of the coastwide number of fish in 2020, followed by anglers in Maryland (18%). Many anglers are known to catch spot to use as bait, as well as for other recreational purposes. The estimated number of spot released annually by recreational anglers has varied between 4.7 and 30.4 million fish, with 2020 releases estimated at 13.5 million fish, a 2 million fish increase from 2019. Releases have been increasing annually since 2018 (Figure 2, Table 4).

#### IV. Status of Assessment Advice

A benchmark stock assessment for spot was completed in 2017 but was not recommended by the Peer Review Panel for management use because of uncertainty in biomass estimates due to conflicting signals among abundance indices and catch time series, as well as sensitivity of model results to assumptions and model inputs (ASMFC 2017). The Review Panel recommended continued annual monitoring of spot through the TLA, with incorporation of shrimp trawl discard estimates, and another benchmark assessment in 2024.

#### V. Status of Research and Monitoring

There are no research or monitoring programs required of the states except for the submission of an annual compliance report. Catch and effort data are collected by the commercial and

recreational statistics programs conducted by the states and the National Marine Fisheries Service (NMFS). Biological characterization data from fishery landings are also available from several states. Specifically, age data are now available from Maryland, Virginia, North Carolina, and South Carolina. Many states may have experienced an interruption in sampling efforts in both recreational and commercial fishery surveys during the 2020 calendar year. Recruitment indices are available from surveys in Delaware, Maryland, Virginia, North Carolina, and South Carolina. Adult or aggregate (mix of juvenile and older spot) relative abundance indices are available from New Jersey, Delaware, North Carolina, South Carolina, Georgia, and SEAMAP (covering North Carolina through Florida). These surveys, in addition to the Northeast Fisheries Science Center Bottom Trawl Survey, the Northeast Area Monitoring and Assessment Program (NEAMAP), the Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP), which is still undergoing calibration efforts, and the Chesapeake Bay Fishery-Independent Multispecies Survey (CHESFIMS), collect a variety of biological data elements. Many of these surveys were either suspended or interrupted in 2020 due to the COVID-19 pandemic.

#### Traffic Light Approach

The TLA harvest metric uses commercial and recreational harvest, both of which were available for 2020, although the pandemic impacted harvest and monitoring programs. The Mid-Atlantic abundance index is based on the Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP) which was not available for 2020 due to lack of calibration factors and the Northeast Fishery Science Center (NEFSC) Multispecies Bottom Trawl Survey which did not sample in 2020. The South Atlantic abundance index is based on the South Carolina Department of Natural Resources (SCDNR) Trammel Net Survey, which was available in 2020, the Southeast Area Monitoring and Assessment Program (SEAMAP), which did not sample in 2020, and the NC P195 survey, which did sample in 2020 under restricted conditions. Therefore, the harvest metric was calculated for 2020, but both the Mid-Atlantic and South Atlantic abundance metrics are incomplete for 2020.

The Mid-Atlantic harvest metric has triggered at 30% red in two of the three terminal years (2018 and 2019; Figure 3) and the South Atlantic harvest metric has triggered at 30% red in all three the terminal years (2018-2020; Figure 4).

While abundance metrics could not be calculated due to missing 2020 data, Addendum III specifies TLA triggers based on the three terminal years so assumptions can still be made regarding abundance. For the Mid-Atlantic, one of the three terminal years triggered at 30% red (2018) while two of the three are unknown (2019-2020; Figure 5). This metric did trigger at 30% during 2020 TLA for the 2019 fishing year. In the South Atlantic, two of the three terminal years (2018-2019) did not trigger at any level and therefore the 2020 data would not change status regardless of its value (Figure 6).

The harvest triggered at the 30% threshold in both the Mid-Atlantic and South Atlantic in 2020 indicating continued concern. The abundance did not trigger at any level for the South Atlantic

and is undetermined for the Mid-Atlantic due to missing 2020 data, although it could be determined that the Mid-Atlantic did not trigger at the elevated 60% threshold because the harvest metric did not trigger at this elevated level. Regardless, the previous TLA (2019 terminal year) indicated that the Mid-Atlantic triggered at 30%. Addendum III requires management action triggered in 2020 to remain in place for a minimum of two years (thorough and including the 2021 and 2022 seasons). The adult abundance composite of future TLAs will determine when management actions can be relaxed.

#### VI. Status of Management Measures and Issues

The FMP for spot identified two management measures for implementation: 1) promote the development and use of bycatch reduction devices through demonstration and application in trawl fisheries, and 2) promote increases in spot yield per recruit by delaying their entry into the fishery until age one or older.

Considerable progress has been made in developing bycatch reduction devices (BRDs) and evaluating their effectiveness. Proceedings from a 1993 spot and Atlantic croaker workshop summarized much of the experimental work on bycatch reduction, and many states have conducted subsequent testing. For example, North Carolina Division of Marine Fisheries (NCDMF) conducted research on the four main gear types (shrimp trawl, flynet, long haul seine, and pound net) responsible for the bulk of the scrap fish landings in order to reduce the catch of small fish. State testing of shrimp trawl BRDs achieved finfish reductions of 50-70% with little loss of shrimp, although total bycatch numbers relative to shrimp fishery effort are still unknown. The Virginia Marine Resources Commission investigated the use of culling panels in pound nets and long haul seines to release small Atlantic croaker, spot, and weakfish. The Potomac River Fisheries Commission (PRFC) also investigated the use of culling panels in pound nets, finding that the panels allowed the release of 28% of captured spot less than six inches in length.

Following favorable testing, devices have been made mandatory or recommended in several state fisheries. The use of BRDs is required in all penaeid shrimp trawl fisheries in the South Atlantic. The PRFC recommends the use of culling panels in pound nets and allows those nets with panels to keep one bushel of bycatch of flounder and weakfish. In North Carolina, escapement panels have been required in the bunt nets of long haul seines in an area south and west of Bluff Shoals in the Pamlico Sound since April 1999. However, evaluation of the beneficial effects of BRDs to spot stocks continues to need further study.

General gear restrictions, such as minimum mesh sizes or area trawling bans, have helped protect some age classes of spot. Georgia has a spot creel limit (25 fish, both recreational and

commercial, except for shrimp trawlers). South Carolina has an aggregate bag limit (50 fish) for hook and line fishing of spot, Atlantic croaker, and kingfish/whiting (*Menticirrhus* sp.).

#### Omnibus Amendment (Interstate)

In August 2011, the Management Board approved the development of an amendment to the Spot FMP to address three issues: compliance measures, consistency with federal management in the exclusive economic zone, and alignment with Commission standards. The updated FMP's objectives are to: (1.) Increase the level of research and monitoring on spot bycatch in other fisheries, in order to complete a coastwide stock assessment (2.) Manage the spot fishery stock to maintain the spawning stock biomass above the target biomass levels. (3.) 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.

#### <u>Addendum II</u>

In August 2014, the Board approved Addendum II which establishes a new management framework (i.e., Traffic Light Approach) to evaluate fisheries trends and develop state-specified management actions (i.e., bag limits, size restrictions, time & area closures, and gear restrictions) when harvest and abundance thresholds are exceeded over two years. Management measures would remain in place for two years.

#### Addendum III

In February 2020, the Board approved Addendum III, which revises the TLA and requires coastwide management action if harvest and abundance thresholds are exceeded in two of the three most recent years. Management measures would remain in place for a minimum of two years and until abundance characteristics are no longer triggering management action.

#### Recent Changes in State Regulations

In 2020, there were no new changes to state regulations. Due to the triggering of the 2020 TLA at the moderate, 30%, threshold, states submitted implementation plans to adopt regulations according to Addendum III. For spot, non *de minimis* states are required to implement a 50-fish recreational bag limit and reduce the average 10 year commercial harvest by 1%. New regulations must be in place by the end of 2021.

#### De minimis Guidelines

A state qualifies for *de minimis* status if its past 3-years' average of the combined commercial and recreational catch is less than 1% of the past 3-years' average of the coastwide combined commercial and recreational catch. Those states that qualify for *de minimis* are not required to

implement any monitoring requirements, none of which are included in the plan, and are not required to implement TLA triggered regulations outlined in Addendum III.

#### VII. De Minimis Requests

New Jersey, Delaware, and Georgia request *de minimis* status. New Jersey and Georgia meet the requirements, while Delaware exceeds 1% with 1.1% of the 3-year coastwide average. Delaware has historically been de minimis, and the PRT agreed to recommend *de minimis* status for an additional year to ensure that there is an established fishery. The PRT will continue to monitor the situation and recommends that the Board approved the *de minimis* requests from New Jersey, Delaware, and Georgia.

#### VIII. Implementation of FMP Compliance Requirements for 2020

All states within the management unit have submitted compliance reports for the 2020 fishing year. The PRT found no compliance issues.

#### IX. Recommendations of the Plan Review Team

The PRT once again recommends that the Board consider changing the *de minimis* process and criteria. The PRT would like to see separate commercial and recreational *de minimis* measures in place, rather than the combined recreational and commercial *de minimis* criteria. A change here will not only mirror Atlantic croaker *de minimis* structure, but provide more state flexibility for managing their commercial and recreational fisheries.

#### Research and Monitoring Recommendations

Additional research recommendations can be found in the most recent stock assessment found here. The PRT had the additional research recommendations:

- 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, 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.

#### X. References

Atlantic States Marine Fisheries Commission (ASMFC). 1987. Fishery Management Plan for Spot. Washington (DC): ASMFC. Fisheries Management Report #11. 90 p.

ASMFC. 2017. <u>Spot Stock Assessment Peer Review Report</u>. ASMFC, Stock Assessment Peer Review Report, 12 p.

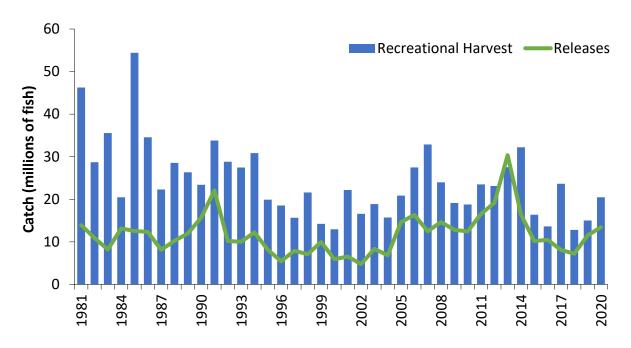
Kline LL, Speir H (editors). 1993. Proceedings of a Workshop on Spot (*Leiostomus xanthurus*) and Atlantic Croaker (*Micropogonias undulatus*). Washington (DC): Atlantic States Marine Fisheries Commission. Special Report #25. 175 p.

NCDMF. 2001. Assessment of North Carolina commercial finfisheries, 1997–2000. Final Report, North Carolina Department of Environment and Natural Resources, Division of Marine Fisheries, Award Number NA 76 FI 0286, 1-3.

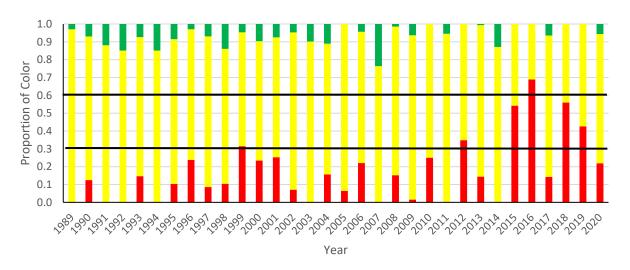
Spot Plan Review Team (PRT). 2012. Spot Data Availability and Stock Monitoring Report, 2009. Washington (DC): Atlantic States Marine Fisheries Commission. Report to the South Atlantic State-Federal Fisheries Management Board. 85 p.

#### XI. **Figures ■**Commercial Recreational Harvest (millions of pounds)

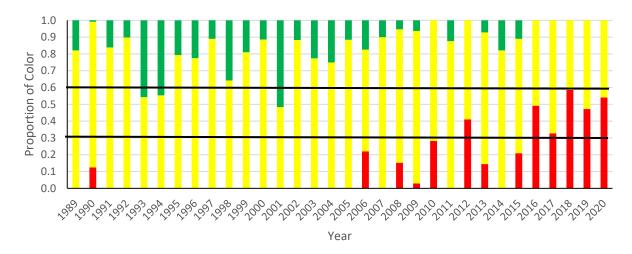
**Figure 1.** Spot commercial and recreational landings (pounds), 1950-2020. (Recreational landings available from 1981-present; see Tables 1 and 2 for state-by-state values from 2011-2020 and data sources)



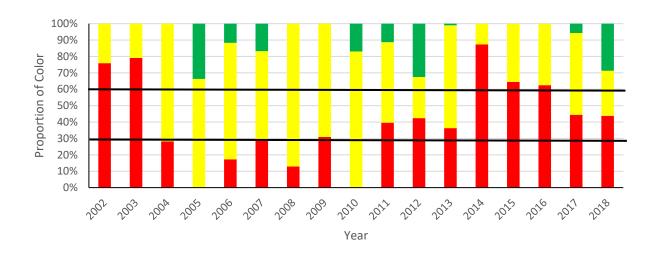
**Figure 2.** Spot recreational harvest and releases (numbers of fish), 1981-2019. (See Tables 4 and 5 for state-by-state values from 2011-2020 and data source)



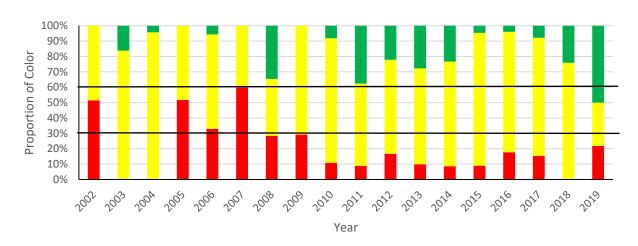
**Figure 3.** Annual color proportions for the Mid-Atlantic (NJ-VA) harvest composite for spot from the 2020 Traffic Light Approach.



**Figure 4.** Annual color proportions for the South Atlantic (NC-FL) harvest composite for spot from the 2020 Traffic Light Approach.



**Figure 5.** Adult (age 1+) spot TLA composite characteristic index for the Mid-Atlantic (NEFSC and ChesMMAP) (No 2019 or 2020 data point due to ChesMMAP recalibration).



**Figure 6.** Annual TLA composite characteristic for adult spot (age 1+) in the South Atlantic (SEAMAP and NCDMF Program 195) using a 2002-2012 reference period.

#### XII. Tables

**Table 1.** Commercial landings (pounds) of spot by state 2011-2020. (Source: ACCSP for 2019 and earlier for all jurisdictions, except PRFC; annual compliance reports for 2020 and for all PRFC years. "C" values are confidential. Total values adhere to the ACCSP rule of 3, i.e. totals are reflective of the true total if 0 or at least 3 states' data are confidential in a given year. Otherwise, they are sums of non-confidential data.)

Year	N of NJ	NJ	DE	MD	PRFC	VA
2011	С	54,890	С	618,569	60,106	3,687,377
2012	95,850	9,935	С	99,456	14,563	600,351
2013	179,980	48,324	С	335,462	41,286	2,044,538
2014	2,112	29,683	С	348,435	148,908	3,843,869
2015	1,600	86	С	96,102	86,972	1,369,520
2016	1,880	26	С	18,105	8,480	266,859
2017	12,269	2,418	С	117,279	41,748	1,596,523
2018	4,696	10,809	С	58,480	41,747	558,932
2019	С	С	С	33,043	С	1,094,523
2020	684	С	С	73,669	С	1,220,232
	NC	SC	GA	FL		Total
2011	<b>NC</b> 936,970	<b>SC</b> 12,162	<b>GA</b> C	<b>FL</b> 33,889		<b>Total</b> 5,272,523
2011 2012						
	936,970	12,162	С	33,889		5,272,523
2012	936,970 489,678	12,162 541	C C	33,889 36,744		5,272,523 1,345,459
2012 2013	936,970 489,678 768,592	12,162 541 2,446	C C	33,889 36,744 31,368		5,272,523 1,345,459 3,451,995
2012 2013 2014	936,970 489,678 768,592 766,224	12,162 541 2,446 5,917	C C C	33,889 36,744 31,368 16,742		5,272,523 1,345,459 3,451,995 5,281,330
2012 2013 2014 2015	936,970 489,678 768,592 766,224 376,979	12,162 541 2,446 5,917 1,619	C C C C	33,889 36,744 31,368 16,742 27,969		5,272,523 1,345,459 3,451,995 5,281,330 1,963,850
2012 2013 2014 2015 2016	936,970 489,678 768,592 766,224 376,979 241,044	12,162 541 2,446 5,917 1,619 1,059	C C C C C	33,889 36,744 31,368 16,742 27,969 82,875		5,272,523 1,345,459 3,451,995 5,281,330 1,963,850 617,288
2012 2013 2014 2015 2016 2017	936,970 489,678 768,592 766,224 376,979 241,044 415,465	12,162 541 2,446 5,917 1,619 1,059 3,200	C C C C C	33,889 36,744 31,368 16,742 27,969 82,875 47,304		5,272,523 1,345,459 3,451,995 5,281,330 1,963,850 617,288 2,237,922

**Table 2.** Recreational harvest (pounds) of spot by state, 2011-2020. (Source: MRIP for 2019 and earlier and annual compliance reports for 2020. Data dating back to 1981 are available upon request to the NMFS Fisheries Statistics Division.)

Year	N of NJ	NJ	DE	MD	VA
2011		532	169,341	732,588	3,437,094
2012	121,071	544,509	80,962	755,265	3,091,344
2013	18,889	423,887	244,253	720,315	3,443,742
2014		27,847	352,714	1,465,861	4,322,812
2015	0	0	30,693	469,462	551,389
2016		678	9,606	278,994	1,211,694
2017	0	1,064	340	1,086,667	5,019,896
2018	8,054	45,879	23,968	327,930	1,753,064
2019	3,719	13,451	72,556	809,736	2,283,558
2020	1,000	450	19,392	1,019,065	4,589,353
% Imputed data in 2020	0%	0%	0%	1%	13%
	NC	SC	GA	FL	Total
2011	NC 2,201,947	<b>SC</b> 1,118,599	<b>GA</b> 790	<b>FL</b> 358,943	<b>Total</b> 8,019,834
2011 2012					
	2,201,947	1,118,599	790	358,943	8,019,834
2012	2,201,947 760,276	1,118,599 1,332,541	790 305	358,943 165,523	8,019,834 6,851,796
2012 2013	2,201,947 760,276 1,789,251	1,118,599 1,332,541 1,708,520	790 305 10,525	358,943 165,523 213,949	8,019,834 6,851,796 8,573,331
2012 2013 2014	2,201,947 760,276 1,789,251 2,877,483	1,118,599 1,332,541 1,708,520 415,937	790 305 10,525 15,371	358,943 165,523 213,949 992,221	8,019,834 6,851,796 8,573,331 10,470,246
2012 2013 2014 2015	2,201,947 760,276 1,789,251 2,877,483 833,390	1,118,599 1,332,541 1,708,520 415,937 2,539,187	790 305 10,525 15,371 2,573	358,943 165,523 213,949 992,221 861,523	8,019,834 6,851,796 8,573,331 10,470,246 5,288,217
2012 2013 2014 2015 2016	2,201,947 760,276 1,789,251 2,877,483 833,390 558,799	1,118,599 1,332,541 1,708,520 415,937 2,539,187 1,437,534	790 305 10,525 15,371 2,573 20,727	358,943 165,523 213,949 992,221 861,523 102,356	8,019,834 6,851,796 8,573,331 10,470,246 5,288,217 3,620,388
2012 2013 2014 2015 2016 2017	2,201,947 760,276 1,789,251 2,877,483 833,390 558,799 909,796	1,118,599 1,332,541 1,708,520 415,937 2,539,187 1,437,534 522,645	790 305 10,525 15,371 2,573 20,727 8,282	358,943 165,523 213,949 992,221 861,523 102,356 76,502	8,019,834 6,851,796 8,573,331 10,470,246 5,288,217 3,620,388 7,625,192
2012 2013 2014 2015 2016 2017 2018	2,201,947 760,276 1,789,251 2,877,483 833,390 558,799 909,796 597,511	1,118,599 1,332,541 1,708,520 415,937 2,539,187 1,437,534 522,645 272,501	790 305 10,525 15,371 2,573 20,727 8,282 5,481	358,943 165,523 213,949 992,221 861,523 102,356 76,502 257,594	8,019,834 6,851,796 8,573,331 10,470,246 5,288,217 3,620,388 7,625,192 3,291,982

**Table 3.** Recreational harvest (numbers) of spot by state, 2011-2020. (Source: MRIP for 2019 and earlier and annual compliance reports for 2020. Data dating back to 1981 are available upon request to the NMFS Fisheries Statistics Division.)

Year	N of NJ	NJ	DE	MD	VA
2011		1,206	486,289	2,125,025	10,128,581
2012	168,109	2,189,239	213,687	2,120,554	10,147,723
2013	51,903	1,177,944	581,699	2,456,346	11,733,669
2014		54,853	590,613	4,396,291	13,652,625
2015	0	0	90,796	1,352,278	1,731,063
2016		2,052	29,700	1,145,272	5,279,153
2017	0	2,412	1,057	3,250,553	15,944,413
2018	39,083	106,332	70,390	1,209,971	7,360,908
2019	17,517	108,765	220,296	2,643,233	7,647,077
2020	6,046	2,133	58,294	3,640,484	14,963,420
		-	-		·
	NC	SC	GA	FL	Total
2011	<b>NC</b> 6,480,714	<b>SC</b> 3,174,678	<b>GA</b> 1,792	<b>FL</b> 1,096,887	<b>Total</b> 23,495,172
2011 2012					
	6,480,714	3,174,678	1,792	1,096,887	23,495,172
2012	6,480,714 2,677,082	3,174,678 5,003,162	1,792 1,230	1,096,887 590,701	23,495,172 23,111,487
2012 2013	6,480,714 2,677,082 6,120,985	3,174,678 5,003,162 4,704,723	1,792 1,230 41,546	1,096,887 590,701 660,760	23,495,172 23,111,487 27,529,575
2012 2013 2014	6,480,714 2,677,082 6,120,985 8,343,467	3,174,678 5,003,162 4,704,723 1,258,300	1,792 1,230 41,546 68,852	1,096,887 590,701 660,760 3,847,994	23,495,172 23,111,487 27,529,575 32,212,995
2012 2013 2014 2015	6,480,714 2,677,082 6,120,985 8,343,467 2,572,738	3,174,678 5,003,162 4,704,723 1,258,300 7,538,334	1,792 1,230 41,546 68,852 8,489	1,096,887 590,701 660,760 3,847,994 3,081,786	23,495,172 23,111,487 27,529,575 32,212,995 16,375,484
2012 2013 2014 2015 2016	6,480,714 2,677,082 6,120,985 8,343,467 2,572,738 1,928,716	3,174,678 5,003,162 4,704,723 1,258,300 7,538,334 4,974,300	1,792 1,230 41,546 68,852 8,489 61,252	1,096,887 590,701 660,760 3,847,994 3,081,786 203,651	23,495,172 23,111,487 27,529,575 32,212,995 16,375,484 13,624,096
2012 2013 2014 2015 2016 2017	6,480,714 2,677,082 6,120,985 8,343,467 2,572,738 1,928,716 2,418,331	3,174,678 5,003,162 4,704,723 1,258,300 7,538,334 4,974,300 1,897,506	1,792 1,230 41,546 68,852 8,489 61,252 19,789	1,096,887 590,701 660,760 3,847,994 3,081,786 203,651 100,975	23,495,172 23,111,487 27,529,575 32,212,995 16,375,484 13,624,096 23,635,036

**Table 4.** Recreational releases (numbers) of spot by state, 2011-2020. (Source: MRIP for 2019 and earlier and annual compliance reports for 2020. Data dating back to 1981 are available upon request to the NMFS Fisheries Statistics Division.)

Year	N of NJ	NJ	DE	MD	VA
2011		1,206	190,002	783,417	7,290,971
2012	237,028	1810472	184,949	3,291,874	6,371,367
2013	2,203	2,737,742	537,632	7,620,695	7,549,286
2014		34,941	237,395	2,206,814	4,125,116
2015	1,585	167,129	38,523	642,459	1,896,698
2016		2,705	16,620	713,418	2,858,405
2017	150	15,321	11,768	2,280,482	3,335,800
2018	15,467	37,739	69,619	943,468	3,043,068
2019	23	21,801	125,656	3,311,565	4,509,930
2020		36,591	235,832	5,560,590	5,156,762
		·	· · · · ·	, ,	,
	NC	SC	GA	FL	Total
2011	<b>NC</b> 4,993,544	<b>SC</b> 1,289,038	<b>GA</b> 23,411		_
2011 2012				FL	Total
	4,993,544	1,289,038	23,411	<b>FL</b> 1,989,115	<b>Total</b> 16,560,704
2012	4,993,544 2,995,879	1,289,038 673,292	23,411	FL 1,989,115 3,571,066	<b>Total</b> 16,560,704 19,146,037
2012 2013	4,993,544 2,995,879 5,513,732	1,289,038 673,292 5,891,165	23,411 10,110 32,719	FL 1,989,115 3,571,066 466,583	Total 16,560,704 19,146,037 30,351,757
2012 2013 2014	4,993,544 2,995,879 5,513,732 4,043,710	1,289,038 673,292 5,891,165 1,908,552	23,411 10,110 32,719 74,795	FL 1,989,115 3,571,066 466,583 3,781,382	Total 16,560,704 19,146,037 30,351,757 16,412,705
2012 2013 2014 2015	4,993,544 2,995,879 5,513,732 4,043,710 2,984,629	1,289,038 673,292 5,891,165 1,908,552 2,818,378	23,411 10,110 32,719 74,795 220,253	FL 1,989,115 3,571,066 466,583 3,781,382 1,409,895	Total 16,560,704 19,146,037 30,351,757 16,412,705 10,179,549
2012 2013 2014 2015 2016	4,993,544 2,995,879 5,513,732 4,043,710 2,984,629 1,831,415	1,289,038 673,292 5,891,165 1,908,552 2,818,378 3,421,589	23,411 10,110 32,719 74,795 220,253 335,695	FL 1,989,115 3,571,066 466,583 3,781,382 1,409,895 1,296,190	Total 16,560,704 19,146,037 30,351,757 16,412,705 10,179,549 10,476,037
2012 2013 2014 2015 2016 2017	4,993,544 2,995,879 5,513,732 4,043,710 2,984,629 1,831,415 1,902,281	1,289,038 673,292 5,891,165 1,908,552 2,818,378 3,421,589 368,988	23,411 10,110 32,719 74,795 220,253 335,695 86,668	FL 1,989,115 3,571,066 466,583 3,781,382 1,409,895 1,296,190 79,660	Total 16,560,704 19,146,037 30,351,757 16,412,705 10,179,549 10,476,037 8,081,118