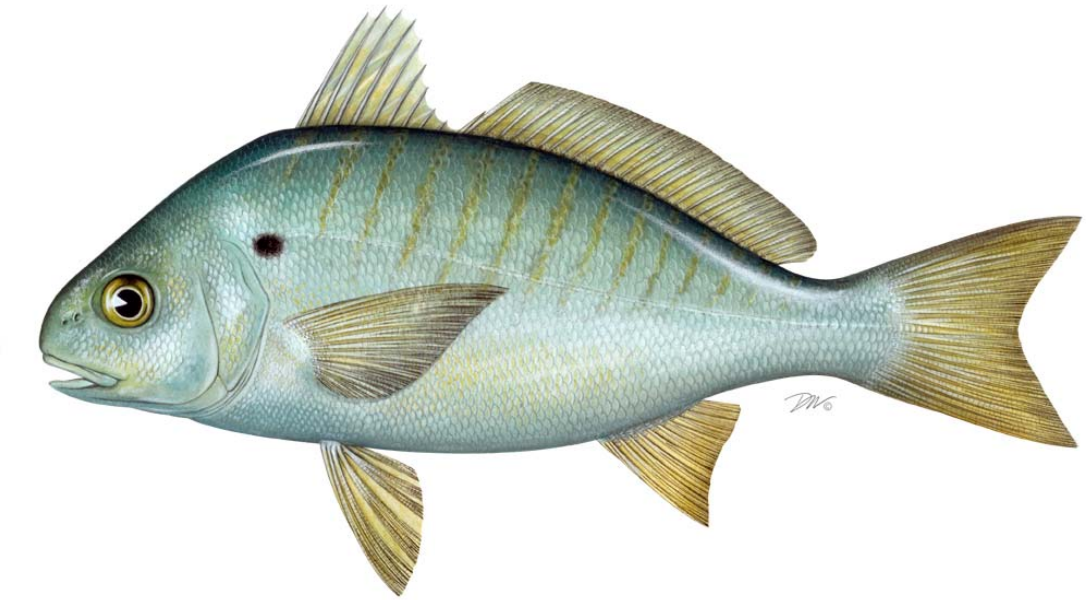
REVIEW OF THE
INTERSTATE FISHERY MANAGEMENT PLAN FOR

SPOT
(Leiostomus xanthurus)

2008 FISHING YEAR



The Spot Plan Review Team
Joe Grist, Virginia Marine Resources Commission
Chris McDonough, South Carolina Department of Natural Resources
Nichola Meserve, Atlantic States Marine Fisheries Commission, Chair
Kevin Brown, North Carolina Division of Marine Fisheries
Harley Speir, Maryland Department of Natural Resources

Board Approved November 5, 2009

Table of Contents

I. Status of the Fishery Management Plan

Date of FMP Approval: October 1987

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

Active Boards/Committees: South Atlantic State/Federal Fisheries Management Board; Spot Plan Review Team; 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 The Management Board found recommendations in the plan to be vague and perhaps no longer valid, and recommended that an amendment be prepared to the Spot FMP to define the management measures necessary to achieve the goals of the FMP.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. To date, no amendment has been adopted.

II. Status of the Stock

No coastwide assessment has been performed for spot; however, spot are a target or component of multiple state surveys using trawl, gillnet, or seine net to sample. In addition to these surveys, commercial and recreational data can provide indices of relative spot abundance.

In 2009, for the third year, the Spot Plan Review Team (PRT) compiled and analyzed available fishery-dependent and fishery-independent data from the following data sources: commercial harvest, effort, and biological sampling data from Maryland, Virginia and North Carolina; recreational harvest and effort data from Maryland, Virginia, North Carolina, and South Carolina; and fishery-independent survey data from New Jersey, Delaware, Maryland, Virginia, North Carolina, and South Carolina, as well as the Southeast Area Monitoring and Assessment Program (SEAMAP) survey covering North Carolina through Florida. The PRT developed indices of relative spot abundance from catch-per-unit effort and fishery characterization data. A report was prepared for the Management Board (Spot PRT 2009). The PRT will compile and analyze these datasets again, and compile available life history information, for the Management Board in 2010.

The following paragraph is taken from the Spot PRT's 2009 report to the Management Board:

Although some fishery independent and dependent indices previously demonstrating declines exhibited increases in 2007 and/or 2008, the PRT remains concerned about the status of spot given other declining index trends and the fact that spot is a short lived species, meaning that their abundance can change rapidly given poor environmental conditions amidst high fishing pressure. For this reason, the PRT recommends that the Board request another year of monitoring reports in 2010. This would give the PRT the time necessary to compile and develop life history information on spot, which has not previously been reported by the PRT. Should the majority of index trends increase through 2009, the PRT may recommend monitoring on an every 2-3 year basis, whereas if the majority of index trends decline through 2009, the PRT may recommend that a spot stock assessment be initiated.

III. Status of the Fishery

Total landings of spot in 2008 are estimated at 7.38 million pounds, decreases of 34 percent from 2007 and 21 percent from the previous ten year period average (Tables 1 and 3). The recreational fishery harvested more than the commercial fishery (61.3% to 38.7% respectively, by pounds), for only the second time since 1981 (previous occurrence in 2006).

Commercial spot landings have ranged between 2.86 and 14.52 million pounds from 1950-2008 (Figure 1). During this time series, landings have been over 10 million pounds thirteen times, four of those occurring during the peak of landings from 1972-75, and the last occurring in 1982. From 1983 to 2008, commercial landings have averaged 6.4 million pounds. Landings in 2008 are estimated at 2.86 million pounds, the time series low. The estimated ex-vessel value of the 2008 harvest was $1.79 million (Table 1). Coastwide, the majority of commercially harvested spot are taken in gillnets (63.3% in 2008 by pounds; Table 2). Small spot are also a major component of the bycatch in haul seine and pound net fisheries in the Chesapeake Bay and in North Carolina, as well as a significant part of the bycatch of the South Atlantic shrimp trawl fishery. Virginia landed over 69% of the commercial harvest (by pounds) in 2008, followed by North Carolina's 26% of the harvest.

The recreational harvest of spot along the Atlantic coast from 1981 to 2008 has varied between 3.6 and 20.1 million fish (or 1.7 and 6.9 million pounds; Tables 3 and 4). There was an increasing trend in the recreational harvest from the low in 1999 to 15.9 million fish (5.5 million pounds) in 2007; however, harvest declined in 2008 to 12.5 million fish (4.5 million pounds) (Figure 2). Anglers in Virginia were responsible for 41% of the total number of fish harvested in 2008, followed by anglers in North Carolina and South Carolina (19% each), and Maryland (18%). The estimated number of spot released annually by recreational anglers has varied between 2.0 and 6.4 million fish, with the exception of a few years (Table 5). The number of fish released alive in 2008 is the fourth highest in the time series at 6.6 million fish.

IV. Status of Assessment Advice

A formal stock assessment of spot has not been conducted. The 1987 FMP recognized the lack of biological and fisheries data necessary for stock assessment and effective management of the resource. Spot life history information and fisheries data have generally been localized and conducted at different levels of population abundance. Commercial and recreational catch and effort data have only recently begun to be analyzed to determine the relationship between

landings and abundance. An additional problem is the non-quantifiable incidental bycatch and discard mortality of small spot in non-directed fisheries.

The Spot Plan Review Team evaluated the adequacy of data for assessment purposes in 2009, and reported the following:

- Commercial landings data appear adequate for a spot assessment; however, discard data are limited. The level of commercial biological sampling is on par with other species having assessments performed.
- The adequacy of recreational harvest and harvest length data is comparable to other species which rely primarily on MRFSS data. Limited discard length data are available and discard mortality rates are unknown; however, less recreational discarding of spot occurs than for many other species.
- The number, timeseries, and distribution of fishery-independent indices appear adequate for stock assessment purposes. Biological data appear ample from several surveys; however, the amount and representativeness of samples from each survey has not been investigated in detail.
- Additional investigation into the quality and quantity of commercial, recreational, and indices data for a spot stock assessment would need to take place through a data workshop.

The PRT did not address the adequacy of life history information (e.g., reproduction, fecundity, maturity, movement) in this review of data availability. The Spot PRT will compile and report on available life history information in 2010.

V. Status of Research and Monitoring

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, and North Carolina. North Carolina annually ages 400-500 spot across all fisheries. Virginia has aged more than 300 spot per year since 2001, except 2006 when 228 were aged. Maryland began an ageing program in 2008. Age validation studies need to be conducted.

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, and SEAMAP (covering North Carolina through Florida). These surveys, in additional 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), and the Chesapeake Bay Fishery-Independent Multispecies Survey (CHESFIMS) also collect a variety of biological data elements.

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 yield per recruit through delaying entry to spot fisheries to age one and older.

Considerable progress has been made in developing bycatch reduction devices (BRDs) and evaluating their effectiveness. Proceedings from a 1993 spot and 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. The Virginia Marine Resources Commission investigated the use of culling panels in pound nets and long haul seines to release small 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. A target reduction in bycatch of spot may be a suitable objective in a plan amendment.

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. However, only Georgia has implemented a minimum size limit (8 inches total length, both recreational and commercial) aimed at protecting immature spot. Georgia is also the only state with a spot creel limit (25 fish, both recreational and commercial).

Omnibus Amendment

In October 2008, the Management Board initiated the development of an amendment to the Spanish Mackerel FMP to address three issues: compliance measures (because the current plan's measures are recommended), consistency with federal management in the exclusive economic zone (because the plan is intended to track federal Spanish mackerel measures), and alignment with Commission standards (because the current plan does not include *de minimis* criteria and other standard elements).

As the amendment process was getting underway, the fact was raised that the FMPs for two other species under the Management Board's purview do not include monitoring, management, or reporting requirements. Like the Spanish Mackerel FMP, both the Spot and the Spotted Seatrout FMPs were adopted prior to the enactment of the ACFCMA and thus include only recommended measures. The three FMPs were also prepared prior to the adoption of the Commission's Interstate Fishery Management Program Charter, which provides standards and procedures for the development of interstate FMPs. The decision was thus made in August 2009 to expand the previously initiated amendment for Spanish mackerel to also address revisions to the spot and spotted seatrout management plans. The potential completion date for the omnibus amendment is in 2011.

VII. Implementation of FMP Compliance Requirements for 2008

- There are no compliance requirements for this FMP.

VIII. Recommendations of the Plan Review Team

Management and Regulatory Recommendation

- The Spot PRT will provide recommendations in its next report to the Management Board, scheduled for May 2010, on spot monitoring and assessment. The PRT will also provide input on management issues to consider in the Omnibus Amendment during the development of the draft amendment.

Research and Monitoring Recommendations

High Priority

- Compile available life history data for spot.
- State monitoring and reporting on the extent of unutilized bycatch and fishing mortality on fish less than age-1 in fisheries that take significant numbers of spot.
- Evaluate the effects of mandated bycatch reduction devices on spot catch in those states with significant commercial harvests.
- Develop fishery-dependent and fishery-independent size and sex specific relative abundance estimates.
- Cooperative coastwide spot juvenile indices should be developed to clarify stock status.
- Continue monitoring long-term changes in spot abundance, growth rates, and age structure.
- Continue monitoring of juvenile spot populations in major nursery areas.
- Improve spot catch and effort statistics from the commercial and recreational fisheries, along with size and age structure of the catch, in order to develop production models.
- Conduct age validation studies.
- Cooperatively develop criteria for aging spot otoliths and scales.
- Develop catch-at-age matrices for recreational and commercial fisheries.
- Determine the effect that anthropogenic perturbations may be having on growth, survival, and recruitment.

Medium Priority

- Develop stock assessment analyses appropriate to current data.
- Cooperatively develop a yield-per-recruit analysis.
- Develop stock identification methods and investigate the degree of mixing between state stocks during the annual fall migration.
- Determine migratory patterns through tagging studies.
- Determine the onshore vs. offshore components of the spot fishery.

IX. References

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

Spot Plan Review Team (PRT). 2009. 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.

X. Figures

Figure 1. Spot commercial and recreational landings (pounds), 1950-2008
(Recreational landings available from 1981-present; see Tables 1 and 3 for state-by-state values and data sources)

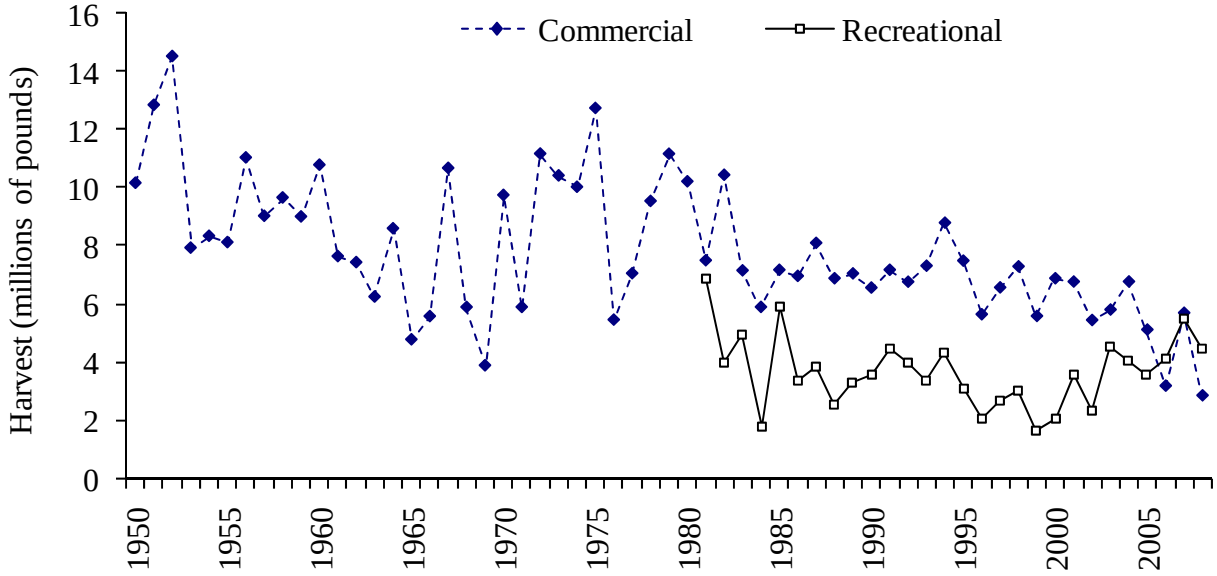
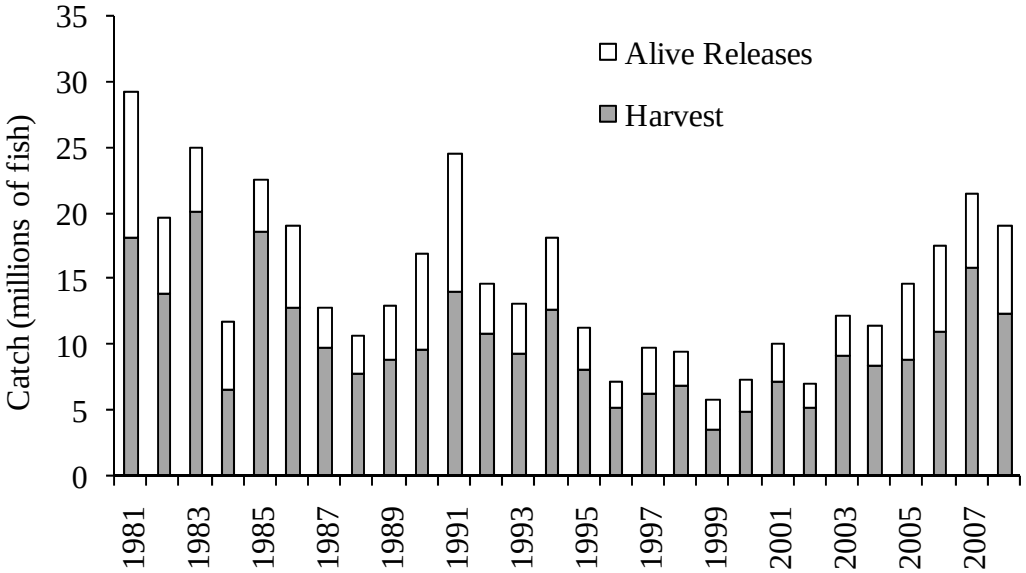


Figure 2. Spot recreational harvest and releases (numbers of fish), 1981-2008
(See Tables 4 and 5 for state-by-state values and data source)



XI. Tables

Table 1. Commercial landings (pounds) by state, and estimated value (ex-vessel), 1981-2008
(Source: NMFS Fisheries Statistics Division, 10/23/09)

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FL	**Total**	**Value**
1981		6,000	11,100	14,200	1,025,800	3,511,574	127,384	7,721	2,798,881	7,502,660	$1,949,238
1982		1,800	2,500	6,200	1,017,100	4,918,763	62,562	292	4,431,239	10,440,456	$2,629,992
1983		800		129,400	1,567,900	2,952,295	240,096		2,266,296	7,156,787	$2,034,211
1984		100		43,200	735,200	3,481,920	130,265		1,508,552	5,899,237	$1,709,041
1985		2,400	17,200	7,700	1,561,739	4,043,843	142,755		1,399,819	7,175,456	$2,059,771
1986		6,600	86,400	104,400	1,839,500	3,354,191	655,378	124	918,875	6,965,468	$2,008,712
1987		15,900	140,100	251,800	3,721,100	2,806,041	220,553	1,528	943,713	8,100,735	$2,288,900
1988		1,600	38,700	58,000	1,985,500	3,080,258	376,221	644	1,344,276	6,885,199	$2,103,710
1989		8,200	29,000	115,800	2,468,100	3,254,473	31,472	361	1,144,639	7,052,045	$2,447,602
1990		9,039	24,900	127,882	1,630,735	3,455,460	39,957	43	1,275,729	6,563,745	$2,280,712
1991		54,433	236,200	216,035	2,539,340	3,047,305	31,787		1,051,532	7,176,632	$2,341,850
1992		102,213	95,000	331,837	2,497,622	2,826,138	171,959	261	740,048	6,765,078	$1,903,514
1993	63	10,900	22,000	182,198	3,349,399	2,672,164	251,225	1,276	826,312	7,315,537	$2,902,373
1994		31,408	100,400	166,246	4,269,402	2,937,355	288,241		1,002,887	8,795,939	$3,326,892
1995	22	30,151	62,000		3,622,954	3,006,885	209,132	247	558,087	7,489,478	$2,572,195
1996	318	1,149		256,711	2,982,083	2,290,040	60,574		56,423	5,647,298	$2,237,567
1997	189	6,175	35,686	120,331	3,465,507	2,627,977	87,170		227,097	6,570,132	$2,810,144
1998	579	27,582	140,363	225,937	4,277,256	2,397,025	63,912		161,205	7,293,859	$2,838,921
1999		7,822	51,534	223,463	2,961,890	2,262,213	9,393		72,973	5,589,288	$2,204,565
2000	939	13,852	32,290	176,946	3,764,679	2,829,818	8,519		57,946	6,884,989	$3,562,693
2001	160	20,034	78,272	283,488	3,248,212	3,093,921	12,950		33,056	6,770,093	$2,835,318
2002	5,737	1,326	13,780	138,640	3,062,211	2,184,076	23,151		20,586	5,449,507	$2,297,333
2003	35	6,003	77,031	184,437	3,471,484	2,043,421	17,181		9,337	5,808,929	$2,747,351
2004	98	1,652	58,502	43,729	4,338,082	2,317,215	1,876		12,792	6,773,946	$3,350,476
2005	435	769	157,563	114,987	3,102,816	1,714,518	10,468		21,156	5,122,712	$3,312,260
2006	2,959	3,646	62,934	35,082	1,695,985	1,364,797	5,691		22,502	3,193,596	$2,864,761
2007	1,080	4,474	128,208	389,507	4,275,030	879,136	6,357		14,317	5,698,109	$4,313,111
2008			32,520	92,228	1,987,483	737,293	1,492		9,181	2,860,197	$1,790,769

Table 2. Commercial landings (pounds) by gear, 2008
(Source: NMFS Fisheries Statistics Division, 10/23/09)

Gear	**Landings (lbs)**	**Percent of Total**
Gill Nets	1,808,920	63.3%
Haul Seine	711,038	24.9%
Pound Net	217,774	7.6%
Trawl	27,249	1.0%
Other	93,723	3.3%
Total	2,858,704	100.0%

Table 3. Recreational harvest (pounds) by state, 1981-2008
(Source: NMFS Fisheries Statistics Division, 10/23/09)

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FL	**Total**
1981	20,348	6,175	8,047	554,986	4,625,985	1,193,537	144,600	50,734	311,406	6,915,818
1982		85,446	19,281	656,245	1,563,396	1,093,047	313,177	20,199	236,027	3,986,818
1983			4,017	354,788	2,520,125	1,630,882	293,161	28,023	167,294	4,998,290
1984		3,768	5,714	361,850	404,533	650,386	169,346	81,758	122,585	1,799,940
1985	3,415	4,255		193,266	1,955,039	3,120,532	441,808	13,071	213,042	5,944,428
1986	1,327	2,114	3,836	1,139,871	1,205,158	536,443	455,836	23,369	25,360	3,393,314
1987				1,545,691	1,336,387	690,653	226,701	14,601	32,835	3,846,868
1988		84,941	1,876	80,547	720,609	802,320	632,868	14,645	184,602	2,522,408
1989	132	606	10,368	633,150	1,400,728	929,188	288,591	7,798	23,254	3,293,815
1990		5,644	11,821	791,264	2,103,751	613,904	50,525	6,259	1,737	3,584,905
1991		19,528	48,100	634,894	2,729,698	727,463	245,661	1,786	107,256	4,514,386
1992		8,788	36,799	724,279	2,278,309	403,775	397,677	6,978	167,845	4,024,450
1993	315	2,264	844	636,032	951,766	812,810	461,447	109,317	396,632	3,371,427
1994	7,198	20,364	34,795	676,687	1,217,036	1,842,360	469,518	2,687	57,234	4,327,879
1995		1,186	22,919	485,682	1,067,637	1,247,995	242,973	7,701	42,851	3,118,944
1996		10,966	789	294,404	492,982	710,086	494,448	5,445	26,953	2,036,073
1997		8,609	50,781	401,275	1,263,447	722,868	254,794	2,072	13,962	2,717,808
1998			36,658	631,422	866,619	1,249,543	228,502	2,088	47,196	3,062,028
1999			10,886	272,292	244,499	646,662	391,402	2,275	84,511	1,652,527
2000	130,649	46,244	32,968	600,302	252,885	893,835	128,669	1,402	14,129	2,101,083
2001			20,110	629,861	523,202	1,773,671	346,878	1,720	284,706	3,580,148
2002			10,871	336,660	829,972	984,898	140,164	2,857	7,840	2,313,262
2003			14,385	1,690,503	875,729	1,714,158	227,821	5,710	26,504	4,554,810
2004			10,756	549,091	1,447,697	1,846,688	245,991	721	3,338	4,104,282
2005		19,610	90,863	756,392	1,434,965	1,103,830	158,407	917	12,751	3,577,735
2006		15,086	54,831	894,016	1,463,070	978,181	745,772	1,166	6,067	4,158,189
2007	952		102,805	1,331,005	2,467,311	1,378,993	259,376	2,346	12,899	5,555,687
2008		51,076	60,737	763,151	2,055,159	834,811	731,380	4,292	21,041	4,521,647

Table 4. Recreational harvest (numbers) by state, 1981-2008
(Source: NMFS Fisheries Statistics Division, 10/23/09)

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FL	**Total**
1981	44,278	28,006	17,508	948,931	11,662,684	4,023,934	562,750	124,057	799,226	18,211,374
1982		387,582	82,094	2,864,603	4,526,847	4,124,465	1,230,253	84,153	735,398	14,035,395
1983			14,464	1,600,362	12,059,247	4,880,268	970,747	112,123	488,029	20,125,240
1984		8,501	15,553	904,793	1,489,795	2,758,366	724,925	363,841	396,402	6,662,176
1985	15,494	12,692		1,028,391	5,491,918	8,789,391	2,355,044	62,338	861,700	18,616,968
1986	3,824	9,587	12,178	3,789,796	4,229,191	2,646,049	2,007,386	137,782	96,803	12,932,596
1987				3,180,704	3,864,151	2,129,146	599,807	79,487	73,833	9,927,128
1988		348,593	2,360	277,964	2,028,768	2,558,322	1,951,157	57,786	663,681	7,888,631
1989	602	1,128	45,853	1,154,314	3,714,855	2,924,299	1,078,570	34,977	67,506	9,022,104
1990		25,927	44,362	2,120,655	5,354,294	1,986,601	142,271	17,730	7,252	9,699,092
1991		88,393	138,113	1,841,555	8,820,075	2,317,095	598,290	10,281	269,628	14,083,430
1992		20,443	90,053	1,671,897	6,317,539	1,271,416	1,190,757	25,788	357,678	10,945,571
1993	1,168	7,788	3,263	1,880,043	2,836,534	2,057,440	1,437,809	228,606	946,757	9,399,408
1994	19,275	144,589	92,352	1,761,701	3,395,503	5,929,269	1,329,997	9,587	137,067	12,819,340
1995		2,949	51,695	1,099,658	2,731,242	3,329,981	875,189	27,842	140,231	8,258,787
1996		23,954	955	591,300	1,109,237	2,007,071	1,423,352	14,131	64,337	5,234,337
1997		20,148	126,089	713,657	3,328,144	1,440,661	680,842	5,471	31,987	6,346,999
1998			96,389	1,327,259	2,023,756	2,865,190	489,068	6,788	120,389	6,928,839
1999			19,911	655,289	569,250	1,308,167	801,785	5,578	264,233	3,624,213
2000	498,470	281,481	65,952	1,389,505	527,259	1,924,107	246,291	2,950	40,908	4,976,923
2001			51,096	1,088,997	1,056,365	3,650,711	735,551	3,681	652,975	7,239,376
2002			22,013	690,515	1,601,837	2,586,313	393,597	6,987	25,907	5,327,169
2003			30,165	3,300,594	1,441,002	3,796,557	524,513	11,524	84,685	9,189,040
2004			26,831	1,375,285	2,323,007	4,058,426	656,920	2,320	10,826	8,453,615
2005		41,324	202,657	2,006,925	2,993,635	3,125,897	464,510	2,999	41,671	8,879,618
2006		42,143	149,783	2,644,537	3,510,289	2,770,151	1,957,703	2,823	17,306	11,094,735
2007	2,756		239,701	3,842,569	6,608,680	4,268,838	911,960	8,516	36,775	15,919,795
2008		172,828	193,993	2,296,888	5,060,572	2,345,372	2,344,909	10,747	60,889	12,486,198

Table 5. Recreational releases (numbers) by state, 1981-2008
(Source: NMFS Fisheries Statistics Division, 10/23/09)

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FL	**Total**
1981		25,740	1,502	1,331,316	8,905,412	735,408	82,035	5,975	64,344	11,151,732
1982		974,847	5,061	1,677,415	1,618,065	806,851	366,650	44,091	205,387	5,698,367
1983		57,556		1,114,795	2,715,522	634,107	192,240	39,798	186,615	4,940,633
1984			13,260	1,150,599	2,607,693	952,816	346,003	17,897	130,493	5,218,761
1985	22,220	2,979		735,873	2,051,793	429,914	515,106	17,316	170,060	3,945,261
1986		79,712		2,720,343	2,250,794	816,204	331,290	20,863	10,351	6,229,557
1987			1,104	248,973	1,736,228	593,937	304,127	28,434	57,437	2,970,240
1988		110,698	4,501	716,258	762,504	995,806	110,498	16,951	110,003	2,827,219
1989		4,503	40,193	730,580	2,519,034	524,897	138,834	1,630	22,425	3,982,096
1990		14,504	10,120	1,811,434	4,441,195	921,849	13,709	4,079	30,937	7,247,827
1991		91,991	59,770	2,123,582	7,041,156	946,564	100,666	14,629	168,284	10,546,642
1992		1,324	12,553	493,597	2,091,001	841,163	279,044	16,791	64,738	3,800,211
1993			35,987	1,573,486	1,374,950	528,449	130,055	47,667	185,226	3,875,820
1994	8,140	160,380	53,078	1,037,498	2,142,198	1,363,884	320,921	22,434	335,647	5,444,180
1995		22,162	14,195	253,827	1,166,428	1,035,361	331,781	9,799	268,765	3,102,318
1996	7,178	39,448	1,128	208,897	577,847	924,204	212,920	5,329	65,083	2,042,034
1997		21,512	88,751	1,316,341	1,365,809	450,663	245,349	990	18,102	3,507,517
1998		12,542	75,985	633,914	900,352	650,157	307,480	12,286	58,264	2,650,980
1999			15,789	618,742	339,988	633,112	86,894	10,675	530,849	2,236,049
2000	157,991	16,633	30,522	1,080,310	502,923	481,995	115,682	17,376	54,388	2,457,820
2001		2,040	13,139	577,417	968,976	1,143,695	154,077	11,714	74,232	2,945,290
2002	2,127	3,331	27,220	501,111	481,765	671,669	103,914	20,038	44,584	1,855,759
2003		39,049	13,273	670,382	933,842	1,132,992	231,612	31,055	106,918	3,159,123
2004			38,330	577,223	975,455	1,237,386	252,384	12,545	20,167	3,113,490
2005		6,755	170,723	2,185,865	1,799,399	1,539,531	127,820	8,604	52,048	5,890,745
2006		42,558	156,141	1,467,334	921,131	3,147,254	645,379	7,233	51,929	6,438,959
2007	1,793	137,677	61,534	1,421,513	2,310,874	1,420,660	255,362	13,813	42,605	5,665,831
2008		1,000,992	116,235	2,040,388	1,721,412	1,309,233	202,789	24,979	176,570	6,592,598