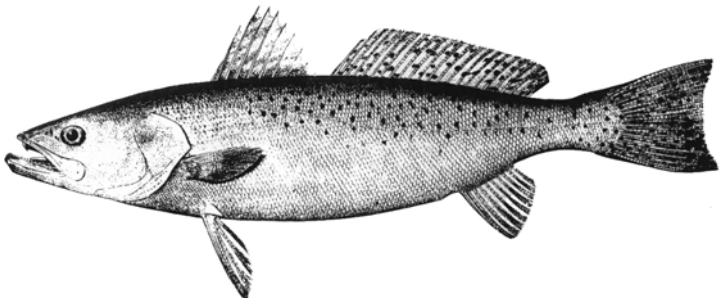
REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN FOR SPOTTED SEATROUT

(Cynoscion nebulosus)

2001 FISHING YEAR



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Approved November 19, 2002

FOR SPOTTED SEATROUT
(Cynoscion nebulosus)

I. Status of the Fishery Management Plan

Date of FMP approval: 1984
Lead agency and group with purview: ASMFC
Management unit: Spotted seatrout in the territorial sea of the Atlantic Ocean from Maryland through the Florida Keys.
States with declared interest: Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida
Other states affected by FMP requirements: None
States added/deleted since last review: None
List of active Boards/Committees: South Atlantic State/Federal Fisheries Management Board and Spotted Seatrout Plan Review Team
Amendments: Amendment 1, approved by ISFMP Policy Board November, 1991, added an objective of maintaining a spawning potential ratio (SPR) of at least 20% to minimize the possibility of recruitment failure.

The goal of the plan is "to perpetuate the spotted seatrout resource in fishable abundance throughout its range and generate the greatest possible economic and social benefits from its harvest and utilization over time." The plan's objectives are to: 1) attain over time optimum yield; 2) maintain a spawning potential ratio of at least 20% to minimize the possibility of recruitment failure; 3) promote conservation of the stocks in order to reduce the inter-annual variation in availability and increase yield per recruit; 4) promote the collection of economic, social, and biological data required to effectively monitor and assess management efforts relative to the overall goal; 5) promote research that improves understanding of the biology and fisheries of spotted seatrout; 6) promote harmonious use of the resource among various components of the fishery through coordination of management efforts among the various political entities having jurisdiction over the spotted seatrout resource; and 7) promote determination and adoption of standards of environmental quality and provide habitat protection necessary for the maximum natural protection of spotted seatrout.

It has been the opinion of the Commission's original Advisory Committee and Spotted Seatrout Plan Review Team that the goal and objectives of the plan are still valid, but that full implementation of the FMP has not been achieved across the entire management unit.

II. Status of the Stock

Fluctuations in spotted seatrout landings (both commercial and recreational) have varied considerably during the last 20 years. Some states are accumulating catch/effort data, especially in regards to recreational fisheries, which should provide insight on stock status over time.

Florida, South Carolina and Georgia have run virtual population analyses on local stocks of spotted seatrout. Florida's spotted seatrout management plan has a goal of a 35% spawning stock ratio (SSR), while South Carolina and Georgia have adopted the ASMFC plan objective of maintaining a spawning potential ratio (SPR) of at least 20% to minimize the possibility of recruitment failure. The most recent (1998) estimates of transitional SPR for Florida are 37% in the northeast region north of Volusia County and 29% in the southeast region from Volusia County south (Murphy et al. 1999). The analysis conducted in South Carolina and Georgia indicated that fishing mortality needed to be reduced

approximately 20% to meet the plan objective of a 20% SPR. This was achieved in South Carolina by increasing the minimum size from 12 to 13 inches TL, and decreasing the bag limit from fifteen to ten fish per person. Population analyses on other stocks within the region have not been conducted at this time.

III. Status of the Fishery

Spotted seatrout are taken by both commercial and recreational fishermen in the South Atlantic region (North Carolina through the East coast of Florida). Spotted seatrout has been declared a gamefish in South Carolina and can only be taken by recreational means.

Atlantic coast commercial landings of spotted seatrout (1960-2001) have ranged from 300,000 pounds to 1.4 million pounds (Table 1). During the early 1960's and early 1970's, commercial landings of spotted seatrout were sustained at or above the 1 million pound level. Whether this was related to resource abundance or effort though, is unknown. Commercial landings have generally declined since 1976 and remain well below 1 million pounds. During the 1980's, the majority of commercial landings (in pounds of fish landed) came from the east coast of Florida, while in the 1990's, the majority of commercial landings have come from North Carolina.

Preliminary estimates indicate commercial landings decreased in 2001 to about 165,000 pounds, 35% of the 2000 landings and 24% of the 1999 landings. The majority of landings are reported from North Carolina where estuarine gill nets predominate landings by gear (71%). Commercial landings of spotted seatrout in Maryland have been reported with weakfish at times; some sporadic landings in Delaware and New Jersey have also occurred over the years; while South Carolina has no commercial fishery for this species.

The recreational harvest of spotted seatrout in the South Atlantic region has ranged from 691,020 to 2.4 million fish from 1981-2001, averaging close to 1.4 million fish (Table 2). Coastwide recreational harvest in 2001 was almost 820,000 fish weighing approximately 1.17 million pounds (Table 3). The estimated number of spotted seatrout released has generally increased since the early 1980's, with a dramatic rise from 1990 to 1991 (Table 5). The number of fish released has remained well over 1 million per year since that time, reaching an all-time high of 3.5 million in 2000. A little over 2.7 million spotted seatrout were caught and released in 2001.

Table 1. Commercial landings (in pounds) of spotted seatrout, 1960-2000 (source: pers. comm. NMFS, Fish. Stats. & Econ. Div.).

YEAR	NJ	MD	VA	NC	SC	GA	FLEC	TOTAL
1960			54900	171200	53000	1000	889800	1169900
1961			73800	209100	56100	1700	749500	1090200
1962			28400	204700	27200	1000	755700	1017000
1963			25700	232400	47800	5100	801300	1112300
1964			23400	204800	59600	1900	764500	1054200
1965			40400	175100	35000	8900	682100	941500
1966			11800	115900	24500	3200	724000	879400
1967			3700	122500	1600	6900	599200	733900
1968			5800	97200	11900	1700	638200	754800
1969			19400	189100	8300	2700	679600	899100
1970			65900	404600	9100	10000	711200	1200800

1971			44400	337600	24200	15600	494900	916700
1972			12800	502800	18100	26200	634100	1194000
1973			9500	611100	5800	26800	665800	1319000
1974			26200	670200	8900	16100	658500	1379900
1975			72500	632500	17100	30900	535100	1288100
1976			39000	637600	5800	30000	531700	1244100
1977			3800	323500	600	16000	493900	837800
1978			6100	97304	119	24700	402954	531177
1979			3500	105034	2977	4987	475809	592307
1980			1000	171334	8137	4250	558817	743538
1981			4000	113304		629	736026	853959
1982			3400	83847	1944	4994	732278	826463
1983			4400	165360	4479	5795	481535	661569
1984			3000	152934	2374	4348	367541	530197
1985			8302	109048	1770	7149	369756	496025
1986			18500	191514	12214	8691	307261	538180
1987			13300	315380	11941	10739	317044	668404
1988			15500	296538	486	9110	315947	637581
1989			18500	451909	33	10565	361973	842980
1990	20		21435	250634	1095	5942	236453	515582
1991	171	98	21200	660662	18	7380	225812	915341
1992	165	364	10395	526271		11310	247189	795694
1993	87	24	38033	449886		8550	223841	720421
1994	142	30	44636	412449		5112	247666	710035
1995	8	182	28722	574393		8482	184269	796056
1996		14961	4476	226668		7501	48254	301860
1997		15688	11711	232593		7621	57316	324929
1998		19794	21774	307777		2845	41556	393746
1999		36365	38513	546775		3244	61802	686699
2000		20270	19918	375159		1997	45393	462737
2001		24754	3773	105797		417	30236	164977

Table 2. Recreational harvest (numbers of A + B1 fish) of spotted seatrout, 1981-2001 (source: pers. comm. NMFS, Fish. Stats. & Econ. Div.).

YEAR	NJ	DE	MD	VA	NC	SC	GA	FLEC	TOTAL
1981					30037	20934	189080	576847	816898
1982					112023	849634	226758	426378	1614793
1983					91956	121940	325655	645120	1184671
1984					90262	95281	114403	700876	1000822
1985					263878	347851	251764	866162	1729655
1986			7507	82671	270867	477136	401490	550591	1790262
1987			29295	17415	320977	392329	439782	744330	1944128
1988			20769	288705	420115	355547	389276	331709	1806121
1989			151986	66033	181149	174011	448767	198617	1220563
1990			20416	67939	251088	113160	368787	249824	1071214
1991		1094	17995	69032	316895	438502	1204116	385817	2433451
1992			3235	30091	333990	200030	338175	363238	1268759
1993			7038	103131	206523	222144	463702	274118	1276656
1994		179	33511	115025	457636	139551	337965	255216	1339083
1995			19198	90838	325927	223751	607095	381884	1648693
1996			35765	46098	151380	137530	171676	148571	691020
1997	3196	245	19951	92725	256719	111576	167287	228096	879795
1998		125	13620	34623	294501	125038	197293	189621	854821
1999			2112	138492	410321	101260	655407	241096	1548688
2000			1634	90135	250450	219740	486673	288443	1337075
2001				13447	182124	63452	309487	250987	819497

IV. Status of Assessment Advice

A formal coastwide stock assessment of spotted seatrout has not been conducted and is impractical considering the biology and population dynamics of this species. Florida, South Carolina and Georgia have performed virtual population analyses on local stocks of spotted seatrout. Georgia will be conducting an assessment during 2002. Florida conducted assessments for coastwide Florida Atlantic spotted seatrout populations in 1993 and 1995, then for separate northern and southern Florida Atlantic coast populations in 1997 and 1999. The regional extent of recent assessments is supported by preliminary genetic work on spotted seatrout from Florida's Atlantic coast. The next assessments of these populations is scheduled for completion in January 2003. The 1984 FMP recognized the lack of biological and fisheries data necessary for stock assessment and effective management of the resource. Spotted seatrout life history information and fisheries data have generally been localized and conducted at different levels of population abundance. Detailed information on incidental bycatch, release mortality, and the size and age structure of releases has become a more important component of assessments of the condition of spotted seatrout populations.

Table 3. Recreational harvest (pounds of A + B1 fish) of spotted seatrout, 1981-2001 (source: pers. comm. NMFS, Fish. Stats. & Econ. Div.).

YEAR	NJ	DE	MD	VA	NC	SC	GA	FLEC	TOTAL
1981					63036	14808	138720	967921	1184485
1982					120045	588999	177847	660295	1547186
1983					96359	138442	323889	784531	1343221
1984					39861	116118	141306	866077	1163362
1985					288088	509551	234704	1032344	2064687
1986			4960	64394	328439	587570	440774	695168	2121305
1987			22511	38495	366442	592612	491317	883707	2395084
1988			36629	460378	390836	448473	536959	453063	2326338
1989			184318	112344	259726	277489	608009	328338	1770224
1990			39059	121136	282872	174845	423815	475045	1516772
1991		979	34753	121604	472397	628011	1449853	534371	3241968
1992			7802	56685	508760	227210	430946	543491	1774894
1993			12800	201562	307151	268055	586426	392827	1768821
1994		243	26764	175184	679996	183343	412392	357441	1835363
1995			31464	148544	478674	247987	667379	642670	2216718
1996				77269	197267	171727	196487	249898	892648
1997	4052	584	32963	261911	311891	163771	242506	380276	1397954
1998		317	37189	61888	444441	151718	262896	329793	1288242
1999				290694	690606	146277	916860	428061	2472498
2000			2972	195544	385190	267297	565903	545202	1962108
2001				26733	213438	58885	369083	502254	1170393

V. Status of Research and Monitoring

No directed research on spotted seatrout is currently being conducted in Virginia or Maryland. Georgia collects fishery-dependent data through the MRFSS and the Marine Sportfish Carcass Recovery Program. An age-based stock assessment will be completed during 2002. South Carolina has an extensive directed research program on this species, supported with Wallop-Breaux funds. Current project objectives include determining the rates of utilization and movements of spotted seatrout; locating and mapping sites of spawning aggregations with the use of hydrophones; deriving indices of juvenile abundance and attempting to correlate these data with future abundance estimates of adults.

North Carolina completed a five year Wallop-Breaux funded study of spotted seatrout life history (Burns 1996). Commercial landings data are provided through the NCDMF Trip Ticket program and commercial length composition data is collected under the Interjurisdictional Fisheries Act (funded in part by the U.S. DOC, NOAA/NMFS). Recreational landings and length data are provided through the Marine Recreational Fishery Statistics Survey (MRFSS). Hydrophone work was also conducted in North Carolina to characterize critical spawning habitats for spotted seatrout in Pamlico Sound (Luczkovich et al. 2000). Hook and line and estuarine gill net discard mortality studies were conducted in North Carolina in 1998-2001, supported by the Atlantic Coastal Fisheries Cooperative Management Act funds, with reports available in 2002. A fishery-independent monitoring program was initiated in May 2001, supported by USFWS Sports Fish Restoration funds. The program utilizes a stratified random multi-mesh size gill net survey along North Carolina's Outer Banks and the bays of western Pamlico Sound.

Project objectives include calculating annual indicies of abundance for target species (spotted seatrout included); supplement samples for age, growth and reproductive studies; evaluate catch rates and species distribution for identifying and resolving bycatch problems; and to characterize habitat utilization for Pamlico Sound. Additional areas of the Neuse and Pamlico-Pung Rivers will contribute to the Pamlico Sound area Independent Gill Net Survey with common objectives and sampling design but funded through disaster relief funds, to begin early in 2002.

The Florida Fish and Wildlife Conservation Commission (FWC) implemented a juvenile finfish monitoring program in the northern Indian River Lagoon in the spring of 1990 and in the estuarine reaches of the St. Johns, St. Marys and Nassau Rivers in northeast Florida in the spring of 2001. Florida also initiated a stratified random sampling program in 1997 on the Atlantic coast that utilizes a 183 m haul seine to catch exploitable-sized fishes. This has been conducted in the northern Indian River and southern Indian River since initiation and in northeast Florida since 2001. Florida's fishery-dependent sampling includes commercial trip-ticket information and biostatistical sampling of the commercial and recreational catch.

VI. Status of Management Measures and Issues

All states which declared an interest in spotted seatrout have established a minimum size limit of at least 12 inches total length (TL) as called for in the FMP (Table 4). Collection of improved catch and effort data from the commercial and recreational fisheries has been initiated in all states as recommended in the FMP.

South Carolina has declared spotted seatrout a gamefish, imposed a creel limit of 10 fish per angler per day, a minimum size limit of 13" TL, and fish must be landed with head and fins intact. Florida has a commercial slot limit of 15-24" TL, a June-August open season and a 75 fish daily possession limit; commercial harvest is limited to hook and line and cast nets. Florida has a recreational slot limit of 15 - 20" TL and one fish over 20" may be kept per day. Florida's bag limits and closed seasons for spotted seatrout are regional with a 5-fish bag limit and February closed season north of Volusia county, and a 4-fish bag limit with a November-December closed season from Volusia County south. Georgia has a daily bag limit of 15 fish, a minimum size of 13" TL and fish must be landed with head and fins intact. North Carolina has a 12" TL minimum size limit and a 10 fish recreational possession limit. Current North Carolina regulations require the attendance of small mesh gill nets (<5" stretched mesh) from May 1 through October 31 in primary and secondary nursery areas, areas within 200 yards of any shoreline, and the extensive shallow water grass flat areas located behind North Carolina's Outer Banks. Virginia has a 14" TL commercial and recreational minimum size; recreational possession limit of 10 fish; and a commercial quota. Maryland has a 14" TL minimum recreational size and 10 fish possession limit; a 12" TL minimum commercial size limit and seasonal closures and mesh restrictions.

Table 4. Summary of current state regulations for spotted seatrout.

State	Recreational	Commercial	Other
New York	none	none	
New Jersey	14" TL; 10 fish	13" TL; 12" TL when taken by otter trawl 9/1-12/31	weakfish regulations apply to spotted seatrout

Delaware	12" TL	none	
Maryland	14" TL; 10 fish	12" TL	minimum mesh size restrictions for trawl (3-3/8" sq. or 3-3/4" diam.) and gill nets (3")
PRFC	14" TL; 15 fish	14" TL	
Virginia	14" TL; 10 fish	14" TL	commercial quota of 51,104 pounds
North Carolina	12" TL; 10 fish	12" TL	
South Carolina	13" TL; 10 fish	no commercial harvest or sale	gamefish status
Georgia	13" TL; 15 fish	13" TL; 15 fish	
Florida	15-20" TL slot, 1 fish >20"; 5 fish (except South Region limit of 4); regional seasonal closures	15-24" TL; June 1-Aug. 31 season; 75 fish per day; hook & line or cast net only	

VII. Implementation of FMP Compliance Requirements as of October 1, 2002

All states required to implement the minimum size limit of 12 inches total length (TL) have done so.

VIII. Recommendations of FMP Review Team

Management and Regulatory Recommendations

- Develop an amended Spotted Seatrout FMP with objective compliance criteria.
- Efforts should be continued towards achieving full implementation of the FMP.
- Collection of commercial and recreational landings data should be continued, and increased emphasis should be placed on obtaining complimentary effort data.
- Development and implementation of methodologies to monitor stock status such as pre-recruit indices and virtual population analyses should receive more attention as should effort data associated with catches and size composition data on catches.
- The Spotted Seatrout FMP should be reviewed periodically and updated to incorporate new data and research findings and to assess the status of stocks and the fisheries.

Prioritized Research Recommendations

<u>High Priority</u>

- State-specific stock assessments should be conducted to determine the status of stocks relative to the plan objective of maintaining a spawning potential of at least 20%.
- Initiate fishery independent surveys of spotted seatrout. These surveys are essential in that they provide an index of abundance to augment traditional assessment approaches.
- Emphasis should be placed on collecting the necessary biological data to be able to conduct stock

assessments and to assist in drafting fishery management plans.
- Age structure analyses by sex should be utilized in stock assessments.
- Collect data on the size or age of spotted seatrout released alive by anglers and the size and age of commercial discards.

Medium Priority
- MRFSS should be expanded to assure adequate data collection for catch and effort data and for increased intercepts and state add-ons of social and economic data needs.
- Identify essential habitat requirements.
- Evaluate effects of environmental factors on stock density.
- Work should be continued to examine the stock structure of spotted seatrout on a regional basis, with particular emphasis on advanced tagging techniques.
- Collection of commercial and recreational landings data should be continued and expanded.
- Collection of social and economic aspects of the spotted seatrout fishery should be initiated.
- Improve precision of effort reporting through commercial trip ticket programs.

List of References

Burns, B.L. 1996. Life history and population dynamics of spotted seatrout, (*Cynoscion nebulosus*) in North Carolina. N.C. Dept. Natural Resources and Community Development, Div. Mar. Fish., Compl. Rep. Project F-43, May 1996.

Luczkovich, J.J., H.J. Daniel, III and M.W. Sprague. 2000. Characterization of critical spawning habitats of weakfish, spotted seatrout and red drum in Pamlico Sound using hydrophone surveys. Final Rep. and Annual Performance Rep. Grants F-62-1 and F-62-2.

Murphy, M.D., G.A. Nelson and R.G. Muller. 1999. An update of the stock assessment of spotted seatrout, *Cynoscion nebulosus*. Report from the Florida Mar. Res. Inst. to the Div. of Mar. Fish., Florida Fish and Wildlife Conservation Commission, Tallahassee, FL.

Table 5. Number of recreational releases (B2 fish) of spotted seatrout by state, 1981-2001 (source: pers. comm. NMFS, Fish. Stats. and Econ. Div.).

YEAR	DE	MD	VA	NC	SC	GA	FLEC	TOTAL
1981					5522	36853	209059	251434
1982					8007	17645	171093	196745
1983				16579	32860	12038	367881	429358
1984				30173	44436	16174	76346	167129
1985				16578	6409	22917	66960	112864
1986		13639	28606	19792	115315	189798	35646	402796
1987			30070	136104	130253	176415	41391	514233
1988		26999	148934	74818	78568	182628	431665	943612
1989		52859	11977	82909	54279	167025	187406	556455
1990		4874	23435	84235	35223	114624	203439	465830
1991		21811	40550	169921	51415	369972	789779	1443448
1992	1321	701	19855	139616	97813	192261	597254	1048821
1993			65605	149744	92101	146665	780573	1234688
1994		32466	243463	207262	220941	125421	574629	1404182
1995		157530	327643	277896	194996	327835	1074703	2360603
1996	71	51594	165169	153051	107691	63585	1081893	1623054
1997	292	4826	168964	98377	89147	61148	1449278	1872032
1998	1095	49460	74569	73024	151935	100059	1005443	1455585
1999		7082	152120	253442	92792	160801	1577378	2243615
2000		4805	264550	90070	368332	547765	2310491	3586013
2001			110308	194982	38709	365140	1995635	2704774