

REVIEW OF THE  
INTERSTATE FISHERY MANAGEMENT PLAN FOR  
**Black Sea Bass (*Centropristis striata*)**

***1999 FISHING YEAR***

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## **Review of the Interstate Fishery Management Plan for Black Sea Bass**

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

Commission management of black sea bass was initiated as one component of a multi-species FMP addressing summer flounder, scup and black sea bass. In 1990, summer flounder was singled out for immediate action under a joint ASMFC and Mid-Atlantic Fishery Management Council (MAFMC) Plan. Further action on the scup and black sea bass plan was delayed until 1992 to expedite the summer flounder FMP and a series of amendments, which followed. Work continued on the joint ASMFC/MAFMC Black Sea Bass FMP in 1996. The ASMFC approved the Fishery Management Plan for Black Sea Bass in October 1996. The MAFMC approved regulations for black sea bass as Amendment 9 to the Summer Flounder FMP in May 1996. Amendment 12 to the Summer Flounder, Scup, and Black Sea Bass FMP, which established revised overfishing definitions, identification and description of essential fish habitat, and defined the framework adjustment process, was approved by the Commission in October 1998.

The management unit of the joint ASMFC/MAFMC Black Sea Bass FMP includes all black sea bass in U.S. waters in the western Atlantic Ocean from Cape Hatteras, North Carolina northward to the Canadian border. The objectives of the plan are to reduce fishing mortality to assure overfishing does not occur, reduce fishing mortality on immature black sea bass to increase spawning stock biomass, improve yield from the fishery, promote compatible regulations among states and between Federal and State jurisdictions, promote uniform and effective enforcement, and to minimize regulations necessary to achieve the stated objectives. Overfishing is defined as fishing in excess of  $F_{max}$ , which is equal to  $F=0.29$ . This represents an annual exploitation rate of 23%. The plan intends to reduce fishing mortality over an 8 year period. Amendment 12 changed the overfishing definition, with  $F_{max}$  serving as a proxy for  $F_{msy}$ , which under current stock conditions  $F_{max}$  is 0.32.

Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina have declared an interest in black sea bass. The Commission's Summer Flounder, Scup, and Black Sea Bass Management Board and the MAFMC Demersal Species Committee guide development of the Plan. Technical issues are addressed through the Summer Flounder, Scup, and Black Sea Bass Technical Committee, annual review and monitoring is handled by the Black Sea Bass Plan Review Team, and industry input and advice is provided by the Scup and Black Sea Bass Advisory Panel.

### **II. Status of the Stocks**

Black sea bass were last assessed at the 27th Stock Assessment Workshop (27th SAW) in June 1998. The Stock Assessment Review Committee (SARC) found that the stock is over-exploited and at a low biomass level. Recent catches have been well below the historical average, age and size structure is truncated, and survey biomass indices since the late 1980's have been one-tenth of those observed in the late 1970's. Estimated fishing mortality rates during 1984-1997 have been well above  $F_{max}$  ( $F=0.32$ ), with a mean value of  $F=0.68$  over the period. Spawning stock biomass appears to have been relatively stable during 1984-1995, with an increase in 1996.

Recruitment in 1997, as indicated by survey indices, was well below the 1972-1996 average. In spite of a potential maximum age of 15 years, the age structure is highly truncated. Since most black sea bass begin life as females and change to males between ages 2 and 5, the truncated age structure may result in a shortage of males and ultimately disrupt reproduction. Fishing mortality on fully recruited fish has been far in excess of all biological reference points defined for this stock and should be substantially reduced. The high exploitation rates on younger fish must be reduced to allow these fish to mature and change sex to contribute to future SSB.

The SARC concluded that the available data were inadequate to provide the basis for conducting an assessment using either age-based or surplus production models. The biggest obstacles to development of an age-based assessment are inadequate estimation of discards and insufficient sea sampling. Neither observer nor VTR data was considered reliable for estimating the magnitude of discarding, and sea sampling was not sufficient to characterize the length distribution of discards. Length and age composition of the catch is poorly estimated due to a lack of adequate biological sampling.

### **III. Status of the Fishery**

Commercial landings have been relatively constant in recent years, with the 1999 landings of 3.457 million pounds falling within the range of the 2 to 4 million pounds that has been landed annually over the last 20 years. Most commercial landings are taken in otter trawls and fish pots and traps, and in the states of New Jersey, Virginia, and North Carolina. The Black Sea Bass landings in Massachusetts have increased more than ten-fold over the last four years, and are now the third highest along the east coast. Black sea bass are an important recreational species along the mid-Atlantic, however recreational landings in 1999 decreased substantially relative to the levels of the early to mid 1990's. Virginia and New Jersey had the highest recreational landings during 1999, together landing more than 70% of the coastwide total.

### **IV. Status of Research and Monitoring**

Commercial landings information is collected by the Vessel Trip Reporting system and dealer reports. States are also required to collect and report landings data. Sea sampling data from the NEFSC sea sampling program is used to estimate discards. Commercial age and length information is provided by the NEFSC weighout program and the State of North Carolina. Recreational landings and discards are estimated through the Marine Recreational Fisheries Statistics Survey. Recreational length frequency information for kept and discarded information is available only from the New York party boat survey.

Fishery independent surveys are conducted in Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Virginia, and North Carolina. Recruitment and stock abundance data are provided by the NEFSC spring, autumn, and winter trawl surveys.

As indicated above, the currently available information on the sea bass fishery is inadequate. Significant additional research and monitoring is required to allow development of an analytical age based assessment.

## V. Status of Assessment Advice

The 27<sup>th</sup> Stock Assessment Review Committee concluded that the available data were inadequate for conducting either an age-based or surplus production model assessment. The status of the resource was evaluated from NEFSC spring and autumn survey indices. Fishing mortality was estimated using two different length based methods applied to length distribution of commercial and recreational landings.

## V. Status of Management Measures and Developing Issues

The management strategy for black sea bass calls for a reduction in fishing mortality to the target exploitation of Fmax, currently 0.32, over an 8 year time frame. In years 1 and 2 (1996 and 1997) minimum fish sizes and commercial gear restrictions are implemented. A commercial quota and recreational harvest limit are added in years 3 through 5 (1998-2000) to achieve the targeted 48% exploitation rate. The commercial quota is allocated coastwide into quarterly segments and may include trip limits if necessary. The recreational harvest limit can be regulated through size limits, possession limits, and seasonal closures. In years 6 and 7 (2001-2002) the target exploitation rate drops to 37%. In year 8 and beyond, the target exploitation rate is Fmax. The FMP also requires federal dealer and vessel permitting and reporting.

### Black Sea Bass Rebuilding Schedule

Year	FMP Year	Target
1996	1	none
1997	2	none
1998	3	48%
1999	4	48%
2000	5	48%
2001	6	37%
2002	7	37%
2003 +	8 +	23%

### Black Sea Bass Compliance Criteria

#### COMMERCIAL FISHERY

The following management measures may change annually. 1998 requirements are indicated.

Minimum size of possession: 10"

Minimum mesh and threshold 4" after 1,000 pounds

Maximum roller rig trawl roller diameter: 18"

Pot and trap escape vents: 2" round, 1.5" square, 1 1/8" x 5 3/4" rectangular.

Pot and trap degradable fastener provisions: a) untreated hemp, jute, or cotton string 3/16" (4.8 mm) or smaller; b) magnesium alloy timed float releases or fasteners; c) ungalvanized, uncoated iron wire of 0.094" (2.4mm) or smaller. The opening covered by a panel affixed with degradable fasteners would be required to be at least 3" x 6".

Commercial quota: 3.025 million pounds

Trip limits: 9,000 lbs quarter 1; 3,000 lbs quarter 2; 2,000 lbs quarter 3; 3,000 lbs quarter 4.

[Note: the quarter 4 trip limit was reduced to 2,000 pounds, with a further reduction to 1,000 pounds when 50% of the quota is landed through an ASMFC Emergency Rule.]

The following measures are not subject to annual adjustment:

Commercial quota: (see note under “Developing Issues”) A quarterly quota system was implemented in year 3 (1998). States must prohibit fishing for, and possession of, black sea bass if and when NMFS determines that a quarter’s share is landed. States must report all landings from state waters to the NMFS.

Pot and trap definition: A black sea bass pot or trap is defined as any pot or trap used by a fisherman to catch and retain black sea bass.

## RECREATIONAL

The following measures may change annually.

Minimum size of possession: 10”; change will be considered, December 2000.

Possession limit: no possession limit, change will be considered, December 2000.

Seasonal closure: no seasonal closure, changes will be considered, December 2000.

Recreational harvest limit: 3.148 million pounds

The ASMFC Summer Flounder, Scup, and Black Sea Bass Management Board and the Mid-Atlantic Fisheries Management Council are not recommending any changes to the total allowable landings, commercial size limit, minimum mesh requirements, mesh threshold, or escape vent sizes. However, the Council and Board are recommending the following trip limits. 9,000 pounds – quarter 1, 1,500 pounds – quarter 2, 1,000 pounds – quarter 3, and 2,000 pounds – quarter 4.

## OTHER MEASURES

Reporting: States are required to submit an annual compliance report to the Chairman of the Black Sea Bass Plan Review Team by June 1. This report must detail the state’s management program for the current year and establish proof of compliance with all mandatory management measures. It should include landings information from the previous year, and the results of any monitoring or research programs.

*This summary of compliance criteria is intended to serve as a quick reference guide. It in no way alters or supersedes compliance criteria as contained in the Black Sea Bass FMP and any Amendments thereto. Also please note that the management measures that change annually may be altered if Amendment 12 is approved*

### **Developing Issues**

The Commission and Council originally planned to develop and implement a commercial quota management system during years 1 and 2 (1996 and 1997). Since this activity was not completed, the commercial quota default system, a quarterly coastwide allocation with trip limits, was implemented on January 1, 1998. However, since the Board intended to address quota management during 1996 and 1997, compliance criteria and dates for quota management measures were not established under the original FMP.

A major criticism of the quarterly quota system is its impact on fixed gears. If the quota is landed in a given period, no black sea bass may be landed and no directed black sea bass fishing would be allowed. Depending upon how the closure rule is developed and interpreted, fishermen using pots and traps that catch black sea bass could be required to remove their gear. Conceivably, pot and trap fishermen could be required to remove their gear from the water 4 times a year, resulting in a substantial burden.

In 1998 some of the Management Board members expressed concern that the black sea bass fishery may be closed during the economically important months of June and December. Under the current quarterly quota management system, June and December are at the end of quarters, which may result in closures prior to the months. The Summer Flounder, Scup, and Black Sea Bass Technical Committee proposed a possible solution of implementing three 4-month quota periods (Jan.-April, May-August, Sept.-Dec.).

An age based assessment (VPA) was rejected by the SARC due to insufficient and inadequate input data, therefore no formal projections were prepared for the black sea bass stock. Such projections are crucial in determining annual quotas and harvest limits. An age based assessment cannot be prepared until there is adequate sampling of landings and discards in both the commercial and recreational fisheries. Several years of sampling at appropriate levels are required to correct the current shortcomings in the black sea bass database.

In 2000, the commercial black sea bass fishery was closed for long periods of time due to quarterly quotas being landed very quickly. Anticipating long closures in the fishery is resulting in a “derby” fishery that may put fishermen in danger as well as drive down the price of black sea bass due to the high level of landings during a short time period. The Management Board and Council are discussing ways to extend the quota in order to reduce the amount of time that the fishery is closed. Some members of the Board and Council feel that the high rate of landings reflect a rapidly rebounding fishery, however due to the lack of data the usefulness of the assessment is very limited. The Technical Committee is discussing different approaches to collect more data to better estimate exploitation and population size.

## VI. Compliance

States and jurisdictions required to comply with the provisions of the Black Sea Bass FMP are: Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Potomac River Fisheries Commission, Virginia, and North Carolina.

### 1997 - 2000 Black Sea Bass FMP Compliance Schedule

#### COMMERCIAL

Size limit (9")	1/1/97
Size limit (10")	1/1/98
Minimum mesh and threshold provisions	1/1/97
Pot and trap escape vents and degradable fasteners	1/1/97
Roller diameter restriction	1/1/97
Quota Measures	
States must report to NMFS all landings from state waters	1/1/98

#### RECREATIONAL

Size limit	1/1/97
Harvest limit	
1/1/98	
Ability to implement possession limits and seasonal closures	1/1/98

#### GENERAL

Annual compliance report	Annually, 7/1
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## VII. Recommendations

### SARC Data Recommendations

Increase sea sampling, particularly in the fish pot fishery of the Mid-Atlantic

Obtain commercial length frequency data, by market category, from North Carolina from 1984-1993 and 1997

A tagging program should be initiated through state fisheries agencies. The objective would be to tag several thousand black sea bass per state each year for several years. The information from tag returns would allow calculation of survival estimates independent of survey data. Use of several high reward tags or lottery-type system may be considered to evaluate tag reporting rate.

Ageing should be updated to include the most recent biological samples.

A study further investigating the size/age and density effects on sex changes in black sea bass would be valuable in stock assessments. Studies on sex-specific mortality rates and growth are also needed.

A study determining the value of artificial reefs for increased production of black sea bass would be valuable in estimating potential yield.

Consideration should be given to a pot survey for an index because of the catchability problems in the trawl survey for a species such as black sea bass that is structure oriented.

Table 1. Black Sea Bass commercial landings, 1987-1999, by state in thousands of pounds.

State	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MA	323	477	351	436	244	43	39	21	42	40	91	281	574
RI	358	221	208	198	74	141	222	87	89	157	178	135	176
CT	77	59	11	14	9	5	5	4	9	17	12	9	15
NY	246	121	77	72	92	112	125	122	193	260	270	136	209
NJ	1110	1180	841	990	1034	1245	1381	957	797	1,222	705	579	501
DE				150	189	194	86	70	166	166	152	126	168
MD	493	395	296	343	481	468	362	334	303	546	513	315	486
VA	1205	793	648	886	499	580	744	387	349	790	486	827	740
NC*	459	1229	778	1031	707	791	713	704	491	778	767	732	588
Total	4270	4475	3210	4120	3329	3579	3677	2686	2439	3,976	3174	3140	3457

\* Includes all landings from NC, both North and South of Cape Hatteras.

Table 2. Black Sea Bass recreational landings by state, 1985-1999, in thousands of pounds. Data from MRFSS online query.

State	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
ME	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MA	10.2	612.3	66.2	214.5	47.7	36.4	46.6	8.7	13.5	10.6	6.7	22.4	21.0	10.0	22.3
RI	17.8	16.1	70.9	10.7	24.5	9.3	12.9	15.9	28.5	26.2	53.7	55.1	44.9	25.0	38.7
CT	19.5	10.8	4.0	19.7	25.6	0.8	2.6	5.5	7.0	0.0	3.8	7.8	1.3	3.6	2.5
NY	168.0	442.3	608.6	241.6	756.4	307.9	141.6	220.0	312.1	107.1	48.7	78.6	153.1	10.6	126.1
NJ	961.9	9,509.7	444.4	572.3	1,460.7	1,037.9	1,645.8	1,218.6	3,344.3	1,627.4	3,409.9	4,479.1	2,893.6	291.5	522.5
DE	76.2	117.8	18.5	91.5	153.5	71.5	235.4	102.1	151.8	36.0	156.0	57.5	77.1	60.7	36.7
MD	176.0	319.7	203.6	766.4	312.9	318.8	423.9	469.5	481.0	215.9	1,811.7	376.8	370.9	309.3	152.7
VA	654.1	1,355.9	501.7	937.8	498.7	968.6	1,623.8	559.8	486.7	903.2	672.8	820.4	683.1	410.2	699.9
NC*	456.6	76.4	473.6	1,090.3	340.8	295.8	182.9	314.2	159.7	127.3	141.3	141.6	150.4	168.7	95.1
Total	2,540.4	12,461.0	2,391.6	3,944.8	3,620.7	3,047.0	4,316.0	2,914.1	4,984.7	3,053.6	6,304.6	6,039.3	4,395.4	1289.6	1696.5

\* Includes all landings from North Carolina, both North and South of Cape Hatteras.