

2002 Summer Flounder, Scup,
and Black Sea Bass Specifications
Environmental Assessment
Regulatory Impact Review/Final Regulatory Flexibility Analysis
Essential Fish Habitat Assessment

December 14, 2001

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ENVIRONMENTAL ASSESSMENT

Purpose and Need

The purpose of this document is to examine the impacts to the environment that would result from the implementation of the 2002 management measures recommended for the summer flounder, scup, and black sea bass fisheries. These measures include harvest limits (commercial and recreational) and other measures to ensure that the annual fishing targets specified in the Fishery Management Plan for the Summer Flounder, Scup, and Black Sea Bass fisheries (FMP) are attained.

Introduction

The management measures contained in the FMP are intended to address the overfished condition of these stocks. The summer flounder measures are based on a management plan drafted by the State/Federal Summer Flounder Management Program pursuant to a contract between the New Jersey Division of Fish, Game, and Wildlife, and the National Marine Fisheries Service (NMFS). The State/Federal draft was adopted by the Atlantic States Marine Fisheries Commission (Commission) in 1982. The Mid-Atlantic Fishery Management Council (Council) adopted the FMP in April 1988 and NMFS approved it in September 1988. The FMP has been amended several times since its initial implementation, with Environmental Impact Statements prepared to consider the impacts of the three major amendments relevant to this action. Amendment 2 enacted management measures for the summer flounder fishery through final regulations implemented on December 4, 1992 (57 FR 57358). Amendment 8 enacted management measures for the scup fishery north of Cape Hatteras Light through final regulations implemented on September 23, 1996 (61 FR 43420). Amendment 9 enacted management measures for the black sea bass fishery north of Cape Hatteras Light through final regulations implemented on December 16, 1996 (61 FR 58461). Each of these amendments enacted comprehensive management measures to attain annual fishing targets and address overfishing. Each of the amendments was adopted jointly by the Council and the Commission, so state regulatory actions complement federal management actions. The scup and black sea bass fisheries south of Cape Hatteras Light are managed under the SAFMC's Snapper/Grouper FMP.

The management objectives of the FMPs are as follows:

- 1) reduce fishing mortality in the summer flounder, scup and black sea bass fisheries to ensure that overfishing does not occur;
- 2) reduce fishing mortality on immature summer flounder, scup, and black sea bass to increase spawning stock biomass;
- 3) improve the yield from the fishery;
- 4) promote compatible management regulations between state and federal jurisdictions;
- 5) promote uniform and effective enforcement of regulations;
- 6) minimize regulations to achieve the management objectives stated above.

To attain these management objectives the FMP specifies the following measures that may be specified annually:

- * commercial quotas;
- * minimum sizes;
- * gear regulations;
- * recreational harvest limit;
- * recreational possession limit, season, and no-sale provision.

Framework 1 to the Summer Flounder, Scup, and Black Sea Bass FMP, which was approved by NMFS on August 10, 2001, established a procedure through which research set-aside amounts up to 3-percent would be set annually as part of Council's quota-setting process. The intent of the program is to support the collection of new information that will benefit both the commercial and recreational fisheries for these species. Collaborative efforts between the public, research institutions, and the government will be subsidized by a percentage set-aside from the total allowable landings (TAL) of selected species, including summer flounder, scup, and black sea bass, under management by the Mid-Atlantic Council.

1.0 Annual Specification Process

Comprehensive measures enacted by Amendment 2 and modified in Amendments 3 through 7 were designed to rebuild the severely depleted summer flounder stock. Amendments 8 and 9 to the Summer Flounder, Scup and Black Sea Bass FMP implemented recovery strategies to rebuild the scup and black sea bass stocks, respectively. The FMP specifies for summer flounder a target F for 2002 of the level of fishing that produces maximum yield per recruit (F_{MAX}). Best available data indicate that F_{MAX} is currently equal to 0.26. The target F will be attained by specification of total allowable landings (TAL) allocated to the commercial (60 percent) and the recreational (40 percent) sectors. The commercial sector's quota is allocated to the coastal states based on percentage shares specified in the FMP. The FMP established a target exploitation rate for scup in 2002 and subsequent years of 21 percent. The total allowable catch (TAC) associated with that rate is allocated 78 percent to the commercial sector and 22 percent to the recreational sector. Discard estimates are deducted from both TACs to establish TALs for both sectors. The commercial TAL is allocated to three different periods. The Black Sea Bass FMP specifies a target exploitation rate of 37 percent for 2002. This target is to be attained through specification of a TAL level that is allocated to the commercial (49 percent) and recreational (51 percent) fisheries. The commercial quota is specified on a coastwide basis by quarter.

These amendments established Monitoring Committees which meet annually to review the best available scientific data and make recommendations regarding the total allowable landings and other management measures in the plan. The Committee's recommendations are made to achieve the target fishing mortality or exploitation rates established in the amendments to reduce overfishing. The Committee bases its recommendations on the following information: (1) commercial and recreational catch data; (2) current estimates of fishing mortality; (3) stock status; (4) recent estimates of recruitment; (5) virtual

population analysis (VPA); (6) target mortality levels; (7) levels of regulatory noncompliance by fishers or individual states; (8) impact of fish size and net mesh regulations; (9) sea sampling data; (10) impact of gear other than otter trawls on the mortality of each species; and (11) other relevant information.

Based on the recommendations of the Monitoring Committee, the Mid-Atlantic Council's Demersal Species Committee makes a recommendation to the Council which in turn makes a recommendation to the Regional Administrator. The Regional Administrator reviews the recommendation and may revise it if necessary to achieve FMP objectives. In addition, because the FMP is a joint plan with the Commission, the Commission's Summer Flounder, Scup and Black Sea Bass Board (Board) adopts complementary measures. The Council met jointly with the Board and adopted recommended measures at the August, 2001, meeting.

2.0 Methods of Analysis

The basic approach adopted in this analysis is an assessment of various management measures from the standpoint of determining the impacts upon the environment. In order to conduct a more complete analysis, impacts were examined in three alternatives (Table 1). The preferred alternative examines the measures adopted by the Council and the Board for 2002. The second alternative examines the impacts of the status quo alternative, i.e. the quotas that were implemented in 2001 (most restrictive). The third alternative examines the highest quotas (least restrictive alternative) considered by the two bodies. A full description of these alternatives is given in section 3.0.

Table 1. Comparison (in lb) of the alternatives of quota combinations reviewed. "FLK" is summer flounder.

| | Commercial Quota* | Percent of 2000 Landings | Percent Change |
|--|----------------------|-----------------------------|-------------------|
| Quota Alternative 1 (Preferred) | | | |
| FLK Preferred Alternative | 14,578,288 | 129.97 | 29.97 |
| Scup Preferred Alternative | 8,000,000 | 300.87 | 200.87 |
| Black Sea Bass Preferred Alternative | 3,332,000 | 125.38 | 25.38 |
| Quota Alternative 2 (Status Quo-Most Restrictive) | | | |
| FLK Status Quo | 10,747,535 | 95.81 | -4.19 |
| Scup Status Quo | 4,444,600 | 167.15 | 67.15 |
| Black Sea Bass Status Quo | 3,024,770 | 113.76 | 13.76 |
| Quota Alternative 3 (Least Restrictive) | | | |
| FLK Non-Selected Alternative 3 | 20,878,658 | 186.13 | 86.13 |
| Scup Non-Selected Alternative 3 | 9,530,000 | 358.41 | 258.41 |

| | | | |
|---|-----------|--------|-------|
| Black Sea Bass Non- Selected Alternative 3 | 3,970,960 | 149.42 | 49.42 |
|---|-----------|--------|-------|

* Note that quotas are provisional and would be adjusted in 2002 to account for 2001 overages.

3.0 Alternatives Being Considered

3.1 Alternative 1 (Preferred Alternative)

Alternative 1 analyzes the impacts of the harvest limits recommended by the Council and Board on vessels that are permitted to catch any of the three species. The Council and Board recommended a total allowable landings (TAL) level of 24,297,146 lb(11,021,000 kg) for 2002 for summer flounder. The recommended coastwide TAL for 2002 for summer flounder of 24,297,146 lb (11,021,000 kg) is approximately 35.6 percent above the level established for 2001. The TAL for 2002 would be divided between the commercial and recreational components of the fishery in the same proportion as it was each year from 1993 to 2000. In 2002, the commercial fishery would receive 14,578,288 lb (6,612,600 kg) as a quota, and the recreational fishery would receive 9,718,858 lb (4,408,400 kg) as a harvest limit.

The Council and Board voted to establish a system in 1998 whereby 15 percent of each states quota for summer flounder would be set-aside each year to reduce discards after the closure of the directed commercial fishery. In addition to this, the set-aside system would allow for summer flounder landings to continue throughout the fishing season. This system was introduced for the first time in 1999, and no data as to its effectiveness are yet available. However, the program would continue in 2002. In order for fishermen to land the incidental catch allowance in a state, the Commission recommended that a state implement possession limits such that summer flounder on board cannot exceed 10 percent of other species on board for any trip set under the incidental catch allocation. Possession limits must be sufficiently restrictive to allow the incidental catch fishery to remain open for the entire year without exceeding the state's overall quota. In addition, the Commission recommended that states implement programs to collect additional data on discards in the commercial fishery.

The Council and Board recommend a coastwide total allowable catch (TAC) of 12,920,000 lb (5,860,413 kg) for 2002 for scup. This TAC is 54.34 percent above the TAC established for 2001. The 2002 TAC is divided between the commercial and recreational components of the fishery in the same proportion as it was each year from 1997 to 2001. The commercial TAC for 2002 is 10,077,000 lb (4,570,850 kg) and the recreational TAC is 2,840,000 lb (1,288,202 kg). Discard estimates are deducted from these TACs to set a TAL for the commercial and recreational sectors. The commercial TAL is a quota; and the recreational TAL is a harvest limit. Both are shown below.

| | <u>Commercial (lb)</u> | <u>Recreational (lb)</u> |
|------------------------|--------------------------|--------------------------|
| TAC: | 10,077,600(4,571,122 kg) | 2,842,400 (1,289,291 kg) |
| Less Discard Estimate: | 2,077,600 (942,384 kg) | 72,400 (32,840 kg) |
| TAL: | 8,000,000 (3,628,740 kg) | 2,770,000 (1,256,451 kg) |

The Council and Board recommended no change in scup landing/possession limits for the two winter periods in 2002. For the first winter period (Jan-Apr), they recommended a landing limit of 10,000 pounds. When 80 percent of the landings are reached, the landing limit will drop to 1,000 pounds. For the second winter period (Nov-Dec), a 2,000 pounds landing limit was adopted. The Council and Board also adopted a measure that allows vessels fishing with small mesh and having an escapement extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend be allowed to fish in the GRAs. For the directed scup fishery minimum mesh size for nets would be modified as follows: for large nets, no more than 25 meshes of 4.5" mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh and for small nets, 4.5" mesh or larger throughout.

The Council and Board recommended a coastwide TAL of 6,800,000 lb (3,084,428 kg) for 2002 for black sea bass. Based on landings data from 1983 to 1992, 49 percent of the TAL is allocated to the commercial fishery as quota and 51 percent is allocated to the recreational fishery as a harvest limit. As such, the recommended commercial quota for 2002 is 3,332,000 lb (1,511,370 kg) and the recommended recreational harvest limit is 3,468,000 lb (1,573,058 kg). The Council and Board recommended that the possession limits be modified for 2002 to 7,000; 2,000; 2,000; and 2,000 for each quarter, respectively. The Council and Board are also recommending an increase of minimum fish size in the commercial fishery to 11" TL. Accordingly, the Council and Board are also recommending changes in minimum mesh size and vent size. The current minimum mesh regulations require a 4.0" minimum mesh in the codend of the net for vessels possessing more than 1000 lbs of black sea bass. The Council and Commission recommended that the net provisions be modified such that fishermen could use large nets with a minimum of 75 meshes of 4.5" diamond mesh in the codend or small nets with at least 4.5" diamond mesh throughout, for 2002. The recommended threshold to trigger the minimum mesh size is 500 pounds from January through March and 100 pounds from April through December. Based on industry advice, the Council and Commission recommended that vent sizes be increased in 2002 to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The current regulations specify escape vent sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" for circular vents, and 1 1/2" for square vents.

In the annual specification process for 2002, the Council approved a research set aside amount equal to 2 percent of the total allowable harvest for summer flounder and 3 percent of the total allowable harvest for scup and black sea bass. Assuming that NMFS approves the preferred TAL alternative for each species, the set-aside amount would be 486,000; 323,100; and 204,000 pounds for summer flounder, scup, and black sea bass, respectively.

A number of research projects have been submitted to NMFS that would require an exemption from some of the current or proposed regulations for these species. In order to expedite the approval and implementation of these research projects, Council staff agreed to analyze the impacts of these exemptions on the environment for inclusion in the specification package for these species.

3.2 Alternative 2 (Status Quo - Most Restrictive)

Alternative 2 analyzes the impacts of maintaining the 2001 harvest limits for 2002 (status quo). More specifically, a summer flounder TAL of 17,912,559 lb. The commercial quota would be 10,747,535 lb, and the recreational harvest limit would be 7,165,024 lb in 2002. The scup fishery would receive a commercial quota of 4,444,600 lb and a recreational harvest limit of 1,771,400 lb. A TAL of 6,173,000 lb would be established for the black sea bass fishery. The commercial fishery would receive a quota of 3,024,770 lb and the recreational fishery would receive a harvest limit of 3,148,230 lb.

3.3 Alternative 3 (Least Restrictive)

Alternative 3 analyzes the impacts of the harvest limits that would result in higher landings in 2002 (relative to 2001). This alternative includes a summer flounder TAL of 34,797,763 lb (a 20,878,658 lb commercial quota; a 13,919,105 lb recreational harvest limit), a 9,530,000 lb commercial quota for scup (a 3,210,000 lb recreational harvest limit), and a 8,104,000 lb TAL for black sea bass (a 3,970,960 lb commercial quota; a 4,133,040 lb recreational harvest limit).

4.0 Affected Environment

4.1 Port and Community Description

The ports and communities that are dependent on summer flounder, scup, and black sea bass are fully described in Appendix 1 of this document.

4.2 Analysis of Permit Data/Human Environment

Federally Permitted Vessels

This analysis estimates that as of September 5, 2000, there were 1,969 vessels with one or more of the following three commercial or recreational Federal Northeast permits: summer flounder (FLK), black sea bass (BSB), and scup (SCP). A total of 1033, 977, and 831 Federal commercial permits for FLK, SCP, and BSB, respectively, had been issued to Northeast region fishing vessels. For party/charter operators a total of 613, 498, and 528 Federal permits were issued for FLK, SCP, and BSB, respectively.

These three fisheries (FLK, SCP, and BSB) have vessels permitted as commercial, recreational, or both. Of the 1,969 vessels with at least one Federal permit there were 1,303 that held only commercial permits for FLK, SCP, or BSB while there were 546 vessels that held only a recreational permit. The remaining vessels(120)held some combination of recreational and commercial permits. Whether engaged in a commercial or recreational fishing activity vessels may hold any one of seven combinations of FLK, SCP, and BSB permits. The total number of vessels holding any one of these possible combinations of permits by species and commercial or recreational status are reported in Table 2.

Table 2. Summary of number of vessels holding federal commercial and/or recreational permit combinations for summer Flounder (FLK), scup (SCP) and black sea bass (BSB).

| Comm. Permit Combinations | Recreational Permit Combinations | | | | | | | | Row Total |
|---------------------------|----------------------------------|----------|----------|----------|----------|---------|---------|-------------|-----------|
| | No. Rec. Permit | FLK Only | SCP Only | FLK/Scup | BSB Only | FLK/BSB | SCP/BSB | FLK/SCP/BSB | |
| No. Comm. Permit | 0 | 54 | 12 | 34 | 9 | 66 | 15 | 356 | 546 |
| FLK Only | 286 | 5 | 4 | 1 | 2 | 0 | 1 | 5 | 304 |
| SCP Only | 69 | 3 | 0 | 1 | 0 | 3 | 0 | 7 | 83 |
| BSB | 96 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 99 |
| FLK/SCP | 178 | 3 | 0 | 6 | 3 | 5 | 2 | 8 | 205 |
| FLK/BSB | 40 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 43 |
| SCP/BSB | 172 | 8 | 0 | 1 | 0 | 1 | 2 | 24 | 208 |
| FLK/SCP/BSB | 462 | 3 | 1 | 1 | 0 | 0 | 0 | 14 | 481 |
| Column Total | 1303 | 77 | 17 | 44 | 14 | 77 | 22 | 415 | 1969 |

Row sums in Table 2 indicate the total number of vessels that have been issued some unique combination of commercial permits. For example, there were 304 vessels whose only commercial permit was for FLK. By contrast, there were 481 that held all three commercial permits. Column totals in Table 2 indicate the total number of vessels that have been issued some unique combination of Federal recreational permits. For example, there were 17 vessels whose only recreational permit was for scup while 415 vessels held all three recreational permits. Each cell in Table 2 reports the total number of vessels that have the unique combination recreational and commercial permits by species. For example, the cell entry of 5 in row 2 column 2 indicates that there were 5 vessels that held the unique combination of only a FLK commercial permit and only a FLK recreational permit. Note that each cell entry in row one corresponds to vessels that held no commercial permit for FLK, SCP or BSB, while each cell entry in

column 1 corresponds to vessels that held no such recreational permit.

In addition to FLK, SCP, and BSB there are a number of alternative commercial or recreational fisheries for which any given vessel might possess a Federal permit. The total number of vessels holding any one or more of these other permits is reported in Table 3.

Table 3. Other permit year 2000 federal northeast region permits held by FLK, SCP, and BSB commercial and recreational vessels.

| Northeast Permits | Commercial Only (n= 1,303) | | Party/Charter Only (n= 546) | | Commercial and Party/Charter (n= 120) | |
|--|-------------------------------|---------------------|--------------------------------|---------------------|---|---------------------|
| | Vessels (No.) | Percent of Total | Vessels (No.) | Percent of Total | Vessels (No.) | Percent of Total |
| Surfclam | 620 | 47.6 | 84 | 15.4 | 24 | 20 |
| Ocean Quahog | 574 | 44.1 | 80 | 14.7 | 19 | 15.8 |
| Scallop | 253 | 19.4 | 0 | 0 | 4 | 3.3 |
| Non-trap Lobster | 594 | 45.6 | 8 | 1.5 | 10 | 8.3 |
| Lobster Trap | 355 | 27.2 | 43 | 7.9 | 24 | 20 |
| Party/ Charter Lobster | 2 | 0.2 | 14 | 2.6 | 2 | 1.7 |
| Party/ Charter Multi- Species | 433 | 33.2 | 440 | 80.6 | 52 | 43.3 |
| Comm. Multi- species | 711 | 54.6 | 63 | 11.5 | 52 | 43.3 |
| Party/ Charter Squid/ Mackerel/ Butterfish | 4 | 0.3 | 423 | 77.5 | 76 | 63.3 |
| Comm. Squid/ Mackerel/ Butterfish | 1071 | 82.2 | 220 | 39.6 | 86 | 71.7 |

| | | | | | | |
|------------------------|------|------|-----|------|-----|------|
| Comm. Bluefish | 1062 | 81.5 | 425 | 77.8 | 100 | 83.3 |
| Party/Charter Bluefish | 14 | 1.1 | 84 | 15.4 | 88 | 73.3 |

Of the vessels that hold at least one Federal permit for FLK, SCP, or BSB the largest number of commercial permit holders (Table 4) are held by Massachusetts vessels, followed closely by New York and New Jersey, then Rhode Island, and North Carolina. The fewest permits are held by Florida vessels, followed by Delaware. In terms of average tonnage, the largest commercial vessels are found in Florida, followed by Virginia, Massachusetts, Maine, and North Carolina. These rankings by state are similar for average length as well. The smallest vessels are found in Delaware, followed by New Hampshire and New York.

Table 4. Permit year 2000 descriptive data from northeast region permit files for commercial vessels.

| | CT | DE | FL | MA | MD | ME | NC | NH | NJ | NY | PA | RI | SC | VA | WV | Other |
|---|------|------|-------|------|------|------|------|------|------|------|----|------|------|------|----|-------|
| No. of Permits by Mailing Address State | 26 | 17 | 3 | 370 | 18 | 46 | 134 | 20 | 181 | 184 | 3 | 172 | 1 | 125 | 0 | 3 |
| No. of Permits by Home Port State | 15 | 14 | 4 | 429 | 15 | 33 | 117 | 13 | 152 | 212 | 22 | 133 | 1 | 137 | 2 | 4 |
| No. of Permits by Principal Port State | 28 | 8 | 2 | 383 | 23 | 44 | 125 | 18 | 181 | 184 | 0 | 171 | 1 | 133 | 1 | 1 |
| Average Length by Principal Port | 57.9 | 38.3 | 82.0 | 58.9 | 52.1 | 57.9 | 60.6 | 51.6 | 56.5 | 44.2 | NA | 56.9 | 47.0 | 63.3 | NA | NA |
| Average Tonnage by Principal Port | 74.1 | 16.0 | 127.0 | 82.6 | 37.6 | 75.1 | 79.0 | 44.8 | 69.3 | 40.0 | NA | 69.8 | 33.0 | 93.0 | NA | NA |
| Percent Home Port Equal Principal Port | 53.6 | 50.0 | 25.0 | 87.4 | 65.2 | 75.0 | 81.6 | 72.2 | 77.9 | 84.9 | 0 | 74.9 | 100 | 81.8 | 0 | NA |

For party/charter vessels (Table 5), the largest number of permit holders are found in New Jersey, followed by New York and Massachusetts. The fewest permits are in Florida, followed by North Carolina. As might be expected, recreational vessels are smaller on average than commercial vessels. In terms of overall length, the largest party/charter vessels operate out of principal ports in the states of Florida and Maryland, followed by Pennsylvania, Connecticut, New York, and New Jersey; while the smallest are in New Hampshire.

Table 5. Permit year 2000 descriptive data from northeast region permit files for party/charter vessels.

| | CT | DE | FL | MA | MD | ME | NC | NH | NJ | NY | PA | RI | VA | Other |
|---|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| No. of Permits by Mailing Address State | 25 | 7 | 4 | 119 | 8 | 23 | 12 | 18 | 153 | 101 | 6 | 39 | 31 | 0 |
| No. of Permits by Home Port State | 15 | 10 | 6 | 125 | 6 | 23 | 13 | 18 | 121 | 111 | 25 | 35 | 34 | 4 |
| No. of Permits by Principal Port State | 22 | 7 | 2 | 116 | 6 | 25 | 15 | 18 | 155 | 96 | 3 | 46 | 34 | 1 |
| Average Length by Principal Port | 45.0 | 38.6 | 60.5 | 37.0 | 58.8 | 36.0 | 38.8 | 30.9 | 45.7 | 47.0 | 52.3 | 36.8 | 39.0 | NA |
| Average Tonnage by Principal Port | 26.8 | 11.7 | 68.5 | 19.2 | 45.5 | 20.2 | 20.2 | 9.1 | 31.1 | 34.1 | 44.7 | 19.1 | 22.2 | NA |
| Percent Home Port Equals Principal Port | 68.2 | 70.0 | 16.7 | 90.4 | 66.7 | 88.0 | 80.0 | 94.4 | 76.8 | 79.3 | 4.0 | 76.1 | 88.2 | NA |

For vessels that hold a combination of commercial and party/charter permits most vessels operate out of ports in the states of New York followed by Massachusetts and New Jersey (Table 6). Like the vessels that hold only party/charter FLK, SCP, or BSB, permits, these vessels are generally smaller than commercial vessels and are smaller, on average, than party/charter vessels in Massachusetts and New York but are larger than New Jersey party/charter vessels.

Table 6. Permit year 2000 descriptive data from northeast region permit files for combination commercial/recreational vessels.

| | CT | DE | FL | MA | ME | NC | NH | NJ | NY | PA | RI | VA | Other |
|---|------|------|----|------|------|------|------|------|------|-------|------|------|-------|
| No. of Permits by Mailing Address State | 3 | 3 | 1 | 20 | 1 | 3 | 2 | 17 | 47 | 0 | 10 | 13 | 0 |
| No. of Permits by Home Port State | 3 | 3 | 1 | 26 | 4 | 1 | 14 | 49 | 2 | 2 | 5 | 12 | 0 |
| No. of Permits by Principal Port State | 2 | 2 | 0 | 20 | 1 | 4 | 2 | 14 | 48 | 2 | 12 | 12 | 1 |
| Average Length by Principal Port | 33.5 | 59.0 | NA | 34.8 | 46.0 | 41.3 | 33.5 | 53.1 | 37.9 | 66.5 | 41.8 | 46.7 | 36.0 |
| Average Tonnage by Principal Port | 7.0 | 55.0 | NA | 15.1 | 48.0 | 19.8 | 4.0 | 42.6 | 22.2 | 101.5 | 29.2 | 35.8 | 17.0 |
| Percent Home Port Equal Principal Port | 66.7 | 66.7 | 0 | 73.1 | 0 | 75.0 | 50.0 | 78.6 | 95.9 | 0 | 41.7 | 91.7 | NA |

Summer flounder permits are allocated per state, though vessels are not

constrained to land in their home state. It can be useful, therefore, to examine the degree to which vessels from different states make it a practice to land in states other than their home state. With the exception of South Carolina, commercial vessels in Massachusetts and Maryland vessels were most likely to list the same state as both the vessel owner's declared principal port of landing and the identified port of their home (Table 4), followed closely by Florida, New Jersey, Connecticut, New York, and New Hampshire. Vessels in Delaware were the least likely to land in their home port state followed by Virginia, North Carolina, and Rhode Island. Among recreational vessels (Table 5), New Hampshire vessels are the most likely to list the same state as both principal of landing and home port, followed equally by Delaware, Florida, Massachusetts, and Pennsylvania. For vessels that have a combination of commercial and party/charter permits, every such vessel operating out of Connecticut and North Carolina declared the same landing and home port (Table 6) on their year 2000 Federal permit application. Those vessels which have generally made it a practice to land in their home state may have less inherent flexibility in altering their landing state to adjust to smaller quotas in their home state.

To examine landings patterns 1999 data are used. The top commercial landings ports for FLK, SCP, and black sea bass by pounds landed are shown in Table 7. Related data for the recreational fisheries are shown in Table 8, though the nature of the recreational database (MRFSS) means that it is inappropriate to desegregate to less than state levels. Thus port-level recreational data are not shown.

Table 7. Top ports of landing (in pounds), based on NMFS 1999 weighout data. Since this table includes only the "top ports," it may not include all of the landings for the year.

| Port | Pounds FLK | # FLK Vessels | Pounds SCP | # SCP Vessels | Pounds BSB | # BSB Vessels |
|-----------------|---------------|------------------|---------------|------------------|---------------|------------------|
| STONINGTON, CT | 188,498 | | 52,799 | | 8,207 | |
| OCEAN CITY, MD | 166,866 | 21 | C | C | 407,245 | 27 |
| CHATHAM, MA | 24,883 | 17 | 78,894 | 28 | 166,154 | 33 |
| NEW BEDFORD, MA | 318,553 | 139 | 264,495 | 31 | 85,143 | 42 |
| BARNSTABLE, MA | 126,224 | 31 | 47,083 | 25 | 10,758 | 27 |
| OTHER DUKES, MA | 157,619 | 30 | 34,376 | 23 | 118,436 | 29 |
| NANTUCKET, MA | 117,688 | 30 | 0 | 0 | C | C |
| OTHER MASS | 4,349 | 4 | 162,007 | 5 | 133,270 | 7 |
| BAYBORO, NC | 106,628 | 4 | 0 | 0 | C | C |
| BEAUFORT, NC | 576,122 | 25 | 0 | 0 | 21,317 | 13 |
| ENGELHARD, NC | 361,185 | 17 | 0 | 0 | 16,722 | 13 |

| | | | | | | |
|-----------------------|-----------|-----|---------|-----|---------|-----|
| ORIENTAL, NC | 312,304 | 19 | 0 | 0 | 783 | 6 |
| WANCHESE, NC | 1,020,351 | 53 | 0 | 0 | 85,612 | 56 |
| VANDEMERE, NC | 137,494 | 7 | 0 | 0 | C | C |
| BELFORD, NJ | 358,957 | 19 | 1,602 | 15 | 2,972 | 28 |
| WILDWOOD, NJ | 68,481 | 6 | C | C | 60,352 | 7 |
| CAPE MAY, NJ | 740,914 | 72 | 644,603 | 27 | 277,209 | 55 |
| PT. PLEASANT, NJ | 649,293 | 39 | 118,352 | 24 | 30,643 | 43 |
| SEA ISLE CITY, NJ | 6,891 | 5 | C | C | 107,018 | 7 |
| FREEPORT, NY | 30,012 | 24 | 63,675 | 9 | 18,825 | 17 |
| GREENPORT, NY | 70,182 | 22 | 54,358 | 14 | 13,247 | 14 |
| HAMPTON BAY, NY | 328,952 | 57 | 159,843 | 45 | 64,538 | 48 |
| MONTAUK, NY | 316,141 | 74 | 133,484 | 68 | 102,809 | 103 |
| LITTLE COMPTON, RI | 70,815 | 14 | 214,078 | 11 | 11,210 | 14 |
| NEWPORT, RI | 198,165 | 46 | 317,833 | 29 | 16,353 | 36 |
| POINT JUDITH, RI | 1,147,339 | 130 | 671,995 | 105 | 137,857 | 143 |
| TIVERTON, RI | 143,506 | 31 | 36,966 | 18 | 5,026 | 23 |
| CHINCOTEAGUE, VA | 391,248 | 29 | 323 | 5 | 84,125 | 24 |
| HAMPTON, VA | 719,640 | 39 | C | C | 219,437 | 33 |
| NEWPORT NEWS, VA | 887,148 | 59 | C | C | 72,343 | 42 |
| VIRGINIA BEACH, VA | C | C | C | C | 362,665 | 23 |

C = Confidential

Table 8. MRFSS preliminary estimates of 1999 recreational harvest and total catch (in numbers of fish).

| State | FLK Harvest | FLK Catch | SCP Harvest | SCP Catch | BSB Harvest | BSB Catch |
|-------|-------------|-----------|-------------|-----------|-------------|-----------|
| CT | 215311 | 717740 | 373943 | 647073 | 1583 | 175312 |
| MA | 147720 | 393316 | 1209089 | 1549781 | 20985 | 46636 |
| RI | 432087 | 872254 | 718660 | 998039 | 25290 | 145934 |
| DE | 180562 | 613297 | 492 | 11498 | 41462 | 253967 |

| | | | | | | |
|----|---------|----------|--------|---------|--------|---------|
| MD | 226912 | 1239079 | 2105 | 2105 | 159527 | 1646599 |
| NJ | 1502689 | 10723182 | 251821 | 351894 | 449134 | 2177475 |
| NY | 759640 | 4020124 | 874539 | 1071762 | 88880 | 820126 |
| VA | 378283 | 2561235 | 0 | 3890 | 536489 | 1778424 |
| NC | 236791 | 236791 | 0 | 0 | 88493 | 712993 |

Dealers

There were 199 dealers who bought summer flounder, scup and/or black sea bass in 1999. They were distributed by state as indicated in Table 9. Employment data for these specific firms are not available. In 1999 these dealers bought \$16,259,534 worth of summer flounder; \$3,686,648 worth of scup; and \$4,793,747 worth of black sea bass.

Table 9. Dealers reporting buying FLK, BSB, and/or SCP, by state (from NMFS commercial landings database).

| Number of Dealers | DE, ME, NH, CT | MD | MA | NJ | NY | NC | RI | VA |
|-------------------|----------------|----|----|----|----|----|----|----|
| | 5 | 3 | 43 | 23 | 44 | 27 | 37 | 17 |

Threatened and Endangered Species

The impacts of the summer flounder, scup and black sea fisheries upon endangered and threatened species and marine mammal populations are described in detail by the Council in the FMP amendments that instituted fishery management measures for these fisheries (Amendments 2, 10 and 12, summer flounder; Amendments 8 and 12, scup; Amendments 9 and 12, black sea bass). Impacts of this action are further summarized in section 6.2, Impacts of Alternatives upon Endangered or Threatened Species or Marine Mammal Populations, of this document.

5.0 Description of Fisheries

5.1 Summer Flounder

The commercial and recreational fisheries for summer flounder are outlined by principal port in Appendix 1, and additional information is found in Amendments 2, 10, and 12 (information on how to obtain these and other Council documents referred throughout this specifications package can be obtained from the MAFMC office).

In recent years, the commercial fishery has been managed under a quota system. In 1993, the first year that a coastwide quota was implemented, commercial landings were 12.59 million lb (5.71 million kg), slightly in excess of the quota of 12.35 million lb (5.60 million kg). Commercial landings in 1994 and 1995, were 14.56 and 15.42 million lb (6.58 and 6.97 million kg),

respectively. In 1996, landings declined to 12.95 million lb (5.85 million kg) which were about 16 percent in excess of the initial quota of 11.11 million lb (5.04 million kg) for that year. In 1997, landings were approximately 8.81 million lb (4.08 million kg) which were about 5 percent in excess of the initial quota of 8.38 million lb (3.8 million kg) for that year. Commercial landings were 10.72 million lb (4.86 million kg) in 1999 and increased to 11.22 million lb (5.09 million kg) in 2000. Annual commercial landings from 1993 to 2000 were less than the 16.59 million lb (7.52 million kg) landed in 1992, the year before quota implementation. With the exception of 1997, landings were substantially larger than the 9.25 million lb (4.19 million kg) landed in 1990.

Recreational landings have fluctuated since Amendment 2 regulations were implemented in 1993. Landings increased to 8.83 million lb (4.0 million kg) in 1993 from the 1992 level of 7.15 million lb (3.24 million kg). In 1994, recreational landings increased again to 9.33 million lb (4.23 million kg) and then declined to 5.42 million lb (2.46 million kg) in 1995. In 1996 and 1997, landings were 9.82 million lb (4.45 million kg) and 11.87 million lb (5.38 million kg), respectively. In 1998, recreational landings increased to 12.48 million lb (5.66 million kg) and then dropped to 9.10 million lb (4.13 million kg) in 1999. In 2000, recreational landings of summer flounder increased to the highest level in 10 years, 15.82 million lb (7.18 kg).

5.1.1 Status of the Stock

The status of the summer flounder stock is re-evaluated annually. The most recent assessment, updated by the NEFSC Southern Demersal Working Group in June, 2001 indicates that the summer flounder stock is overfished and overfishing is occurring with respect to the Amendment 12 overfishing definition.

However, the fishing mortality rate estimated for 2000 is 0.30, a significant decline from the 1.31 estimated for 1994. In addition, total stock biomass has increased substantially since 1991 to 102.3 million pounds in 2000. Spawning stock biomass has increased each year since 1993 to 81.6 million pounds in 2000, the highest value in the time series. Projections indicate that if the TAL in 2001 is not exceeded, total stock biomass will exceed the biomass threshold in January, 2002. At this level, the stock will no longer be overfished.

Year-class estimates indicate that the 1996, 1997 and 1998 year classes were about average size at 35 to 42 million fish. The assessment estimated the 1999 and 2000 year classes to be below average at 28 and 26 million fish, respectively. However "retrospective analysis shows that the VPA tends to underestimate recent year-classes."

5.1.2 Stock Characteristics and Ecological Relationships

Full description of stock characteristics and ecological relationships of summer flounder are incorporated by reference in section 5.3 of Amendment 2. Additional information can be found in the SAW-31 documents. The following is

taking from the "SAW Southern Demersal Working Group 2001 Advisory Report: Summer Flounder."

An analytical assessment (VPA) of commercial and recreational total catch at age (landings plus discard) was conducted. The natural mortality rate (M) was assumed to be 0.2. Indices of recruitment and stock abundance from NEFSC winter, spring, and autumn, Massachusetts spring and autumn, Rhode Island, Connecticut spring and autumn trawl, Delaware, and New Jersey trawl surveys were used in VPA tuning. In addition, recruitment indices from surveys conducted by the states of North Carolina, Virginia, and Maryland were used in VPA tuning in an ADAPT framework. The uncertainty associated with the estimates of fishing mortality and spawning stock biomass in 2000 was evaluated with respect to research survey variability.

Fishing mortality calculated from the average of the currently fully recruited ages (3-5) summer flounder has been high, varying between 0.9 and 2.2 during 1982-1997 (55%-83% exploitation), far in excess of the revised FMP Amendment 12 overfishing definition, $F_{\text{threshold}} = F_{\text{target}} = F_{\text{max}} = 0.26$ (21% exploitation). The fishing mortality rate has declined substantially since 1997 and was estimated to be 0.30 in 2000 but is still 15 percent higher than the overfishing definition. The annual partial recruitment of age-1 fish decreased from near 0.50 during the first half of the VPA series to 0.25 since 1994; the partial recruitment of age-2 fish has decreased from 1.00 in 1993 to 0.77 in 1998-2000. These decreases in partial recruitment at age are in line with expectations given recent changes in commercial and recreational fishery regulations.

The NEFSC spring survey stock biomass index (1968-2001) peaked during 1976-1977, and reached a record high in 2001. Total stock biomass on January 1, estimated by VPA (1982-1999) reached 48,300 mt in 1983, before falling to 16,100 mt in 1989. Total stock biomass has increased since 1991, has been stable since 1994 at about 41,000 mt, and in 2000 was estimated to be 46,400 mt, which is 44 percent of the biomass target of $B_{\text{MSY}} = 106,400$ mt, and 87 percent of the biomass threshold of one-half $B_{\text{MSY}} = 53,200$ mt.

The arithmetic average recruitment from 1982 to 2000 was 40 million fish at age 0, with a median of 36 million fish. The 1982 and 1983 year-classes are the largest in the VPA time series, at 74 and 80 million fish, respectively, at age 0. Recruitment declined from 1983 to 1988, with the 1988 year-class the weakest at only 13 million fish. Recruitment since 1988 has generally improved, and the 1995 year-class, at 45 million fish, was above average. The 1996-1998 year-classes, ranging between 35 to 42 million fish, are estimated to be about average. The 1999 and 2000 year-classes, at 28 and 26 million fish, respectively, are estimated to be below average. It should be noted that retrospective analysis shows that the assessment tends to underestimate the abundance of recent year classes. Recent recruitment per unit of SSB has been lower than that estimated at a comparable abundance of SSB during the early 1980s.

Spawning stock biomass declined 72 percent from 1983 to 1989 (18,800 mt to 5,200 mt), but has since increased seven-fold, with improved recruitment and

decreased fishing mortality to 37,000 mt in 2000. The age structure of the spawning stock has expanded, with 78 percent at ages 2 and older, and 16 percent at ages 5 and older. Under equilibrium conditions at F_{max} , however, about 85 percent of the spawning stock biomass would be expected to be ages 2 and older, with 50 percent at ages 5 and older.

5.1.3 Economic and Social Environment

A general description by principal port of the commercial and recreational importance of scup, summer flounder and black sea bass is given in Appendix 1.

Since 1993 the commercial fishery has been managed under a quota system. The value of commercial landings of summer flounder in 1993 were estimated at \$19.1 million. In 1994 and 1995 commercial exvessel value increased to \$24.0 and \$28.3 million, respectively. Estimated exvessel value for 1996, 1997, and 1998 was \$20.8 million and \$15.5 million, and \$18.7 million, respectively. In 1999, summer flounder commercial landings were valued at \$19.4 million and average exvessel price for summer flounder was estimated at \$1.81 per pound. In 2000, summer flounder landings were valued at \$18.5 million and average exvessel price for summer flounder was estimated at \$1.65 per pound. In general, summer flounder landings for smaller tonnage vessels were higher in the summer months, while landings for larger tonnage vessels were higher in the winter months. Monthly price fluctuations were evident. On average, higher prices tended to occur during the summer months. This price fluctuation is likely associated with supply responses.

Summer flounder continues to be an important component of the recreational fishery. Estimation of primary species sought as reported by anglers in recent intercept surveys indicates that summer flounder has increased in importance in the U.S. North Atlantic and Mid-Atlantic subregions, while decreasing in the South Atlantic subregion. The number of trips for which recreational anglers sought summer flounder in the North Atlantic and Mid-Atlantic subregions in 2000 was 654 thousand and 4.9 million, respectively. This represents a 31 percent increase relative to 1999 for both regions combined.

Japan continues to be the most important export market for summer flounder. Exports of summer flounder are difficult to determine as summer flounder gets lumped under a variety of export codes and it is impossible to identify in the U.S. export data (B. Ross pers. comm. 1997). However, export of US summer flounder to Japan has been reported to vary from approximately 800 to 1,800 mt in 1993-1997 (Asakawa pers. comm.). Fresh whole U.S. fluke or summer flounder (*Paralichthys dentatus*) is generally exported to Japan for raw (sashimi) consumption. Fresh U.S. summer flounder is used as a substitute for Japanese "hirame" (bastard halibut -- *Paralichthys olivaceus*), and normally imported whole fresh and sold through seafood auction markets to restaurants. They are usually consumed raw for sashimi or sushi toppings in Japan. While U.S. summer flounder is well established in some major action markets, daily prices may fluctuate depending on the total quantity of domestic and imported hirame (including U.S. summer flounder) delivered to auction on a given day. Depending on quality, auction prices for fresh U.S. summer flounder may vary

from around 1,000 to 3,000 yen/kilo (\$3.13 to 9.40/lb at 145 yen/\$ 1.00) depending on size, quality and market conditions (Asakawa pers. Comm.). Frozen summer flounder may not be considered to be of the same quality, and is unlikely to become substitute for unfrozen summer flounder. Nevertheless, properly handled frozen summer flounder may receive wholesale prices of 400-900 yen/kilo (\$1.73-3.90/lb) or higher (Asakawa pers. comm.). The recent economic crisis in Japan could potentially hamper exports of seafood commodities to that country. Furthermore, future devaluation of the yen would result in reduced revenues for exporters of summer flounder to Japan.

Imports of flounders (all species combined) were 5.92 million lb (\$4.54 million) in 1996, 5.39 million lb (\$4.44 million) in 1997, and 7.23 million lb (\$4.67 million) in 1998. In 1999, 7.87 million lb of flounders valued at \$5.28 million entered the country for consumption (NMFS). Importers generally tend to import flounders when domestic exvessel prices reach \$2 per pound. South Atlantic flatfish (e.g., Argentina) are imported to the US when domestic prices are high. However, frozen imports may not make the grade for some restaurants and retail buyers that demand fresh flounder (National Fishermen, 1998).

The commercial and recreational fisheries for summer flounder are fully described and incorporated by reference in sections 8.1 and 8.2 of Amendment 2.

5.2 Scup

The commercial and recreational fisheries for scup are fully described and incorporated by reference in section 7.1 and 7.2, respectively of Amendment 8, and are outlined by principal port in Appendix 1. In the last 20 years (1981 to 2000) there has been a downward trend in scup commercial landings. Commercial scup landings, which had declined 60 percent from 21.73 million lb (9.85 million kg) in 1981 to 8.77 million lb (3.71 million kg) in 1989, increased to 15.61 million lb (6.86 million kg) in 1991 and then dropped to the lowest value in the time series, 2.66 million lb (1.21 million kg), in 2000.

The recreational landings declined steadily from a 1986 value of 11.61 million lb (5.26 million kg) to 1.34 million lb (0.61 million kg) in 1995, and then increased to 2.16 million lb (0.98 million kg) in 1996. In 1997, recreational landings were 1.2 million lb (0.54 million kg) and then dropped to 0.88 million lb (0.40 million kg) in 1998, the lowest value in the time series. However,, recreational landings rebounded to 1.89 million lb (0.86 million kg) in 1999 and continued to rebound in 2000 to 5.18 million pounds (2.35 million kg).

5.2.1 Status of the stock

The most recent assessment on scup, in June 2000, indicates that scup are overfished and overfishing is occurring(SARC 31). The SARC concluded that "the current index of spawning stock biomass is low (1998-2000 average =0.10 SSB kg/tow) and less than 5 percent of the biomass threshold (2.77 SSB

kg/tow)." The SARC also stated that "fishing mortality should be reduced substantially and immediately. Reduction in fishing mortality from discards will have the most impact on the stock, particularly considering the importance of the 1999 and all future good recruitment to rebuilding the stock."

Since then, the ASMFC Technical Committee has updated the state and federal survey indices for scup as well as discard estimates from sea sample and VTR data. In general, the surveys indicate an increase in stock abundance in recent years. The NEFSC spring survey results indicate that spawning stock biomass has increased each year since 1998; the estimate for 2000 (3 yr average) is 0.25 or about 9 percent of the biomass threshold. In addition, the NEFSC autumn survey results (kg/tow) for 2000 are the highest in the time series since 1976. These survey results reflect the effects of a strong 1997 year class and moderate to strong 1999 and 2000 year classes on the stock.

Commercial and recreational landings also indicate that the 1997 year class was strong and has persisted over time to support landings in both 1999 and 2000. Recreational catch per trip increased substantially in 1999 and recreational landings in 2000 were highest since 1991. Increased abundance of larger fish has also been noted by commercial fishermen who have suggested that more than the 1997 year class accounts for the availability of larger fish. However, ageing studies conducted by CT DEP personnel suggest that scup from the 1997 year class have grown at a faster rate than previous year classes. As such, the 1997 year class probably accounts for most of the larger fish in the commercial and recreational catches in 2000.

Estimates of fishing mortality rates for scup are uncertain. The SARC conducted several analyses that indicated that F was at least 1.0 for ages 0-3 scup for the 1984 to 2000 time series. The SARC could not estimate F 's on older fish because they are not well represented in the surveys. However, the SARC did note that it was likely that the current F was "significantly higher than the reference point." The SARC noted that the truncation in lengths and ages in the surveys and landings suggest that the stock has experienced high fishing mortality rates.

Although the magnitude of the mortality rates is unknown, relative exploitation rates have changed over the period. Relative exploitation rates based on total landings and the spring survey suggest a general increase in exploitation from 1981 to 1995. Since then, relative exploitation rates have declined; the 2000 value is about one-third of the 1997 value.

5.2.2 Stock Characteristics and Ecological Relationships

The stock characteristics and ecological relationships of scup are fully described and incorporated by reference in section 5.3 of Amendment 8. Scup was last fully assessed at SAW-31 in 2000. Reliable estimates of commercial fishery discards were not available due to the limited sample size and the uncertainty related to the representative nature of the sea sampling data for scup. VPA and production models were not undertaken and stock status was estimated from survey abundance indices. Standardized indices of abundance

from the NEFSC autumn survey and the MRFSS (recreational) catch per tow show similar patterns over time (1981-1999). Total mortality rates were estimated from survey based calculations using both annual and cohort catch curves. Fishing mortality rates were then estimated by subtracting the assumed natural mortality rate of 0.2.

The SARC estimated that total mortality of age 0-3 scup was close to 2.0 based on survey data suggesting that discard mortality had been high. However, the estimates were uncertain and did not account for availability of scup to the trawl gear or the fact that natural mortality is higher on smaller scup. The SARC concluded that the F on age 0-3 scup was at least 1.0.

The relative exploitation index may offer some clue as to current levels of mortality for older fish. Because the index is based on mostly landings of scup larger than 9" TL (the commercial minimum fish size and the recreational minimum fish size in states from MA through NJ) and SSB, the index may indicate fishing mortality rates on the larger fish has declined in recent years.

Based on current information, scup abundance is likely to increase in 2002. Survey information indicates that regulations may have protected the 1997 year class and also indicate a large 1999 and 2000 year class. If the 1999 and 2000 year classes are large and mortality of undersized fish is reduced, substantial biomass could be added to the stock by 2002.

In fact, deterministic projections of the NEFSC spring survey based on the 3-year average value for 2000 (average of the 1999, 2000, and 2001 indices at age) indicate that the SSB 3-year average index could increase from 0.25 in 2000 to 0.457 in 2001 assuming a fully recruited F of 1.0, the F estimated by the SARC in the last assessment, and the partial recruitment and maturity vectors from the yield per recruit analysis conducted for SAW 27. Assuming an average biomass that is at least identical to the 2001 average value of 0.457 in 2002, then exploitation rates could drop to 21 percent if the landings do not exceed 10.77 million pounds in 2002.

This calculation does not include an estimate of discards, i.e., mortality estimates are based on landings (not catch) of fully recruited fish and assumes that legal sized fish would not be discarded. As such, discards in both the directed scup fishery and indirect small mesh fisheries should be minimized to achieve the target exploitation rate for 2002. If in fact discards in 2002 are as high as suggested by sea sample data for 2000, the TAL would have to be reduced significantly to achieve the target exploitation rate of 21 percent.

5.2.3 Economic and Social Environment

A general description by principal port of the commercial and recreational importance of scup, summer flounder and black sea bass is given in Appendix 1.

Commercial scup landings were about 2.66 million lb (from ME to Cape Hatteras, NC) and valued at \$3.33 million in 2000. The average price per pound was

\$1.25 in 2000. The overall degree of reliance on scup is low for the ports described in Appendix 1. Scup values and landings were higher for ports located in the northern part of the coast.

A detailed description of the economic aspects of the commercial and recreational fisheries for scup was presented in sections 8.1 and 8.2 of Amendment 8.

5.3 Black Sea Bass

The commercial and recreational fisheries for black sea bass are fully described in section 7.1 and 7.2, respectively of Amendment 9, and are outlined by principal port in Appendix 1.

Commercial black sea bass landings have varied without trend since 1981, ranging from a low of 2.04 million lb (0.93 million kg) in 1994 to a high of 4.33 million lb (1.96 million kg) in 1984. The 2000 landings of 2.66 million lb (1.21 million kg) were below the average for 1981-2000 of 3.11 million lb (1.41 million kg). Currently, landings are substantially below the peak landings of 21.80 million lb (9.89 million kg) estimated for 1952.

Recreational landings ranged from a low of 1.15 million lb (0.52 million kg) in 1998 to a high of 12.39 million lb (5.62 million kg) in 1986. Recreational landings in 2000 were about 3.62 million lb (1.64 million kg), a substantial increase from 1.70 million pounds (0.77 million kg) in 1999, but slightly less than the average for 1981-2000 of 3.88 million pounds (1.76 million kg).

5.3.1 Status of the Stock

The most recent assessment on black sea bass, completed in June 1998, indicates that black sea bass are over-exploited and at a low biomass level (SAW 27). Fishing mortality for 1997, based on length based methods, was 0.73. The complete assessment is detailed in the "Report of the 27th Northeast Regional Stock Assessment Workshop."

The NEFSC has provided spring survey results for 2001. Amendment 12 to the Summer Flounder, Scup and Black Sea Bass FMP, which was partially approved by NMFS in 1999, established a biomass threshold based on this survey. Specifically, the biomass threshold is defined as the maximum value of a three-year moving average of the NEFSC spring survey catch-per-tow (1977-1979 average of 0.9 kg/tow).

Because of the potential influence of extremely small or large number for a single tow, Gary Shepherd, NEFSC (pers. comm.) has suggested that the survey indices be log transformed to give a better indication of stock status. The transformed series indicates a general increase in the exploitable biomass since 1993. The preliminary index for 2001 of 0.245 is the highest value in the series since 1976 and would substantiate fishermen's observations that black sea bass have become more abundant in recent years. The three-year moving average for 1999-2001 of 0.204 is a 45 percent increase relative to the 1998-2000 average.

Fishery dependent data can also be used as an indicator of stock status. Increased abundance is evident in the recreational data; landing-per-hour fished increased 25 percent from 1999 to 2000. Data provided by a Virginia pot fisherman indicate an increase in abundance as well.

Relative exploitation based on the total commercial and recreational landings and the moving average of the transformed spring survey index indicates a significant reduction in mortality from 1998 to 2000 relative to 1996 and 1997 levels. Based on length frequencies from the spring survey, and assuming length of full recruitment at 25 cm, the average F based on two length based methods was 0.75 (48% exploitation rate) in 1998 (G. Shepherd pers. comm.). Length based estimates are very sensitive to changes in the length used for full recruitment; average F's were 0.51 (37% exploitation) or 1.25 (66% exploitation) if a length of 23 or 27 cm was used in the calculations. Based on the relative index, exploitation rates in 2000 increased relative to the 1998 values; assuming a 48% rate for 1998, the exploitation rate in 2000 was 59%.

The spring survey can also be used as an index of recruitment. The survey indicates good year classes were produced in 1988, and 1990 through 1992, with a moderate year class in 1995, and poor year classes in 1993, 1994, and 1996 through 1998. The 1999 index was about three times the average for the period 1968-1998 and the fourth largest value since 1968. Results for 2000 indicate a strong year class; the index is 2.782, the highest in the time series. However, preliminary results indicate that the year class was poor in 2001.

5.3.2 Stock Characteristics and Ecological Relationships

The stock characteristics and ecological relationships are fully described in section 5.3 of Amendment 9. In addition, the advisory report on black sea bass from SAW-27 states that "recent catches are well below the historical average, age and size structure is truncated, and survey biomass indices since the late 1980s have been one-tenth of those observed in the late 1970s. Average annual fishing mortality, estimated from length-based analyses, ranged from 0.56 to 0.79 during 1984-1997 and was 0.73 (48 percent exploitation) in 1997. Recruitment in 1997, as indicated by survey indices, was well below the 1972-1996 average." Additional, detailed information is available in the SAW-27 documents.

5.3.3 Economic and Social Environment

A general description by principal port of the commercial and recreational importance of scup, summer flounder and black sea bass is given in Appendix 1.

In 2000, black sea bass landings (from ME to Cape Hatteras, NC) were valued at \$4.76 million and average exvessel price for black sea bass was estimated at \$1.79 per pound. The overall degree of reliance on black sea bass for ports described in Appendix 1. Black sea bass values and landings were higher for ports located along the southern part of the coast.

A detailed description of the economic aspects of the commercial and

recreational fisheries for black sea bass was presented in sections 8.1 and 8.2 of Amendment 9.

6.0 Environmental Consequences of Preferred and other Alternatives

This EA analyzes the impacts of the alternatives considered for the year 2002 specifications for summer flounder, scup, and black sea bass. The nature of the management programs for these three fisheries was examined in detail in the Environmental Impact Statement (EIS) prepared for each of the three fisheries (Amendment 2 for summer flounder (1992), Amendment 8 for scup (1996), and Amendment 9 for black sea bass (1996)). Those analyses included considerations of the impacts of the overall management measures on stock health and abundance, spawning stock biomass, and protected species, as well as on the economy and affected fishermen.

Cumulative Impacts

Although the measures that are the subject of this EA are for the year 2002 fisheries, the annual specification process for these fisheries could have potential cumulative impacts. The extent of any cumulative impacts from measures established in previous years is largely dependent on how effective those measures were in meeting their intended objectives and the extent to which mitigating measures compensated for any quota overages.

The management schemes established by the Council for summer flounder, scup, and black sea bass in the FMP, as previously analyzed in each species' respective EIS, recognize that management measures and fishery specifications established in one fishing year have implications for the measures that follow in subsequent years. In order to end overfishing and remedy the overfished status of these stocks, the Council developed rebuilding programs that have stock biomass targets. To achieve rebuilding, the Council recommends annual specifications that are intended to have a reasonable likelihood of not exceeding the specified target F's for the coming fishing year. Because of the nature of the fisheries (e.g., the landing of these species over in a large number of coastal states) and the inherent time lags encountered in collecting landings that are necessary to make final determinations of actual landings, there is always the possibility that some harvest quotas may be unintentionally exceeded before the information necessary to close that portion of the fishery is available. On the other hand, other sectors of the fishery (e.g., certain states, in the case of summer flounder) may under-achieve their allowable harvest levels in a given year.

To compensate for any over-harvests, and to preserve the conservation intent of the management regime, the FMP includes provisions that require that any commercial landings that exceed the specifications in one year or quota period be deducted from the commercial quota that would otherwise have been allowed for that portion of the fishery in the following year. Similarly, overages in the recreational fishery are addressed by way of changes in management measures to reduce the harvest in the following year to the specified level. Thus, the FMP and the annual specifications anticipate the possibility that landings may exceed targets in any given year and provide a remedy that at

least partially compensates for such occurrences in terms of maintaining the conservation goals of the FMP and the rebuilding programs, thus mitigating the impacts of those overages. The annual nature of the management measures is intended to provide the opportunity for the Council and NMFS to assess regularly the status of the fisheries and to make necessary adjustments to ensure that there is a reasonable expectation of meeting the objectives of the FMP and the targets associated with any rebuilding programs under the FMP.

The rebuilding programs under the FMP began in 1993, 1997, and 1998 for summer flounder, scup, and black sea bass, respectively. Because each year's measures build upon the previous year's measures, the cumulative effects of the management program on the health of the stocks and the fishery are assessed from year to year. As described above, the regulation implementing the FMP require that any commercial fishery overages in a given year be subtracted from the initial quota for a given state (summer flounder) or season (scup and black sea bass) the following year. An exception to this requirement occurred when a court ruling added 3.05 million pounds (1.4 million kg) to the commercial fishery for 1995 (February 16, 1995, 60 FR 8958). In the recreational fisheries for these species, projected landings in a given year are used by the Council in recommending recreational management measures for each species in the following year. The Council and NMFS consider angler effort and success, stock availability and the target harvest limits in establishing recreational measures for the upcoming year, including size limits, seasons, and bag limits. The recreational fisheries have target harvest levels, which do not require the fishery to be closed when attained, as compared to the commercial fishing quotas, which do require the fishery to be closed when the quota is attained.

Harvest limits, total landings, and total overages for each of the three fisheries have been as follows (weights are in thousands of pounds):

Summer Flounder

Commercial Quotas (millions of pounds)

| Year | Quota | Commercial Share | Adjusted Commercial Quota | Commercial Landings | Overage |
|--------|-------|------------------|---------------------------|---------------------|---------|
| 1993 - | 20.73 | 12.44 | - | 12.59 | - |
| 1994 - | 26.68 | 16.00 | - | 14.52 | - |
| 1995 - | 19.40 | 14.7 (add on) | - | 15.38 | 0.68 |
| 1996 - | 18.52 | 11.11 | 10.43 | 12.72 | 2.29 |
| 1997 - | 18.52 | 11.11 | 8.81 | 8.97 | 0.16 |
| 1998 - | 18.52 | 11.11 | 10.95 | 11.21 | 0.26 |
| 1999 - | 18.52 | 11.11 | 10.73 | 10.62 | - |
| 2000 - | 18.52 | 11.11 | 10.88 | 11.22 | 0.24 |
| 2001 - | 17.91 | 10.75 | 10.06 | N/A | N/A |

*-Preliminary

** Although there was not an overall overage in 1999, several individual states exceeded their 1999 allocation thus requiring a 2000 adjustment.

Recreational Harvest Limits (millions of pounds)

| Harvest | Landings | Overage |
|---------|----------|---------|
|---------|----------|---------|

| | Limit | | |
|--------|-------|-------|------|
| 1995 - | 7.8 | 5.50 | - |
| 1996 - | 7.41 | 10.37 | 2.96 |
| 1997 - | 7.41 | 11.86 | 4.45 |
| 1998 - | 7.41 | 12.53 | 5.12 |
| 1999 - | 7.41 | 8.37 | 0.96 |
| 2000 - | 7.41 | 15.82 | 8.41 |
| 2001 - | 7.16 | N/A | N/A |

| | <u>Scup</u> [^] | | | <u>Black Sea Bass</u> [^] | | |
|--------|--------------------------|----------|----------|------------------------------------|----------|----------|
| | TAL | Landings | Overages | TAL | Landings | Overages |
| 1997 - | 7.947 | 6.034 | - | - | - | - |
| 1998 - | 6.125 | 5.042 | - | 6.173 | 3.69 | - |
| 1999 - | 3.772 | 5.209 | 1.437 | 6.173 | 4.67 | - |
| 2000 - | 3.772 | 7.842 | 4.070 | 6.173 | 6.28 | 0.107 |
| 2001 - | 3.530 | N/A | N/A | 6.173 | N/A | N/A |

[^]-Includes both commercial and recreational harvest limits.

Note - 2001 landings not yet available for scup and black sea bass.

The summer flounder, scup, and black sea bass commercial fisheries have experienced annual total overages. In 2000, summer flounder, scup, and black sea bass commercial overages totaled approximately 0.34, 0.91, and 0.03 million pounds, respectively. However, the total overage, even though the recreational overage cannot be deducted, factors into the cumulative impact on the stocks. The overages of total landings for summer flounder, scup, and black sea bass were 9.81 million lb, 2.54 million lb, and 0.49 million lb, respectively, in 2000.

Quota overages in a given year or period have two expected impacts. First, the overages result in harvest levels in the following year or period for that portion of the fishery that are lower than would otherwise have been allowed, given the condition of the stock. In commercial fisheries, the overages result in a direct reduction in the next year's quota, which impacts fishery participants by decreasing potential revenues for the fishing year or period in which the overages are deducted. However, the fishery participants have already realized revenues from the landings that exceeded the allowable harvest level in the year they occurred. Thus, from an economic perspective, the timing of revenues is altered and there may be impacts on some fishermen caused by unexpected reductions in their opportunities to earn revenues in these fisheries in the year during which the overages are deducted. In the recreational fisheries, overages in one year may result in lower bag limits, larger minimum size limits, and/or shorter seasons than would otherwise have been allowed, had the overages not occurred. Increased harvests in one year are thus "paid back" by decreased harvest opportunities the next year. Recreational fishing opportunities for those fishermen not desiring to keep their catch of these species would be affected little, if any, by such occurrences.

The second possible result of overages is the potential that the annual F targets of the FMP will not be met and/or that the rebuilding schedule will be

delayed. The significance of any such delays depends on the magnitude of the overages and their resultant impact on the stock size and age structure. While it is not possible to quantify those effects precisely, the fact that the FMP's management regime takes into account the overages and the current status of the stocks in setting the specifications for the next year mitigates any such impacts. For summer flounder, the actual F has been higher than the target for several years, thus, the rate of rebuilding may have been slowed compared to the amount of rebuilding that might have occurred had F not exceeded the target. Nevertheless, the spawning stock biomass for summer flounder has increased substantially during the rebuilding period and the age structure of the summer flounder stock has expanded. Thus, the summer flounder stock is healthier and more robust than before rebuilding was initiated. Fishing mortality targets have generally been achieved for scup and black sea bass, so overages in individual periods or quarters are not likely to result in impacts on stock rebuilding for those stocks.

The Council and NMFS recognize that overages in any of the fisheries in 2002 could have additional negative impacts on the rate of rebuilding. Given the history of the summer flounder fishery, the mitigating influence of annual overage adjustments, and the fact that the stock has shown continued improvement during the rebuilding period, despite the overages that have occurred, the cumulative impacts of overages are not considered to be significant. Likewise, the impacts of any overages that might occur in 2002 as a result of these fishery specifications are also not considered to be significant.

6.1 Impacts of Alternatives upon the Affected Environment

The environment in which these fisheries are prosecuted was described in detail by the Council in the FMP amendments that instituted fishery management for these fisheries (Amendments 2, 10, and 12 for summer flounder; Amendments 8 and 12 for scup; and Amendments 9 and 12 for black sea bass). The fishery management plans for black sea bass and scup regulate the fishery from Maine to Cape Hatteras, North Carolina, while the summer flounder fishery is regulated from Maine to the southern border of North Carolina. The fisheries are prosecuted by vessels throughout the range, though the geographic focus of the fishery varies somewhat from year to year.

The principal gear used to harvest summer flounder, scup and black sea bass is the bottom otter trawl with other major gears including scallop dredge (for summer flounder) and fish pots and traps (for scup and black sea bass). There are potential impacts of otter trawling and scallop dredging on the ocean bottom habitat. However, quantification of specific gear types on various bottom types is poorly understood. However, whatever the consequences for habitat, it can be assumed that increased trawling and dredging effort would tend to have greater negative consequences. Conversely, any action which acts to reduce fishing effort, would tend to reduce the negative impacts of gear on the physical environment. The proposed 2002 quota specifications increase the summer flounder TAL by 35%, increase the black sea bass TAL by 10%, and increase the scup TAL by 73%. It is difficult to predict precisely whether these quota increases will result in increased fishing effort on EFH. Several possibilities

exist that would influence fishing effort. Potentially, the larger quota could result in a larger number of fishing trips, or longer fishing trips, with a corresponding potential for greater habitat impacts. Conversely, a larger quota could mean that states establish higher trip limits, which would result in an equal number of fishing trips landing a larger volume of fish. Similarly, with increased species abundance, catch-per-unit-effort could increase which would result in the same number of tows landing a larger volume of fish. In these latter instances, the proposed quotas would result in either the same or reduced gear impacts to bottom habitats. The chart below represents the range of potential habitat impacts that could occur under each of the various quota alternatives for each of the three species.

Comparison of Habitat Impacts and Considerations for Selecting Alternatives

| Alternative | Quota in mil lbs. | Potential Habitat Impacts | Considerations for selecting alternative |
|----------------------------|-------------------|--|---|
| Summer Flounder | | | |
| Preferred Alternative 1 | 24.3 | Based upon species abundance, impacts may remain the same as existing, may increase or may decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. This is a potential increase in habitat impacts is more than Alternative 2 but less than Alternative 3. | Maximizes landings without compromising rebuilding schedule, minimal to no increased habitat impacts, increased financial benefit to industry |
| Alternative 2 (Status quo) | 17.913 | Impacts may range from maintaining existing level of to decreases. The potential for maintaining or decreasing impacts is greatest with this alternative | Does not maximize landings, reduced short-term yields, potential decreased impacts on habitat, no increase or decrease in financial benefit to industry |
| Alternative 3 | 34.797 | Based upon species abundance, impacts may remain the same as existing, may increase or may decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. However, this alternative has the potential for the greatest increase in habitat impacts. | Maximizes landings to greatest extent, May compromise stock rebuilding, potential for highest habitat impacts, potential for highest short-term financial benefits to industry. |
| Scup | | | |
| Preferred Alternative 1 | 12.92 | Based upon species abundance, impacts may remain the same as existing, may increase or may decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. However, this alternative has the potential for the greatest increase in habitat impacts. | Maximizes landings to greatest extent, potential for highest habitat impacts, potential for highest short-term financial benefits to industry. |
| Alternative 2 (Status quo) | 5.683 | Impacts may range from maintaining existing level of to decreases. The potential for maintaining or decreasing impacts is greatest with this alternative | Does not maximize landings, reduced short-term yields, potential decreased impacts on habitat, no increase or decrease in financial benefit to industry |

| | | | |
|----------------------------|-------|--|---|
| Alternative 3 | 12.74 | Based upon species abundance, impacts may remain the same as existing, may increase or may decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. This is a potential increase in habitat impacts is more than Alternative 2 but less than Alternative 1. | Maximizes landings without compromising rebuilding schedule, minimal to no increased habitat impacts, increased financial benefit to industry |
| BSB | | | |
| Preferred Alternative 1 | 6.8 | Based upon species abundance, impacts may remain the same as existing, may increase or may decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. This is a potential increase in habitat impacts is more than Alternative 2 but less than Alternative 3. | Maximizes landings without compromising rebuilding schedule, minimal to no increased habitat impacts, increased financial benefit to industry |
| Alternative 2 (Status quo) | 6.173 | Impacts may range from maintaining existing level of to decreases. The potential for maintaining or decreasing impacts is greatest with this alternative | Does not maximize landings, reduced short-term yields, potential decreased impacts on habitat, no increase or decrease in financial benefit to industry |
| Alternative 3 | 8.104 | Based upon species abundance, impacts may remain the same as existing, may increase or may decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. However, this alternative has the potential for the greatest increase in habitat impacts. | Maximizes landings to greatest extent, May compromise stock rebuilding, potential for highest habitat impacts, potential for highest short-term financial benefits to industry. |

Given the range of habitat impacts that could occur, depending upon whether fishing effort increases or remains constant (due to a higher catch-per-unit-effort because of increased species abundance), this proposed action may have adverse effects to EFH that range from increased adverse impacts to impacts that are less than existing impacts. The non-quota setting specifications associated with this action will not have an adverse effect on EFH.

Since the increase in the quota for each species meets the FMP objective of improving yield while ensuring that overfishing does not occur, and due to the lack of evidence to suggest that fishing effort on bottom habitats will actually increase due to this action, this action minimizes the adverse effects of fishing on EFH to the extent practicable, pursuant to Section 305 (a)(7) of the MSFCMA.

6.2 Impacts of Alternatives upon Endangered or Threatened Species or Marine Mammal Populations

Numerous species of marine mammals and sea turtles occur in the Northwest Atlantic Ocean. A comprehensive study of this areas was completed from 1979-1982 by the Cetacean and Turtle Assessment Program (CETAP), at the University of Rhode Island, covering the area of Cape Sable, Nova Scotia, to Cape Hatteras, North Carolina, from the coastline to 5 nautical miles seaward of the 1,000 fathom isobath.

Four hundred and seventy one large whale sightings, 1,547 small whale sightings

and 1,172 sea turtles were encountered in this survey. CETAP concluded that both large and small cetaceans were widely distributed throughout the study areas in all four seasons, and grouped the 13 most commonly seen species into three categories, based on geographical distribution. The first group contained only the harbor porpoise, which is distributed only over the shelf and throughout the Gulf of Maine, Cape Cod, and Georges Bank, but probably not southwest of Nantucket. The second group contained the most frequently encountered baleen whales (fin, humpback, minke and right whales) and the white-sided dolphin. These were found in the same areas as the harbor porpoise, and also occasionally over the shelf at least to Cape Hatteras or out to the shelf edge. The third group indicated a "strong tenancy for association with the shelf edge" and included the grampus, striped, spotted, saddleback and bottlenose dolphins, and the sperm and pilot whales.

Loggerhead turtles were found throughout the study area, but appeared to migrate north to about Massachusetts in summer and south in winter. Leatherbacks appeared to have had a more northerly distribution. CETAP hypothesized a northward migration of both species in the Gulf Stream with a southward return in continental shelf waters nearer to shore. Both species usually were found over the shoreward half of the slope and in depths less than 200 feet. The northwest Atlantic may be important for sea turtles feeding or migrations, but the nesting areas for these species generally are in the South Atlantic and Gulf of Mexico.

This problems may become acute when climatic conditions result in concentrations of turtles and fish in the same area at the same time. These conditions apparently are met when temperatures are cool in October, but then remain moderate into mid-December and result in a concentration of turtles between Oregon Inlet and Cape Hatteras, North Carolina. In most years, sea turtles leave Chesapeake Bay and filter through the areas a few weeks before the fall fisheries become concentrated. Efforts are currently under way (by VIMS and U.S. Fish and Wildlife Service refuges and Back Bay, Virginia and Pea Island, North Carolina) to more closely monitor these mortalities due to trawls. Fisherman are encouraged to carefully release turtles captured incidentally and to attempt resuscitation of unconscious turtles, as recommended in the 1981 Federal Register (pages 43976 and 43977).

The only other endangered species occurring in the northwest Atlantic is the shortnose sturgeon (*Acipenser brevirostrum*). The Councils and NMFS urge fishers to report any incidental catches of this species to the Regional Administrator, NMFS, One Blackburn Drive, Gloucester, Massachusetts 01930, who will forward the information to persons responsible for the active sturgeon database.

As for protected marine mammals, species that may be potentially impacted by these fisheries included bottlenose dolphin, pilot whale, fin whale, humpback whale, right whale, harbor porpoise, harbor seal and four species of beaked whales. Detailed discussions of the impact of these fisheries on these species, can be found in Amendments 2, 8, 9, 10, and 12 to the Summer Flounder, Scup and Black Sea Bass FMP.

Section 114 of the MMPA establishes an interim exemption for the taking of marine mammals incidental to commercial fishing operations and requires that NMFS

publish an annual update to the List of Fisheries, along with the marine mammals and the number of vessels or persons involve in each fishery, arranging the according to the following categories: 1) The fishery has a frequent incidental taking of marine mammals; 2) the fishery has an occasional incidental taking of marine mammals; or 3) the fishery has a remote likelihood, or no known taking, of marine mammals. The gears managed under this FMP are all in the third category or not listed at all for the final List of Fisheries for 2001 for the taking of marine mammals by commercial fishing operations under section 114 of the Marine Mammal Protection Act (MMPA) of 1972 (63 FR 5784).

The range of the species discussed above and the species managed under this FMP overlap, and there always exists a potential for an incidental kill. Except in unique situations, such incidental catches should have a negligible impact on marine mammal or abundances of endangered species, and NMFS has concluded in the previous consultations that implementation of this FMP will not have any adverse impact upon these populations.

The measures in the alternatives do not contain major changes to existing management measures. Changes in overall fishing effort as a result of the higher commercial quotas are unknown. Fishing effort could increase as vessels take more, or longer, trips. Conversely, fishing effort could remain constant because vessels may achieve a higher catch-per-unit-effort due to increased species abundance. States could impose higher trip limits so that vessels would need to take fewer trips to land the larger volume of fish. Because the proposed changes are not expected to cause large increases in fishing effort, it is concluded that the preferred alternative will not affect endangered and threatened species or critical habitat in any manner not considered in prior consultations on these fisheries, and will have no adverse impact on marine mammals.

6.3 Impact of Alternative 1 (Preferred Alternative) on the Environment

This alternative examines the impacts on the environment that would result from a total allowable landing limit (TAL) of 24.297 million lb for summer flounder (14.578 million lb commercial; 9.719 million lbs recreational); a total allowable catch of 12.920 million lbs for scup (which results in a TAL of 8.000 million lbs commercial; 2.770 million lbs recreational), and a TAL of 6.800 million lbs for black sea bass (3.332 million lbs commercial; 3.468 million lbs recreational).

The Council also approved a research set aside amount equal to 2 percent of the total allowable harvest for summer flounder and 3 percent of the total allowable harvest for scup and black sea bass. Assuming that NMFS approves the preferred TAL alternative for each species, the set-aside amount would be 486,000; 323,100; and 204,000 pounds for summer flounder, scup, and black sea bass, respectively.

A number of research projects have been submitted to NMFS that would require an exemption from some of the current or proposed regulations for these species. In order to expedite the approval and implementation of these research projects, Council staff agreed to analyze the impacts of these exemptions on the environment for inclusion in the specification package for these species.

6.3.1 Impact of Preferred Summer Flounder Measures upon the Environment

The preferred alternative would set the coastwide limit at 24.297 million lb (11.021 million kg). Based on this limit, 14.578 million lb (6.612 million kg) would be allocated to the commercial fishery and 9.719 million lb (4.408 million kg) to the recreational fishery in 2002. Based on the current status of the stock a TAL of 24.297 million pounds has a 50 percent probability of achieving the target F of 0.26 in 2002, assuming the TAL and discard level in 2001 are not exceeded.

The Commission has measures in place to decrease the level of discards in the commercial fisheries in 2002. Specifically, the Commission established a system whereby 15 percent of each states quota would be set-aside each year to reduce discards after the closure of the directed commercial fishery. In order for fishermen to land the 15 percent bycatch allowance in a state, the Commission recommended that states implement possession limits that were sufficiently restrictive to allow the bycatch fishery to remain open for the entire year without exceeding the state's overall quota. This system was introduced for the first time in 1999, and no data as to its effectiveness are yet available. However, the program would continue in 2002. In addition, the Commission recommended that states implement programs to collect additional data on discards in the commercial fishery.

These measures would decrease discards of sublegal fish as well as reduce regulatory discards that occur as the result of landing limits in the states. A decrease in the amount of discards would increase the likelihood that the target biomass would be achieved in 2002, because true incidental catch would now be landed and apply to the quota reducing the amount of fish killed by commercial fishermen.

This TAL and a reduction in discards in 2002, will increase the likelihood that a landings limit of 24.297 million lb (11.021 million kg) will achieve the F target of 0.26 in 2002. In addition, this TAL of 24.297 million lb (11.021 million kg) is approximately 35.6 percent higher than the TAL implemented in 2001. As a result of a higher TAL, thus a higher commercial quota and recreational harvest limit relative to 2001, it is likely that fishermen will experience positive impacts. Positive impacts for commercial fishermen include increased landings and thus increased revenue.

The summer flounder measures could result in negative impacts on other fisheries. The commercial fishery for summer flounder is primarily prosecuted with otter trawls. This fishery often harvests mixed species, including scup, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the summer flounder fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the summer flounder fishery, the incidental catch rates of other species should not increase.

A recreational harvest limit of 9.718 million lb (4.408 million kg) in 2002 is higher than the harvest limit from 1997-2000 and about 6.098 million lb (0.54 million kg) below the recreational landings for 2000. As such, it is likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2002. At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It may be possible that, given the popularity of summer flounder among anglers as the second most frequently sought species in the Mid-Atlantic, and third in the North Atlantic in 2000 (MRFSS), more limiting regulations could affect the demand for party/charter boat trips. However, party/charter activity for most of the 1990s have remained relatively stable, so the effects may be minimal.

6.3.2 Impact of Preferred Scup Measures upon the Environment

The preferred alternative considered in this document for the 2002 scup specifications would allow for a TAC of 12.920 million lb (5.860 million kg). This TAC for 2002 is 54.34 percent larger than the TAC established for 2001. The TAC is allocated to the commercial and recreational fisheries based on the proportions of commercial and recreational catch (landings plus discards) for the years 1988-1992. Based on this data, 78 percent of the TAC is allocated to the commercial fishery and 22 percent to the recreational fishery. As such, based on a TAC of 12.92 million lb (5.860 million kg), the commercial TAC would be 10.077 million pounds (78 percent) for 2002. The recreational TAC would be 2.840 million pounds (22 percent). Based on the commercial and recreational discard estimates used for the year 2001 specifications, the commercial TAL would be 8.000 million pounds and the recreational harvest limit would be 2.77 million pounds for 2002. The allocation of the commercial TAC and the discards to each period and the associated quota for each period is presented in Table 10.

Table 10. Scup TAC, discard and quota distribution by period, proposed for 2002.

| Period | % Allocation | TAC | Discards | Quota |
|-----------------------|--------------|------------|-----------|-----------|
| Annual | 100.00 | 10,077,600 | 2,077,600 | 8,000,000 |
| Winter I Jan-April | 45.11 | 4,546,735 | 936,935 | 3,608,800 |
| Summer May-Oct | 38.95 | 3,924,991 | 808,991 | 3,116,000 |
| Winter II Nov-Dec | 15.94 | 1,606,274 | 331,074 | 1,275,200 |

Based on current information, scup abundance is likely to increase in 2002. Survey information indicates that regulations may have protected the 1997 year class and also indicate a large 1999 and 2000 year class. If the 1999 and 2000 year classes are large and mortality of undersized fish is reduced, substantial biomass could be added to the stock by 2002.

In fact, deterministic projections of the NEFSC spring survey based on the 3-year

average value for 2000 (average of the 1999, 2000, and 2001 indices at age) indicate that the SSB 3-year average index could increase from 0.25 in 2000 to 0.457 in 2001 assuming a fully recruited F of 1.0, the F estimated by the SARC in the last assessment, and the partial recruitment and maturity vectors from the yield per recruit analysis conducted for SAW 27. Assuming an average biomass that is at least identical to the 2001 average value of 0.457 in 2002, then exploitation rates could drop to 21 percent if the landings do not exceed 10.77 million pounds in 2002.

The Council and Board recommended no change in scup landing/possession limits for the two winter periods in 2002. For the first winter period (Jan-Apr), they recommended a landing limit of 10,000 pounds. When 80 percent of the landings are reached, the landing limit will drop to 1,000 pounds. For the second winter period (Nov-Dec), a 2,000 pounds landing limit was adopted (Table 10). The recommended landing/possession limits for both Winter period are the same as the landing/possession limits implemented in year 2001, with the exception that in 2002 the landing limit will drop to 1,000 pounds when 80 percent of the landings are reached, instead of the 75 percent used in 2001. The 80 percent landing trigger in 2002 is expected to decrease landings from 10,000 pounds to 1,000 pounds early enough to allow for the equitable distribution of the quota over the Winter I period. It is not expected that the change in the landing trigger during the Winter I period will affect landings in some negative manner during this period.

Over the years, there has been considerable discussion regarding the threshold level used to trigger the minimum mesh requirements. The appropriate threshold level would allow the bycatch of legal sized fish harvested in small mesh fisheries to be landed while at the same time discouraging the use of small mesh by directed scup fishermen. In 1999, the Council and Board dropped the threshold to 200 pounds in the winter and 100 pounds in the summer to encourage the use of 4.5" mesh and protect the 1997 year class. In 1998, when the thresholds were 4000/1000 pounds, 39 percent of the scup landings and 91 percent of the discards were associated with mesh less than 4.5". In 1999, 25 percent of the landings and 37 percent of the discards were associated with mesh less than 4.5". In 2000, 68 percent of the discards were associated with mesh less than 4.5". Last year the threshold was increased to 500 pounds for the winter fishery. The Council and Board recommended that the threshold remain at 500 lbs for the winter period and 100 lbs for the summer period for 2002.

The proposed scup quota for 2002 increases scup landings relative to the quotas specified for 2001. At the same time, measures are being recommended to reduce scup discards. Specifically, the Council and the Board are recommending changes in the configuration of large nets and the continuation of GRAs with an added experimental net exemption.

Amendment 8 to the Summer Flounder and Scup FMP contains provisions that allow for changes in the minimum fish size and minimum net mesh provisions each year. Current regulations require a 9" TL minimum fish size in the commercial fishery and a 4.5" minimum mesh in the codend of the net for vessels possessing more than 500 pounds of scup from November through April and 100 pounds from May through October. The minimum fish size went into effect on September 23, 1996 with a

minimum mesh size of 4.0". The minimum mesh size increased to 4.5" on April 14, 1997. The minimum fish size, mesh requirements, and threshold may be changed annually based on the recommendations of the Monitoring Committee. For the 2002 directed scup fishery, mesh requirements would be modified such that large nets would have no more than 25 meshes of 4.5" mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh and for small nets, 4.5" mesh or larger throughout. Based on retention lengths derived from length and body depth measurements, a 4.5" mesh has an associated L_{50} of 9.1" TL. This means that 50 percent of the 9.1" TL scup that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0", and 5.0" have associated L_{50} s of 4.8" TL, 6.5" TL, 8.3" TL, and 10.1" TL, respectively. The 5.0" mesh forward of the 4.5" mesh is expected to allow for additional escapement of undersized scup. This recommendation is not expected to reduce landings of scup.

The Council recommend that the GRAs that were implemented in 2001 continue for 2002. Additionally, the Council and Board adopted a measure that allows vessels fishing with small mesh and having an escapement extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend be allowed to fish in the GRAs.

The affect of the GRAs on small net fisheries is fully described in the 2001 Specification Document. These measures are expected to reduce discards of scup in non-directed fisheries. However, the recommendation that will allow small mesh experimental net in the GRAs may increase landings of other species relative to 2001. It is not possible to assess the monetary value associated with the additional harvest as a result of the proposed experimental net exemption, because quantitative data on these nets are limited. The modifications are inexpensive and can be incorporated into existing nets with minimal labor (section 5.0 of the PREE). The modifications are based on a project funded by the Mid-Atlantic Council and conducted by the Manomet Center for Conservation Sciences to develop selective trawls for small mesh fisheries. Results of the research indicate that a 5.5" square mesh extension placed in the net 50 meshes ahead of the codend significantly reduced (66 percent reduction) the bycatch and discard of small scup without a reduction in the capture of squid.

The scup measures could result in negative impacts on other fisheries. The commercial fishery for scup is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including summer flounder, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the scup fishery, the incidental catch rates of other species should not increase.

The preferred alternative would implement a recreational harvest limit of 2.770 million lb (1.256 million kg). In 2000, scup recreational landings were estimated at 5.183 million lb (2.351 million kg). As such, this harvest limit would decrease recreational landings by about 46.6 percent relative to the

landings estimated for 2000.

6.3.3 Impact of Preferred Black Sea Bass Measures upon the Environment

The preferred alternative would establish a TAL of 6.800 million lb (3.084 million kg) for 2002. This TAL is 10.1 percent higher than the TAL implemented each year since 1998, the first year that TALs were set for black sea bass.

Amendment 9, which was approved by NMFS on November 15, 1996, established a recovery schedule to reduce overfishing on black sea bass over an 8 year time frame (the first year was 1996). That same schedule was used in Amendment 12 to meet SFA requirements. The target exploitation rate established by this schedule for 2000 was 48 percent. In 2001 and 2002, the target exploitation rate is 37 percent. In 2003, the target exploitation rate will drop to the exploitation rate associated with F_{max} (0.32) or 25 percent.

Although the exploitation rate for 2001 is uncertain, relative exploitation rates have generally declined in recent years. Relative exploitation based on the total commercial and recreational landings and the moving average of the transformed spring survey index indicates a significant reduction in mortality from 1998 to 2000 relative to 1996 and 1997 levels.

Given the lack of stock assessment information, it is hard to predict what the actual biomass will be in 2002. The best available information on stock status indicates that stock size has increased in recent years. In fact, the 3-year average for 1999-2001 is 45 percent larger than the value for 1998-2000. In addition, the recruitment index for 2000 is the highest in the time series, 1968-2000. If protected, this year class should allow for additional stock rebuilding in 2002 and beyond.

If the spring survey for 2002 is at least equal to 0.33, and assuming an exploitation rate of 48% in 1998, the TAL could increase to 6.8 million pounds and the exploitation rate could drop to 37% in 2002. The assumption that the index will be at least 0.33 in 2002 is predicated on the size of the 2000 year class, its abundance in 2002, and the continued protection of earlier year classes that have already contributed to significant stock rebuilding. In fact, the Council and Commission have adopted management measures to protect the 2000 and earlier year classes and allow for continued increases in biomass in 2002.

Specifically, the slight increase in TAL is justified by the combination of commercial management measures that were adopted by the Council and Commission in conjunction with this TAL. The Council and Commission recommended that the minimum size increase to 11" TL, that mesh size increase to 4.5" such that otter trawls nets have a minimum of 75 meshes of 4.5" in the codend or 4.5" throughout the net, and finally that vent sizes in black sea bass pot/traps be increased substantially to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The increase in minimum size will allow smaller fish to escape, grow, and reproduce. Similarly, an increase in the mesh size and an increase in the size of escape vents will allow for the escapement of sublegal fish from commercial gears. This combination of management measures should allow for additional protection to the 2000 and

earlier year classes which will allow for a significant increase in exploitable biomass in 2002.

Based on the recommended TAL, the commercial quota would be 3.332 million lb (1.511 million kg) (49 percent) and the recreational harvest limit would be 3.468 million lb (1.573 million kg) (51 percent) for 2002. The commercial quota and recreational harvest limit would be higher than the 1998, 1999, 2000, and 2001 levels.

The commercial quota is allocated into four periods based on landings data from 1988-1992. Based on these data, the allocation by period would range from 410,836 lb to 1.287 million lb (Table 11). Quarterly quotas would be adjusted in 2002 to account for overages in 2001.

Table 11. The black sea bass allocation and possession limits by quarter, as proposed for 2002.

| Quarter | % Allocation | Quota (lb) | Possession Limit (lb) |
|-------------------------|--------------|------------|-----------------------|
| Quarter 1, Jan-Mar | 38.64 | 1,287,485 | 7,000 |
| Quarter 2, Apr-June | 29.26 | 974,943 | 2,000 |
| Quarter 3, July-Sept | 12.33 | 410,836 | 2,000 |
| Quarter 4, Oct-Dec | 19.77 | 658,736 | 2,000 |

The current black sea bass regulations specify that possession limits be implemented for each period and that the possession limit does not change over the period. Possession limits would remain in effect until the fishery is closed by NMFS based on projections that the quarterly quota would be taken. The possession limits for 2001 were 9,000; 1,500; 1,000; and 2,000 pounds for quarters 1 through 4, respectively. However, due to an ASMFC emergency rule action, the originally implemented possession limit for 2001 Quarter 4 period was reduced from 2,000 pounds to 300 pounds. However, states will have the option of developing a management program that allows fishermen to land up 2,000 pounds per week.

In 2001, the commercial fishery closed prematurely in the first, second, and third quarters. Because of this closure, and likely increase in stock size and effort, possession limits for each of the quarters were modified to allow for landings over the entire period. The Council and Board recommended that the possession limits be modified for 2002 to 7,000; 2,000; 2,000; and 2,000 for each quarter, respectively.

The current minimum mesh regulations require a 4.0" minimum mesh in the codend of the net for vessels possessing more than 1,000 lbs of black sea bass. The Council and Board recommended that the net provisions be modified such that

fishermen could use large nets with a minimum of 75 meshes of 4.5" diamond mesh in the codend or use small nets with at least 4.5" diamond mesh throughout for 2002. In addition, a threshold of 500 pounds from January through March and 100 pounds from April through December to trigger the minimum mesh size were also recommended. Based on retention lengths derived from length and body depth measurements, the proposed minimum mesh size of 4.5" has an associated L_{25} of 10.6" TL. This means that 25 percent of the 10.6" TL black sea bass that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have an associated L_{25} of 4.0" TL, 6.6" TL, and 9.3" TL, respectively. A reduction in the threshold to 500 lbs in the first quarter and 100 lbs in the other quarters would discourage the use of small mesh in areas where black sea bass are concentrated and could offer additional protection to the 2000 year class. This change will accommodate small mesh fishermen while at the same time maintaining a reasonable mesh threshold for the black sea bass fishery.

Current vent size regulations, implemented in 1996, were based on a MAFMC study (for the rectangular sizes) and industry comment (for the circle and square). Based on industry advice, the Council and Board recommended that vent sizes be increased in 2002 to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The proposed vent sizes represent significant increases from the current sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" in diameter for circular vents, and 1 1/2" for square vents. Analysis conducted for Amendment 9 indicated that rectangular vent sizes that were 1 3/8" wide had an associated L_{50} of 11.5" TL. As such, these increases in vent sizes should allow for a significant escapement of undersized fish. The cost of replacing escape vents is expected to be minimal. Currently, according to industry comment, some commercial pot and trap black sea bass fishermen are already using these sizes of vents.

The current minimum fish size for black sea bass is 10" TL. However, the Council and Board are recommending an increase to an 11" TL fish in 2002. The smaller mesh and smaller vent sizes would allow for escapement of fish less than the proposed minimum fish size of 11" TL. Assuming that undersized fish are not caught and discarded, the increase in minimum size will result in an increase of size at full recruitment, thus yields are increased as fishermen catch larger, heavier fish. These regulations also may increase spawning stock biomass by allowing more fish to spawn.

The black sea bass measures could result in negative impacts on other fisheries. The commercial fishery for black sea bass is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including summer flounder, scup, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the black sea bass fishery, the incidental catch rates of other species should not increase.

The recreational harvest limit of 3.468 million lb (1.573 million kg) is approximately 4.2 percent below the 2000 recreational landings of 3.621 million lb (1.642 million kg). As such, it is not expected that this recreational harvest limit would have a significant impact on the recreational fishery. Additionally, because the 2001 recreational management measures were designed to reduce recreational fishing mortality on black sea bass, the 2002 recreational harvest limit may be identical to the 2001 recreational landings. As such, this harvest limit should have minimal impacts in 2002.

6.4 Impact of Alternative 2 on the Environment (Status Quo-Most Restrictive)

6.4.1 Impact of Alternative 2 Summer Flounder Measures upon the Environment

This alternative would set the 2001 summer flounder TAL at 17.913 million lb (8.125 million kg), the same TAL that was implemented in 2001. Based on this limit 60 percent would be allocated to the commercial fishery, or 10.748 million lb (4.875 million kg). The recreational fishery would be allocated 40 percent or 7.165 million lb (3.250 million kg) in 2002. These measures are more restrictive than the measures proposed under Alternative 1.

The summer flounder measures should not result in negative impacts on other fisheries. The commercial fishery for summer flounder is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including scup, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the summer flounder fishery, incidental catch of other species does occur. Because these measures will not result in an increase of effort in the summer flounder fishery, the incidental catch rates of other species should not increase.

A recreational harvest limit of 7.165 million lb (3.250 million kg) in 2001 would be the same harvest limit that implemented in 2001. However, this harvest limit for 2002 could result in a decrease in recreational landings of about 8.651 million lb (3.924 million kg) from estimated recreational landings for 2000. As such, it would be likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2002. At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It may be possible that, given the popularity of summer flounder among anglers), a drastic decrease in recreational harvest limit could adversely affect the demand for party/charter boat trips. However, overall party/charter demand for all species is stable, so overall economic impacts are anticipated to be slight.

6.4.2 Impact of Alternative 2 Scup Measures upon the Environment

This alternative would set the coastwide commercial quota at 4.445 million lb (2.016 million kg). The recreational harvest limit would be 1.238 million lb (0.803 million kg). This alternative would maintain the same quota and harvest limits that was implemented in 2001. As such, this alternative is not expected to have a negative impact relative to 2001.

This commercial quota may result in a 67 percent increase in landings relative to 2000 commercial landings. As such, the scup measures could result in negative impacts on other fisheries. The commercial fishery for scup is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including summer flounder, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish.

If these measures do not result in an increase of effort in the scup fishery, the incidental catch rates of other species should not increase.

This alternative would implement a recreational harvest limit of 1.771 million lb (0.803 million kg). This alternative could result in a decrease in recreational landings of about 3.412 million lb (1.548 million kg) from estimated recreational landings for 2000. In 2000, scup recreational landings were estimated at 5.183 million lb (2.351 million kg). As such, it would be likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2002. At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It may be possible that a drastic decrease in recreational harvest limit could adversely affect the demand for party/charter boat trips. However, overall party/charter demand for all species is stable, so overall economic impacts are anticipated to be slight.

6.4.3 Impact of Alternative 2 Black Sea Bass Measures upon the Environment

This alternative would set the coastwide commercial quota at 3.025 million lb (1.372 million kg). The recreational harvest limit would be 3.148 million lb (1.428 million kg). This alternative would maintain the same quota and harvest limits that was implemented in 2001. As such, this alternative is not expected to have a negative impact relative to 2001.

This commercial quota represents a 13.8 percent increase in landings relative to the estimate for 2000 commercial landings. As such, the black sea bass measures could result in negative impacts on other fisheries. The commercial fishery for black sea bass is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including summer flounder, scup, squid, Atlantic mackerel, and silver hake. Given the mixed species nature of the black sea bass fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the black sea bass fishery, the incidental catch rates of other species should not increase.

This alternative would implement a recreational harvest limit of 3.148 million lb

(1.428 million kg). In 2000, black sea bass recreational landings were estimated at 3.621 million lb (1.642 million kg). As such, this harvest limit for 2002 could result in a decrease in recreational landings of about 0.473 million lb (0.215 million kg) from estimated recreational landings for 2000. Thus, it would be likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2002. At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It may be possible that a drastic decrease in recreational harvest limit could adversely affect the demand for party/charter boat trips. However, overall party/charter demand for all species is stable, so overall economic impacts are anticipated to be slight.

6.5 Impact of Alternative 3 on the Environment (Least Restrictive)

6.5.1 Impact of Alternative 3 Summer Flounder Measures upon the Environment

This alternative would set the coastwide limit at 34.797 million lb (15.784 million kg). Based on this limit, 20.879 million lb (9.471 million kg) would be allocated to the commercial fishery and 13.919 million lb (6.314 million kg) to the recreational fishery in 2001.

This alternative, a commercial quota of 34.797 million lb (15.784 million kg) would be approximately 16.881 million lb (7.658 million kg) higher than the 2001 TAL. As such, the summer flounder measures could result in negative impacts on other fisheries. The commercial fishery for summer flounder is primarily prosecuted with otter trawls. This fishery often harvests mixed species, including scup, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the summer flounder fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the summer flounder fishery, the incidental catch rates of other species should not increase.

The summer flounder recreational harvest limit for 2002 would be 13.919 million lb (6.314 million kg). This is a 12.0 percent decrease below the 2000 recreational landings. In 2000, summer flounder recreational landings were estimated at 15.816 million lb (7.174 million kg). As such, it would be likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2002. At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It may be possible that a drastic decrease in recreational harvest limit could adversely affect the demand for party/charter boat trips. However, overall party/charter demand for all species is stable, so overall economic impacts are anticipated to be slight.

Although, this alternative would increase short-term benefits to the commercial and recreational fisheries due to the increase in landings, it has an associated F of 0.40. Therefore this alternative would exceed the F target for 2002. Thus, this alternative is unacceptable. If the target is exceeded, stock rebuilding will be slowed and the long-term benefits to the fishery and the stock will be reduced.

6.5.2 Impact of Alternative 3 Scup Measures upon the Environment

This alternative would set the coastwide commercial quota at 9.530 million lb (4.323 million kg). The recreational harvest limit would be 3.210 million lb (1.456 million kg).

This alternative is based on the assumption that the SSB index based on the NEFSC spring trawl survey will be 0.54 in 2002 (the same value as 2001) and an F=1.0 (exploitation rate of 58%) in 2000. Based on this projected biomass level and 2000 F, total landings could be 12.74 million lb in 2001 to achieve the target exploitation rate of 33%. Based on discard estimates used for 2000, the combined TAC would be 14.89 million lb (6.754 million kg).

The commercial quota of 9.530 million lb (3 million kg) is derived from the commercial TAC of 7.223 million lb (3.28 million kg) and a discard level of 2.084 million lb (0.95 million kg). As such, this alternative would use the same discard amount in 2001 as used in the 2000 quota calculation.

Under this alternative, this commercial quota would be more than double the quota implemented for 2001 and an increase of 258 percent relative to the 2000 landings. As such, the scup measures could result in negative impacts on other fisheries. The commercial fishery for scup is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including summer flounder, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the scup fishery, the incidental catch rates of other species should not increase.

The scup recreational harvest limit for 2002 would be 3.210 million lb (0.89 million kg). This is a 38.1 percent decrease below the 2000 recreational landings. In 2000, scup recreational landings were estimated at 5.183 million lb (2.351 million kg). As such, it would be likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2002. At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It may be possible that a drastic decrease in recreational harvest limit could adversely affect the demand for party/charter boat trips. However, overall party/charter demand for all species is stable, so overall economic impacts are anticipated to be slight.

This TAL, which includes both the commercial quota and recreational harvest limit would increase short-term benefits to fishermen due to an increase in landings. However, the higher TAL assumes a stock abundance that may be unrealistically high resulting in an exploitation rate that exceeds the target for 2001. If the target is exceeded, stock rebuilding will be slowed and the long-term benefits to the fishery and the stock will be reduced.

6.5.3 Impact of Alternative 3 Black Sea Bass Measures upon the Environment

This 2002 TAL is based on the assumption that the SSB value for 2002 will be 0.4, double the 2000 value for the spring bottom trawl survey index (transformed). Based on this SSB value and the assumption that the exploitation rate was 48 percent in 1998, the TAL in 2002 could be 8.104 million lb (3.676 million kg) to achieve the target exploitation rate in 2001 of 37 percent. Based on this TAL, the commercial quota would be 3.970 million lb (1.801 million kg) and the recreational harvest limit would be 4.133 million lb (1.875 million kg) for 2002.

The black sea bass measures could result in negative impacts on other fisheries. The commercial fishery for black sea bass is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including scup, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the black sea bass fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the black sea bass fishery, the incidental catch rates of other species should not increase.

Recreational landings would be increased by over 0.50 million lb (0.227 million kg) relative to the 2000 landings estimate if this alternative were implemented. As such, it is not expected that this alternative would have an adverse affect on the recreational fishery for black sea bass.

This higher TAL is based on a SSB value that may be unrealistic for 2002. As such, it will result in an exploitation rate that would likely exceed the target for 2002. If the target is exceeded, stock rebuilding will be slowed and the long-term benefits to the fishery and the stock will be reduced.

6.6 Research Set Aside

6.6.1 Summer Flounder

The Council also approved a research set aside amount equal to 2 percent of the total allowable harvest for summer flounder. Assuming that NMFS approves the preferred TAL the research set-aside amount would be 486,000 pounds for summer flounder. The proposed summer flounder research projects would exempt researchers from the minimum mesh size, minimum fish size, and allow for landings of summer flounder during a closure.

Minimum mesh and/or minimum fish size

The current minimum mesh regulations require a 5.5" diamond or 6" square mesh in the entire net for vessels possessing more than the threshold amount of summer flounder (100 lbs). Based on mesh selectivity studies, a 5.5" mesh has an associated L50 of 13.5" TL. This means that 50 percent of the 13.5" summer flounder that encountered the net would be retained by this mesh. Mesh sizes of 4.5" and 5.0" have associated L50s of 11.2" TL and 12.3" TL, respectively.

The current regulations require a 14" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The smaller mesh would allow for the capture and retention of fish less than the current minimum size of 14" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 14" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set aside can not exceed the TAL.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$801,900 dockside based on a 2000 price of \$1.65 per pound. As such, assuming an equal reduction amongst all active vessels (i.e., 795 vessels that landed summer flounder in 2000), this could mean a reduction of about \$1,000 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 9.718 to 9.524 million lb (a 2 percent decrease) if 2 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for summer flounder. As such, permit holders that would have landed these summer flounder could be disadvantaged.

Changes in mesh size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of summer flounder during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to

the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$801,900 dockside based on a 2000 price of \$1.65 per pound. As such, assuming an equal reduction amongst all active vessels (i.e., 795 vessels that landed summer flounder in 2000), this could mean a reduction of about \$1,000 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 9.718 to 9.524 million lb (a 2 percent decrease) if 2 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for summer flounder. As such, permit holders that would have landed these summer flounder could be disadvantaged.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

6.6.2 Scup

Assuming that NMFS approves the preferred TAL alternative for scup, the research set-aside amount would be 3% of the TAL or 323,100 pounds. The proposed scup research projects would exempt researchers from the minimum mesh size, minimum fish size, and commercial possession limits and allow for landings of scup during a closure.

Minimum mesh and/or minimum fish size

The current minimum mesh regulations require a 4.5" minimum mesh in the codend of the net for vessels possessing more than 500 lbs of scup from November through April and 100 pounds from May through October. The Council recommended that the net provisions be changed for 2002. These changes include a modification such that fishermen could use nets with no more than 25 meshes of 4.5 mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh or use a net with at least 4.5" mesh throughout. If approved by NMFS, the Council's recommended change would become effective in 2002.

The proposed research would use smaller mesh to catch and retain small scup. Based on retention lengths derived from length and body depth measurements, a 4.5" mesh has an associated L50 of 9.1" TL. This means that 50 percent of the 9.1" TL scup that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have associated L50s of 4.8" TL and 6.5" TL and 8.3" TL, respectively.

The current regulations require a 9" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The smaller mesh would allow for the capture and retention of fish less than the current minimum size of 9" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 9" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set aside can not exceed the TAL.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$403,875 dockside based on a 2000 price of \$1.25 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 425 vessels that landed scup in 2000), this could mean a reduction of about \$950 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 2.770 to 2.687 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for scup. As such, permit holders that would have landed these scup could be disadvantaged.

Changes in mesh and minimum fish size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of scup during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$403,875 dockside based on a 2000 price of \$1.25 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 425 vessels that landed scup in 2000), this could mean a reduction of about \$950 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 2.770 to 2.687 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for scup. As such, permit holders that would have landed these scup could be disadvantaged.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Possession limits

Research has been proposed that would allow research vessels to land in excess of the possession limits. The proposed regulations would limit fishermen to 10,000 pounds and 2,000 pounds per trip for the first and second winter periods, respectively. Although the possession limits could be exceeded, the landings would count against the quota and, as such, the biological/ ecological impacts would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$403,875 dockside based on a 2000 price of \$1.25 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 425 vessels that landed scup in 2000), this could mean a reduction of about \$950 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 2.770 to 2.687 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for scup. As such, permit holders that would have landed these scup could be disadvantaged.

Landings in excess of the possession limit would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and could have no impact on essential fish habitat.

6.6.3 Black Sea Bass

Assuming that NMFS approves the preferred TAL alternative for black sea bass, the research set-aside amount would be 3% of the TAL or 204,000 pounds. The proposed black sea bass research projects would exempt researchers from the minimum mesh size, escape vent requirements, minimum fish size, and commercial possession limits and allow for landings of black sea bass during a closure.

Minimum mesh and escape vent requirements

The current minimum mesh regulations require a 4.0" minimum mesh in the codend of the net for vessels possessing more than 1000 lbs of black sea bass. The Council recommended that the net provisions be changed for 2002. These changes include a modification such that fishermen could use nets with a minimum of 75 meshes of 4.5" diamond mesh in the codend or use a net with at least 4.5" diamond mesh throughout. If approved by NMFS, the Council's recommended change would become effective in 2002.

The proposed research would use smaller mesh to catch and retain small black sea bass. Based on retention lengths derived from length and body depth measurements, the proposed minimum mesh size of 4.5" has an associated L_{25} of 10.6" TL. This means that 25 percent of the 10.6" TL black sea bass that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have an associated L_{25} of 4.0" TL, 6.6" TL, and 9.3" TL, respectively.

The proposed regulations would require an 11" TL minimum fish size in the

commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The regulations that implemented escape vent sizes for black sea bass became effective on December 16, 1996. The vent sizes were based on a MAFMC study (for the rectangular sizes) and industry comment (for the circle and square). Based on industry advice, the Council recommended that the vent sizes be increased in 2002 to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The proposed vent sizes represent significant increases from the current sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" in diameter for circular vents, and 1 1/2" for square vents. Analysis conducted for Amendment 9 indicated that rectangular vent sizes that were 1 3/8" wide had an associated L₅₀ of 11.5" TL. As such, these increases in vent sizes should allow for a significant escapement of undersized fish.

The smaller mesh and smaller vent sizes would allow for the capture and retention of fish less than the proposed minimum size of 11" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 11" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set aside can not exceed the TAL.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$365,160 dockside based on a 2000 price of \$1.79 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 723 vessels that caught black sea bass in 2000), this could mean a reduction of about \$505 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.468 to 3.364 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for black sea bass. As such, permit holders that would have landed these black sea bass could be disadvantaged.

Changes in mesh, vent sizes and minimum fish size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of black sea bass during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the

status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$365,160 dockside based on a 2000 price of \$1.79 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 723 vessels that caught black sea bass in 2000), this could mean a reduction of about \$505 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.468 to 3.364 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for black sea bass. As such, permit holders that would have landed these black sea bass could be disadvantaged.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Possession limits

Research has been proposed that would allow research vessels to land in excess of the possession limits. The proposed regulations would limit fishermen to 7,000 pounds in the first quarter and 2,000 pounds in the second, third, and fourth quarters, respectively. Although the possession limits could be exceeded, the landings would count against the quota and, as such, the biological/ecological impacts would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$365,160 dockside based on a 2000 price of \$1.79 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 723 vessels that caught black sea bass in 2000), this could mean a reduction of about \$505 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.468 to 3.364 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for black sea bass. As such, permit holders that would have landed these black sea bass could be disadvantaged.

Landings in excess of the possession limit would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

6.6.4 GRAs for scup, black sea bass, and *Loligo* squid

NMFS implemented gear restricted areas (GRAs) for 2001 based on a recommendation of the Council and Commission. These GRAs regulate the use of otter trawls with codend mesh less than 4.5 inches in areas and times that were identified as having high scup discards. Specific areas and times include a Northern Gear Restricted Area from November 1 to December 31 and a Southern Gear Restricted Area from January 1 to March 15. Research has been proposed that would exempt vessels fishing with small mesh from the GRA regulations, i.e., allow them to catch and retain several species of fish including scup, black sea bass, and *Loligo* squid from these areas during a closure.

Analysis conducted to support these GRAs, indicate that these areas and times were associated with high levels of scup discards. As such, fishing with small mesh in these areas could mitigate the effects of the GRAs thereby increasing the discards of scup relative to the status quo. However, given the level of the research set aside, the effects on scup discards and mortality should be minimal. In addition, because landings of the regulated species would count against the overall quotas for each species, the overall mortality level would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$404 thousand, \$365 thousand, and \$750 thousand dockside for scup, black sea bass and *Loligo* squid based on 2000 prices per pound, respectively. As such, assuming an equal reduction amongst all active vessels (i.e., 425, 723, and 495 vessels that caught scup, black sea bass, and *Loligo* in 2000, respectively), this could mean a reduction of \$950, \$505, and \$1,515 per individual vessel, for scup, black sea bass, and *Loligo*, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be higher. In addition, it is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for these species. As such, permit holders that would have landed these species could be disadvantaged.

Landings in excess of the possession limit would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

6.7 Social Impacts

New quotas alone have relatively limited social impacts. The changes in social structure and cultural fabric that may have occurred under implementation of limited access are already largely in place. The major impact of quota reductions is to profitability. Only where there is a significant reduction in net revenues or in the ability to meet costs and make a living are substantial social impacts likely. With regard to commercial fishermen, the landings and revenue per vessel for the species whose quotas or adjusted quotas are being lowered in Alternative 1 (the preferred alternative) are such a small portion of overall landings and revenues for the majority of those vessels, that no adverse economic impact (>5 percent revenue reduction) are projected (section 5.0 of the PREE).

The specifications are not expected to affect in a negative way the overall demand for recreational fishing trips in the North and Mid-Atlantic regions

(section 5.0 of the RIR/IRFA). As such, there should not be significant adverse impacts to ports and communities.

A detailed study and characterization of the black sea bass and scup fisheries was conducted by Finlayson and McCay (1994). That study was conducted in order to assess the economic impacts of the draft management FMP for the scup and black sea bass fisheries. This report indicates that black sea bass pot specialization is found from Cape May, NJ through Virginia. The Montauk and Hampton Roads black sea bass pot fishery really only developed beginning in 1992 and 1993. Nonetheless, already in 1994 Hampton Roads, Cape May, and Ocean City pot fishers and Ocean City handline fishermen were heavily dependent on black sea bass. Given the variety of other fishing activities, and in some cases other industries, while individuals may be heavily affected, fishing communities in the region will be minimally impacted. A distinction needs to be made, however, between impacts to individuals and impacts to communities. Where the number of affected individuals in a community is large, the types and degree of impacts are likely to be the same at each level. Where the numbers of individuals are small, however, they may not be.

Further north, Rhode Island pot fishermen and fish trap/pound net fishers are heavily dependent on scup. These fishermen are scattered through communities the length of the Rhode Island coast, however. So the impacts to individuals are unlikely to translate into large community effects.

More recently, McCay and Cieri (2000) reported a small pot fishery in Wildwood, NJ, that mainly targets black sea bass. In Sea Isle City, NJ, there is an offshore pot fishery for lobster, conch, and fish (mostly black sea bass). The value of fish trapped within the pot fishery accounted for 12 percent of the total value landed by the pot fishery in Sea Isle City in 1998. In 1999, the contribution of black sea bass to the total landings of fish and shellfish in Sea Isle City was estimated to be 10.38 percent in 1999. In Delaware, fishermen (predominantly "bayman" or "watermen") use a wide array of gear types when working the estuary, bay, and tributaries of the Delaware Bay and River, bordering New Jersey. Pots and traps are an important type of gear for these fishermen. For fish traps, the most important species is black sea bass. A more detailed description of several ports important to the summer flounder, scup, and black sea bass fisheries is presented in section Appendix 1 of this document.

It is important to mention that when the proposed quotas for summer flounder, scup, and black sea bass for year 2002 are compared to the quotas specified (adjusted quotas) for those species in 2001, the 2002 quotas are 45 percent, 127 percent, and 125 percent higher, respectively. However, due to projected overages in 2001, the overall adjusted commercial quotas for 2002 will be 37 percent, 116 percent, and 119 percent higher than the quotas specified for summer flounder, scup, and black sea bass in 2001, respectively (section 3.1 and 4.0 of the PREE).

Vessel affected under the 2002 recommended harvest levels (Alternative 1)

Under Alternative 1, there are no vessels projected to be impacted with revenue reductions greater than 5% (section 5.1 of the PREE). In fact, the threshold analysis conducted in section 5.1 of the PREE indicates that all vessels are projected to increase revenues in 2002 compared to 2001. Under this alternative,

projected landings for the summer flounder, scup, and black sea bass in 2002 are higher than the adjusted landings implemented in 2001.

Effects of the gear restricted areas

The Council recommended that the GRAs that were implemented in 2001 continue for 2002. Additionally, the Council and Board adopted a measure that allows vessels fishing with small mesh and having an escapement extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend be allowed to fish in the GRAs.

The affect of the GRAs on small net fisheries is fully described in the 2001 Specification Document. These measures are expected to reduce discards of scup in non-directed fisheries. However, the recommendation that will allow small mesh experimental net in the GRAs may increase landings of other species relative to 2001. It is not possible to assess the monetary value associated with the additional harvest as a result of the proposed experimental net exemption, because quantitative data on these nets are limited. The modifications are inexpensive and can be incorporated into existing nets with minimal labor (section 5.0 of the PREE). The modifications are based on a project funded by the Mid-Atlantic Council and conducted by the Manomet Center for Conservation Sciences to develop selective trawls for small mesh fisheries. Results of the research indicate that a 5.5" square mesh extension placed in the net 50 meshes ahead of the codend significantly reduced (66% reduction) the bycatch and discard of small scup without a reduction in the capture of squid.

Effects of mesh size, vent size, minimum size, and research set-aside quota

In addition to the proposed TALs for summer flounder, scup, and black sea bass, the Council and Commission have approved changes to the minimum mesh, minimum fish size, and possession limits for one or more of these species. In addition, reseacrh set-asides were proposed for each fishery. A detailed description of these measures was presented in section 6.3 of the EA and are briefly discussed in section 5.0 of the PREE. The analysis of these measures is also presented in section 5.0 of the PREE. None of these additional management measures were projected to have a significant economic impact on the fisheries participants.

Vessels affected under the most restrictive 2001 alternative (Alternative 2 - Status Quo)

The social impact analysis first examined the anticipated impacts under the preferred alternative (Alternative 1). In addition, examined Alternative 2 - the most restrictive combined alternative. It is presumed that impacts of other alternatives will be less than impacts under this alternative. Under Alternative 2, there are no vessels projected to incur in revenue reductions of greater than 5% (section 5.2 of the PREE). The analysis conducted in section 5.2 of the PREE indicates that the bulk of the vessels, 97%, actively participating in these fisheries (1004 vessels) are projected to incur a revenue increase, 5 vessels (<1%) no revenue change, and 29 vessels (3%) a revenue reduction of less than 5%.

7.0 Essential Fish Habitat Assessment

Summer flounder, scup and black sea bass have Essential Fish Habitat (EFH) designated in many of the same bottom habitats that have been designated as EFH for most of the MAFMC managed species of surfclams/ocean quahogs, squid/mackerel/butterfish, bluefish, and dogfish, as well as the NEFMC species of groundfish within the Northeast Multispecies FMP, including: Atlantic cod, haddock, monkfish, ocean pout, American plaice, pollock, redfish, white hake, windowpane flounder, winter flounder, witch flounder, yellowtail flounder, Atlantic halibut and Atlantic sea scallops. Numerous species within the NMFS Highly Migratory Species Division and the SAFMC have EFH identified in areas also identified as EFH for summer flounder, scup and black sea bass. Broadly, EFH is designated as the pelagic and demersal waters along the continental shelf from off southern New England through the south Atlantic to Cape Canaveral, Florida. Specifically, the definitions as approved in Amendment 12 (MAFMC 1999) are:

Identification and Description

Summer flounder

Eggs: 1) North of Cape Hatteras, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of the all the ranked ten-minute squares for the area where summer flounder eggs are collected in the MARMAP survey. 2) South of Cape Hatteras, EFH is the waters over the Continental Shelf (from the coast out to the limits of the EEZ), from Cape Hatteras, North Carolina to Cape Canaveral, Florida, to depths of 360 ft. In general, summer flounder eggs are found between October and May, being most abundant between Cape Cod and Cape Hatteras, with the heaviest concentrations within 9 miles of shore off New Jersey and New York. Eggs are most commonly collected at depths of 30 to 360 ft.

Larvae: 1) North of Cape Hatteras, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares for the area where summer flounder larvae are collected in the MARMAP survey. 2) South of Cape Hatteras, EFH is the nearshore waters of the Continental Shelf (from the coast out to the limits of the EEZ), from Cape Hatteras, North Carolina to Cape Canaveral Florida, in nearshore waters (out to 50 miles from shore. 3) Inshore, EFH is all the estuaries where summer flounder were identified as being present (rare, common, abundant, or highly abundant) in the ELMR database, in the "mixing" (defined in ELMR as 0.5 to 25.0 ppt) and "seawater" (defined in ELMR as greater than 25 ppt) salinity zones. In general, summer flounder larvae are most abundant nearshore (12-50 miles from shore) at depths between 30 to 230 ft. They are most frequently found in the northern part of the Mid-Atlantic Bight from September to February, and in the southern part from November to May.

Juveniles: 1) North of Cape Hatteras, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares for the area where juvenile summer flounder are collected in the NEFSC trawl survey. 2) South of

Cape Hatteras, EFH is the waters over the Continental Shelf (from the coast out to the limits of the EEZ) to depths of 500 ft, from Cape Hatteras, North Carolina to Cape Canaveral, Florida. 3) Inshore, EFH is all of the estuaries where summer flounder were identified as being present (rare, common, abundant, or highly abundant) in the ELMR database for the "mixing" and "seawater" salinity zones. In general, juveniles use several estuarine habitats as nursery areas, including salt marsh creeks, seagrass beds, mudflats, and open bay areas in water temperatures greater than 37 °F and salinities from 10 to 30 ppt range.

Adults: 1) North of Cape Hatteras, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares for the area where adult summer flounder are collected in the NEFSC trawl survey. 2) South of Cape Hatteras, EFH is the waters over the Continental Shelf (from the coast out to the limits of the EEZ) to depths of 500 ft, from Cape Hatteras, North Carolina to Cape Canaveral, Florida. 3) Inshore, EFH is the estuaries where summer flounder were identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Generally summer flounder inhabit shallow coastal and estuarine waters during warmer months and move offshore on the outer Continental Shelf at depths of 500 ft in colder months.

Scup

Eggs: EFH is estuaries where scup eggs were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. In general scup eggs are found from May through August in southern New England to coastal Virginia, in waters between 55 and 73 °F and in salinities greater than 15 ppt.

Larvae: EFH is estuaries where scup were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. In general scup larvae are most abundant nearshore from May through September, in waters between 55 and 73 °F and in salinities greater than 15 ppt.

Juveniles: 1) Offshore, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares of the area where juvenile scup are collected in the NEFSC trawl survey. 2) Inshore, EFH is the estuaries where scup are identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Juvenile scup, in general during the summer and spring are found in estuaries and bays between Virginia and Massachusetts, in association with various sands, mud, mussel and eelgrass bed type substrates and in water temperatures greater than 45 °F and salinities greater than 15 ppt.

Adults: 1) Offshore, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the

ranked ten-minute squares of the area where adult scup are collected in the NEFSC trawl survey. 2) Inshore, EFH is the estuaries where scup were identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Generally, wintering adults (November through April) are usually offshore, south of New York to North Carolina, in waters above 45 °F.

Black sea bass

Eggs: EFH is the estuaries where black sea bass eggs were identified in the ELMR database as common, abundant, or highly abundant for the "mixing" and "seawater" salinity zones. Generally, black sea bass eggs are found from May through October on the Continental Shelf, from southern New England to North Carolina.

Larvae: 1) North of Cape Hatteras, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all ranked ten-minute squares of the area where black sea bass larvae are collected in the MARMAP survey. 2) EFH also is estuaries where black sea bass were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Generally, the habitats for the transforming (to juveniles) larvae are near the coastal areas and into marine parts of estuaries between Virginia and New York. When larvae become demersal, they are generally found on structured inshore habitat such as sponge beds.

Juveniles: 1) Offshore, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked squares of the area where juvenile black sea bass are collected in the NEFSC trawl survey. 2) Inshore, EFH is the estuaries where black sea bass are identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Juveniles are found in the estuaries in the summer and spring. Generally, juvenile black sea bass are found in waters warmer than 43 °F with salinities greater than 18 pp and coastal areas between Virginia and Massachusetts, but winter offshore from New Jersey and south. Juvenile black sea bass are usually found in association with rough bottom, shellfish and eelgrass beds, man-made structures in sandy-shelly areas; offshore clam beds and shell patches may also be used during the wintering.

Adults: 1) Offshore, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares of the area where adult black sea bass are collected in the NEFSC trawl survey. 2) Inshore, EFH is the estuaries where adult black sea bass were identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Black sea bass are generally found in estuaries from May through October. Wintering adults (November through April) are generally offshore, south of New York to North Carolina. Temperatures above 43 °F seem to be the minimum requirements. Structured habitats

(natural and man-made), sand and shell are usually the substrate preference.

Fishing impacts to summer flounder, scup, and black sea bass EFH

Auster and Langton (1998) state that, "One of the most difficult aspects of estimating the extent of fishing impacts on habitat is the lack of high resolution data on the distribution of fishing effort." Currently, there is no way to fully gauge the present intensity and severity of mobile gear in contact with the bottom (bottom otter trawl, clam dredge, scallop dredge, and dredge-other), therefore these gears are characterized as having a "potential adverse impact" on summer flounder, scup, and black sea bass EFH (MAFMC 1999). The types of habitat in which these gears are fishing and with what kind of intensity is unquantified in the Mid-Atlantic. Auster and Langton (1998) cite studies that indicate that mobile clam dredges, traps and pots being drug and dropped, and bottom otter trawls coming into contact with the bottom have impacted structural habitat, community structure, and ecosystem process. They also cite several conceptual models to determine the impacts of gears on different types of habitat. However, without high resolution data on fishing effort and the habitat complexity that is being fished, it is currently difficult to predict impact of these gears.

Summer flounder, scup, and black sea bass are demersal species that have associations with substrates, SAV, and structured habitat (Packer and Griesbach 1999, Steimle *et al.* 1999a-b). Specific habitats that are designated as EFH and are important to these species are as follows:

Summer Flounder: pelagic waters, demersal waters, saltmarsh creeks, sea grass beds, mudflats, open bay areas

Scup: demersal waters, sands, mud, mussel and eelgrass beds

Black Sea Bass: pelagic waters, structured habitat (e.g. sponge beds), rough bottom shellfish, sand and shell

Both mobile and stationary gear are characterized as having a potential impact on summer flounder, scup, and black sea bass EFH. Auster and Langton (1998) cited studies that indicate impacts mobile gear on the structural components and community structure in both long- and short- terms, of these habitat types. Stationary gears such as pots, traps, and gill nets can continue to fish once they are lost, i.e., ghost gear. The impact of ghost gear is also poorly quantified, therefore these gears are also characterized as having a "potential adverse impact" on summer flounder, scup, and black sea bass EFH (MAFMC 1999).

Options for Managing Adverse Effects from Fishing

According to section 600.815 (a)(3) Councils must act to prevent, mitigate, or minimize adverse effects from fishing, to the extent practicable, if there is evidence that a fishing practice is having an identifiable adverse effect on EFH.

Section 600.815 (a)(4) states that, fishery management options may include, but are not limited to: (i) fishing equipment restrictions, (ii) time/area closures, and (iii) harvest limits.

The Council designated both mobile bottom gear and stationary gear as having a potential adverse impact (MAFMC 1999) on summer flounder, scup, and black sea bass EFH. The Council has implemented many regulations in the past that have indirectly acted to reduce impacts to habitat. Since numerous regulations are already in place, the Council is not presently planning on implementing any additional management measures associated with these proposed quotas. The Council will implement new management measure to reduce habitat impacts, if data become available that indicate that current measures are inadequate to reduce impact to habitat. The Council can propose management measures through the framework procedures described in section 3.1.1.1 of Amendment 12 at any time and must review all of their EFH at least every 5 years.

Currently, there are 32 stocks managed by NEFMC, MAFMC, and SAFMC in the Atlantic Ocean that are designated as overfished (NMFS 1998). All of NMFS's HMS species with the exception of the group "pelagic sharks" are overfished. These designations result in a general reduction of fishing effort from Maine through Florida in order to rebuild these stocks. This reduction of effort translates into less of an impact on habitat throughout the western Atlantic coast.

In addition to a general reduction of fishing effort there are other mechanisms in place to reduce the impact of bottom otter trawls and other types of bottom mobile gear on habitat. The summer flounder, scup, and black sea bass FMP includes a mechanism to implement Special Management Zones (SMZ) which allows the restriction of certain types of fishing gear that are not compatible with artificial reefs or fish attraction devices permitted by the Army Corps of Engineers. In addition, the Council is planning on continuing the GRAs, that were implemented in 2001, for scup in the year 2002 to reduce scup discards.

Dredges accounted for 79% of the MAFMC landings from Maine through North Carolina in 1997. The surfclam and ocean quahog fisheries are managed under an Individual Transferable Quota (ITQ) system. ITQ's instill a sense of ownership of the resource. Fishermen in these fisheries understand that they are not time driven to deplete the resource and that by protecting the resource and the surrounding habitat they are protecting their long term livelihoods. In addition to the indirect benefits of ITQs, the numbers of surfclam and ocean quahog fishermen have also decreased significantly with the implementation of ITQs. In 1979 there were 162 permitted surf clamming vessels, by 1995 that number had fallen to 37. The number of ocean quahog vessels decreased from 59 in 1979 to 36 in 1995. Many vessels fish for both surfclams and ocean quahogs and in fact the total number of clam dredge vessels that fished in 1998 was only 47.

Some discussions of various gear impacts on bottom in the Mid-Atlantic region has been presented to the Council over the past several years. It is because of this anecdotal information that the Council is considering that all mobile gear coming into contact with the seafloor within summer flounder, scup, and black sea bass EFH is characterized as having a potential impact on their EFH (MAFMC 1999). However, the effort of these bottom tending gears is largely unquantified from data that are presently collected by the NEFSC as summarized by Auster and Langton (1998). Dr. Joe DeAlteris (University of Rhode Island) is presently attempting to synthesize the historical (1983 to 1993) fishing effort data by area and hopes to have this project complete in the next two years. When specific gear-effort data by area are available the Council will review them and consider whether additional specific management measures will be useful.

The requirement concerning gear impact management is to the extent practicable given the evidence that the fishing practice is having an identifiable adverse effect. The Council feels strongly that very little evidence was provided in the synthesis document of Auster and Langton (1998) relative to identifiable adverse effects to EFH in FMPs managed by this Council at this time. Fishing gear impacts along with the description and identification of EFH are frameworked management measures which can easily and readily be changed as more information becomes available (MAFMC 1999). The Council feels it would be premature, given the lack of identifiable adverse effects of gear impacts to these managed species EFH, to propose gear management measures at this time. The Council will consider implementing management measures to protect EFH if and when adverse gear impacts are identified.

In summary, the quotas proposed for summer flounder, scup, and black sea bass, for 2002 are higher than those specified for 2001. However, an increase in quota does not necessarily mean an increase in fishing effort. As discussed in Section 6.0, with improving stock abundance, fishermen may be able to catch more fish with less or constant effort. Conversely, fishing effort could increase as vessels take more, or longer trips, to land the higher quota. Therefore, the measures proposed in this specification package may have adverse effects to EFH that range from increased adverse impacts to impacts that are less than existing impacts. The non-quota setting specifications associated with this action will not have an adverse effect on EFH. Since the increase in the quota for each species meets the FMP objective of improving yield while ensuring that overfishing does not occur, and due to the lack of direct evidence to suggest that fishing effort on bottom habitats will actually increase due to this action, NMFS has determined that this action minimizes the adverse effects of fishing on EFH to the extent practicable, pursuant to Section 305(a)(7) of the Magnuson-Stevens fishery conservation and management Act. Because some adverse effects to EFH will be present, an abbreviated EFH consultation pursuant to Section 305(b)(2) of the Magnuson-Stevens Act is required.

8.0 List of agencies and persons consulted in formulating the action

The summer flounder, scup and black sea bass specifications were submitted to the National Marine Fisheries Service (NMFS) by the Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission.

9.0 List of preparers of the environmental assessment

This environmental assessment was prepared by the Mid-Atlantic Council and the Northeast Regional Office of NMFS, and is based, in part, on information provided by the Northeast Fisheries Science Center (Center).

10.0 Finding of no significant environmental impact

Having reviewed the environmental assessment on the specifications for the 2002 summer flounder, scup, and black sea bass fisheries, and the available information relating to the action, I have determined that there will be no significant adverse environmental impact resulting from the action and that preparation of an environmental impact statement on the action is not required by Section 102(2)(c) of the National Environmental Policy Act or its implementing regulations.

Assistant Administrator for
Fisheries, NOAA

Date

OTHER APPLICABLE LAWS

1.0 PAPERWORK REDUCTION ACT OF 1995

The Paperwork Reduction Act (PRA) concerns the collection of information. The intent of the PRA is to minimize the Federal paperwork burden for individuals, small business, state and local governments, and other persons as well as to maximize the usefulness of information collected by the Federal government.

This action does not contain any new collection-of-information requirements subject to the Paperwork Reduction Act (PRA). The request for an experimental fishing exemption has already been approved by OMB under Control Number 0648-0309. Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. There are no changes to the existing reporting requirements previously approved under OMB Control Nos. 0648-0202 (Vessel permits), 0648-0229 (Dealer reporting) and 0648-0212 (Vessel logbooks).

As stated above, this action does not implement new reporting or record keeping measures. There are no changes to existing reporting requirements. Currently, all summer flounder, scup and/or black sea bass Federally-permitted dealers must submit weekly reports of fish purchases. The owner or operator of any vessel issued a moratorium vessel permit for summer flounder, scup, black sea bass, must maintain on board the vessel, and submit, an accurate daily fishing log report for all fishing trips, regardless of species fished for or taken. The owner of any party or charter boat issued a summer flounder or scup permit other than a moratorium permit and carrying passengers for hire shall maintain on board the vessel, and submit, an accurate daily fishing log report for each charter or party fishing trip that lands summer flounder or scup, unless such a vessel is also issued another permit that requires regular reporting, in which case a fishing log report is required for each trip regardless of species retained. These reporting requirements are critical for monitoring the harvest level of these fisheries.

2.0 RELEVANT FEDERAL RULES

This action will not duplicate, overlap or conflict with any other Federal rules.

The Council determined that this action is consistent to the maximum extent practicable with the approved coastal management programs of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida. This determination was submitted on September 19, 2001, for review by the responsible state agencies under section 307 of the Coastal Zone Management Act.

REGULATORY IMPACT REVIEW/FINAL REGULATORY FLEXIBILITY ANALYSIS

1.0 INTRODUCTION

The National Marine Fisheries Service (NMFS) requires the preparation of a Regulatory Impact Review (RIR) for all regulatory actions that either implement a new Fishery Management Plan (FMP) or significantly amend an existing plan. This RIR is part of the process of preparing and reviewing FMPs and provides a comprehensive review of the changes in net economic benefits to society associated with proposed regulatory actions. This analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problems. The purpose of this analysis is to ensure that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way. This RIR addresses many items in the regulatory philosophy and principles of Executive Order (E.O.) 12866.

NMFS has also included a Final Regulatory Flexibility Act Analysis (RFA) to evaluate the economic impacts of the alternatives on small business entities, although positive economic impacts are anticipated due to the quota increases contained in the Preferred Alternative.

2.0 EVALUATION OF E.O. 12866 SIGNIFICANCE

A complete description of the objectives of this proposed rule may be found in the Introduction of the EA. This action is taken under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and regulations at 50 CFR part 648.

A description of ports and communities, an analysis of permit data, and a description of the fisheries affected by this action are presented in sections 4.1, 4.2, and 5.0 of the EA, respectively.

The economic benefits of the summer flounder, scup and black sea bass FMP have been evaluated periodically as amendments to the FMP have been implemented to either change the effort reduction schedule or as new species have been added. These analyses have been conducted at the time a major amendment is developed and interim actions (framework adjustments or quota specifications) may be presumed to leave the conclusions reached in the initial benefit-cost analyses unchanged provided the original conservation and economic objectives of the plan are being met.

The economic effects of the black sea bass effort reductions were evaluated at the time black sea bass was added to the FMP through Amendment 9. The economic analysis presented at that time was largely qualitative in nature. Given the fact that the black sea bass quota was implemented for the first time in 1998 it is too early to determine whether or not the black sea bass objectives are being met. Nevertheless, assessment of the black sea bass quota indicates that overall landings have been within the quota specifications in 1998 and 1999. However, for the 2000 fishing season landings were about 1 percent above the overall quota. A preliminary assessment of the 2001 fishing season indicate that 2001 landings will be about 5 percent above the overall quota (assuming that overages

do not occur in the fourth quarter and that the entire quota is taken during the fourth quarter; see section 3.1 below). This is the second time since the black sea bass quota was implemented that overall landings are projected to be above the established commercial quota. Since quota adjustments will be made to the 2002 quota in order to account for the overages in 2001, there is a reasonable expectation that the management objectives will be met and the expected economic benefits will not be compromised.

The economic effects of the scup effort reductions were evaluated at the time scup was added to the FMP through Amendment 8. The expected economic benefits and costs for the scup effort reduction were also described in qualitative terms. Similar to black sea bass, the coastwide scup quota has only been implemented from 1997 to 2001. Preliminary assessment of the 2001 fishing season indicate that 2001 landings will be approximately 11 percent over the quota specification. Thus, it is too early to determine whether or not the management objectives for scup are being met. At this time, the plan objectives appear to be met so there is a reasonable expectation that the expected economic benefits of managing scup will not be compromised. However, overages must be brought in control in order to meet the benefits of the proposed management objectives. Attainment of the management objectives may require more rigorous actions to reduce effort than what has been adopted to date.

Analysis of Alternatives

For each alternative potential impacts on several areas of interest are discussed. The objective of this analysis is to describe clearly and concisely the economic effects of the various alternatives. The types of effects that should be considered include the following changes in landings, prices, consumer and producer benefits, harvesting costs, enforcement costs, and distributional effects. Due to the lack of an empirical model for these fisheries and knowledge of elasticities of supply and demand, a qualitative approach to the economic assessment was adopted. Nevertheless, quantitative measures are provided whenever possible.

A more detailed description of the economic concepts involved can be found in "Guidelines for Economic Analysis of Fishery Management Actions" (USDC 2000), as only a brief summary of key concepts will be presented here.

Benefit-cost analysis is conducted to evaluate the net social benefit arising from changes in consumer and producer surpluses that are expected to occur upon implementation of a regulatory action. Total Consumer Surplus (CS) is the difference between the amounts consumers are willing to pay for products or services and the amounts they actually pay. Thus CS represents net benefits to consumers. When the information necessary to plot the supply and demand curves for a particular commodity is available, consumer surplus is represented by the area that is below the demand curve and above the market clearing price where the two curves intersect. Since an empirical model describing the elasticities of supply and demand for these species is not available, it was assumed that the price for these species was determined by the market clearing price or the intersection of the supply and demand curves. These prices were the base prices used to determine potential changes in prices due to changes in landings.

Net benefit to producers is producer surplus (PS). Total PS is the difference

between the amounts producers actually receive for providing goods and services and the economic cost producers bear to do so. Graphically, it is the area above the supply curve and below the market clearing price where supply and demand intersect. Economic costs are measured by the opportunity cost of all resources including the raw materials, physical and human capital used in the process of supplying these goods and services to consumers.

One of the more visible costs to society of fisheries regulation is that of enforcement. From a budgetary perspective, the cost of enforcement is equivalent to the total public expenditure devoted to enforcement. However, the economic cost of enforcement is measured by the opportunity cost of devoting resources to enforcement vis à vis some other public or private use and/or by the opportunity cost of diverting enforcement resources from one fishery to another.

1) Alternative 1 (Preferred Alternative)

For purposes of this analysis, the status quo and all other alternatives will be evaluated under the assumption that the primary measure for achieving the conservation objectives will be through changes in quota levels. This alternative as well as the other alternatives will be evaluated against a base line. The base line condition provides the standard against which all other alternative actions are compared. In this analysis, the base line condition is the final adjusted quotas for 2001. This comparison will allow for the evaluation of the potential fishing opportunities associated with each alternative versus the fishing opportunities that were in place in 2001. Aggregate changes in fishing opportunities in 2002 (adjusted quotas) versus quotas specified for 2001 are shown in Table 12. The information presented in Table 12 was used to determine potential changes in landings associated with the proposed quota levels associated with each of the alternatives evaluated in this analysis.

Landings

Under the preferred alternative, aggregate landings for summer flounder, scup, and black sea bass are expected to be 44 percent, 115 percent, and 19 percent higher in 2002 when compared to 2001 adjusted quota, respectively.

Prices

Given the likelihood that this alternative will result in substantial increase in the landings of all three species, it would be anticipated that there will be a decrease in the price for these species holding all other factors constant.

Consumer Surplus

Given the potential decrease in the price for these species under this scenario, it is expected that consumer surplus associated with these fisheries may increase.

Harvest Costs

No changes in harvest costs are identified under this alternative.

Producer surplus

Given the potential decrease in the price for these species under this scenario, it is expected that producer surplus associated with these fisheries may decrease.

Enforcement Costs

This alternative does not introduce additional enforcement measures. As such, no changes in enforcement costs are identified under this alternative.

Distributive Effects

There are no changes to the quota allocation process for any of the species. As such, no distributional effects are identified under this alternative.

2) Alternative 2, (Status Quo or "No Action" Alternative (also the Most Restrictive Alternative))

The status quo or "no action" alternative refers to what most likely will occur in the absence of implementing the proposed regulation. The implementation of this action means that the current 2001 rules will apply to 2002. That is, the 2002 quota levels for each fishery would be identical to the quotas established in 2001. Then projected overages in 2001 would have to be deducted from the 2002 quota to determine the specified quota for 2002. The same assumptions regarding landings relative to the base line and changes in fishing opportunities discussed under Alternative 1 also apply here. The "no action" alternative does not necessarily mean a continuation of the present, but instead is the most likely scenario for the future in the absence of other alternatives. This alternative evaluates the overall quotas that are most restrictive among all quotas evaluated.

Under this alternative aggregate landings for summer flounder, scup, and black sea bass are expected to be 6 percent, 14 percent, and 7 percent higher in 2002 when compared to the 2001 adjusted quota, respectively. The directional impacts are expected to be similar to those described under Alternative 1 above, except that given a smaller increase in landings associated with this alternative, the magnitude of the changes may be smaller than that described under Alternative 1.

3) Alternative 3 (Least Restrictive Alternative)

The same assumptions regarding landings relative to the base line and changes in fishing opportunities discussed under Alternative 1 also apply here. This alternative evaluates the least restrictive quotas among all quotas evaluated. Under Alternative 3 aggregate landings for summer flounder, scup, and black sea bass are expected to be 106 percent, 157 percent, and 43 percent higher in 2002 when compared to 2001 adjusted quota, respectively. The directional impacts are expected to be similar to those described under Alternative 1 above, except that given a larger increase in landings associated with this alternative, the magnitude of the changes may be greater than that described under Alternative 1.

Table 12. Percentage changes associated with allowable commercial landings for various alternatives in 2002 (adjusted for overages) relative to the quotas

specified for 2001.

| | Total Changes Including Overages | | |
|--------------------------------|----------------------------------|---|---|
| Geographic Area or Time Period | Quota Alternative 1 (Preferred) | Quota Alternative 2 (Status Quo-Most Restrictive) | Quota Alternative 3 (Least Restrictive) |
| Summer Flounder | | | |
| States other than Maine | +44.41% | 6.39% | +107.13% |
| Maine | -100.00% | -100.00% | -100.00% |
| Aggregate Change | +44.25% | +6.16% | +106.88% |
| Scup | | | |
| Winter 1 | +114.37% | +18.65% | +155.67% |
| Summer | +143.43% | +20.75% | +196.36% |
| Winter 2 | +79.99% | 0% | +114.51% |
| Aggregate Change | +115.60% | +14.94% | +157.04% |
| Black Sea Bass | | | |
| Quarter 1 | +6.43% | -3.72% | +27.55% |
| Quarter 2 | +34.88% | +21.65% | +62.39% |
| Quarter 3 | +18.69% | +6.54% | +43.95% |
| Quarter 4 | +27.43% | +15.67% | +51.86% |
| Aggregate Change | +19.13% | +7.66% | 43.02% |

Summary of Impacts of Alternatives

The overall impacts of summer flounder, scup, and black sea bass landings on prices, consumer surplus, and producer surplus are difficult to determine without detailed knowledge of the relationship between supply and demand factors for these fisheries. In the absence of detailed empirical models for these fisheries and knowledge of elasticities of supply and demand, a qualitative approach was employed to assess potential impacts of the proposed management measures.

The impact of each of the regulatory quota alternatives relative to the base year is summarized in Table 13. When potential outcomes from implementing a specific alternative are equal for all three species in direction, the resulting directional effect is presented as one. However, when outcomes from implementing a specific alternative differ across species, the directional effects will be presented separately for each species. A "-1" indicates that the level of the given feature would be reduced given the action as compared to the base year. A

"+1" indicates that the level of the given feature would increase relative to the base year and a "0" indicates no change. In this analysis, the base line condition is the final adjusted quotas for 2001. This comparison will allow for the evaluation of the potential fishing opportunities associated with each alternative in 2002 versus the fishing opportunities that were in place in 2001.

The preferred alternative, the status quo, and the least restrictive alternative may be expected to have similar overall directional impacts. These alternatives show a likely decrease in prices associated with higher landings in 2002 compared to the base year. As such, consumer surplus is expected to increase and producer surplus is expected to decrease. However, the magnitude of the changes will likely vary across alternatives due to the potential changes in landings associated with each alternative. For example, the impact on price reduction for each species associated with the least restrictive alternative (Alternative 3) may be expected to be higher than those associated with the Status Quo (Alternative 2) or the Preferred Alternative (Alternative 1).

No changes in the competitive nature of these fisheries is expected to occur if any of these management measures were implemented. All the alternatives would maintain the competitive structure of the fishery, that is, there are no changes in the manner the quotas are allocated by region or state from the base year. However, large reductions in quota levels from year to year may affect vessels differently due to their capability to adjust to quota changes.

No changes in enforcement costs or harvest costs have been identified for any of the evaluated alternatives.

It is important to mention that although the measures that are evaluated in this specification package are for the year 2002 fisheries, the annual specification process for these fisheries could have potential cumulative impacts. The extent of any cumulative impacts from measures established in previous years is largely dependent on how effective those measures were in meeting their intended objectives and the extent to which mitigating measures compensated for any quota overages. Section 6.0 of the EA has a detailed description or historical account or commutative impacts of the measures established in previous years. This information is important because it allows for the evaluation of projected results from the implementation of specific management measures versus actual results.

Table 13. Qualitative comparative summary of economic effects of regulatory alternatives relative to the base line "adjusted quotas for 2001".

| Feature | Alternative 1 Preferred Alternative | Alternative 2 Status Quo Most Restrictive | Alternative 3 Least Restrictive |
|------------------|---|---|------------------------------------|
| Landings | +1 | +1(?) | +1 |
| Prices | -1 | -1(?) | -1 |
| Consumer Surplus | +1 | +1(?) | +1 |
| Harvest Costs | 0 | 0 | 0 |

| | | | |
|---|----|-------|----|
| Producer Surplus | -1 | -1(?) | -1 |
| Enforcement Costs | 0 | 0 | 0 |
| Distributive Impacts | 0 | 0 | 0 |
| <p>"-1" denotes a reduction relative to the base line; "0" denotes no change relative to the base line; and "+1" denotes an increase relative to the base line.</p> | | | |

The proposed action does not constitute a significant regulatory action under E.O. 12866 for the following reasons. First, it will not have an annual effect on the economy of more than \$100 million because the total value of all commercial landings of these species is approximately \$26.6 million. Based on preliminary unpublished NMFS weighout (dealer) data, the 2000 total commercial value for summer flounder was estimated at \$18.5 million from Maine to North Carolina, and at \$3.3 million and \$4.8 million for scup and black sea bass from Maine to Cape Hatteras, NC, respectively. Assuming 2000 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2002 versus 2001 (discussed under Alternative 1 above), the 2002 quotas in Preferred Alternative 1 (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately \$5.4 million, \$6.2 million, and \$0.9 million, relative to 2000 revenues (landings), respectively, for a total increase of \$12.5 million. For Alternative 2, the 2002 quotas (after overages have been applied) would decrease summer flounder ex-vessel revenues by approximately \$0.9 million, and increase scup, and black sea bass ex-vessel revenues by approximately \$1.7 million, and \$0.4 million, relative to 2000 revenues (landings), respectively, for a total increase of \$1.2 million. For Alternative 3, the 2002 quotas (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately \$15.8 million, \$8.1 million, and \$2.1 million, relative to 2000 revenues (landings), respectively, for a total increase of \$26.0 million.

The landing/trip limits were chosen as an appropriate balance between the economic concerns of the industry (e.g., landing enough scup or black sea bass to make the trip economically viable) and the need to ensure the equitable distribution of the quota over the period.

Changes in landing/trip limits can impact profitability in various ways. These impacts would vary depending of fishing practices. The possession limit recommended for Quarter 1 of the black sea bass fishery is not expected to negatively impact the black sea bass fishery. However, the decrease in the Quarter 1 limit may have some positive impacts by providing the market a regular product supply, avoiding market gluts, and price fluctuations.

The proposed fish size limits and minimum mesh provisions in black sea bass fishery and the mesh size provisions in the scup fishery are recommended to reduce the catch of undersized fish. These measures are not expected to affect small entities in a negative manner. If fish smaller than the minimum size limit could be landed they would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could

be offset by a decrease in mortality for larger fish. However, overall mortality rates are controlled by the TAL, and changes in mortality because of these proposed regulations should be insignificant. Additionally, a reduction in the catch of undersized fish may lead to an increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. Therefore, the proposed regulations could help to increase spawning stock biomass by allowing more fish to spawn. If 2000 price differentials between smaller and larger fish in the black sea bass fishery continued, commercial fishermen may benefit from the proposed minimum size in the sea bass fishery and, in fact, experience an increase in revenue.

In the annual specification process for 2002, the Council approved a research set aside amount equal to 2 percent of the total allowable harvest for summer flounder and 3 percent of the total allowable harvest for scup and black sea bass. If NMFS approved the preferred TAL alternative for each species, the set-aside amounts would be 486,000; 323,100; and 204,000 pounds for summer flounder, scup, and black sea bass, respectively. As of December 14, 2001, research projects that would utilize 222,775 pounds and 76,005 pounds were recommended for approval for scup and black sea bass, respectively. There were no summer flounder research projects recommended for approval under the research set-aside program. It is unlikely that the possession, size or seasonal limits would change as the result of these research set-asides and, as such, there would be no negative impacts (see section 5.1 below).

The Council recommended that the GRAs that were implemented in 2001 continue for 2002. Additionally, the Council and Board adopted a measure that allows vessels fishing with small mesh and having an escapement extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend be allowed to fish in the GRAs. This measure was disapproved because the research upon which the recommendation was based was very preliminary. The projects principal investigators indicated that the results could not be used to reach a conclusion for all vessels, at all times, and for all areas, as the exemption would have allowed.

The affect of the GRAs on small net fisheries is fully described in the 2001 Specification Document. The GRAs are expected to reduce discards of scup in non-directed fisheries. However, the recommendation to allow small mesh experimental nets in the GRAs may have increased landings of other species relative to 2001. It is not possible to assess the monetary value associated with the additional harvest as a result of the proposed experimental net exemption, because quantitative data on these nets are limited. The modifications are inexpensive and could have been incorporated into existing nets with minimal labor (section 5.0 of the RIR/IRFA). The modifications were based on a project funded by the Mid-Atlantic Council and conducted by the Manomet Center for Conservation Sciences to develop selective trawls for small mesh fisheries. Results of the preliminary research indicate that a 5.5" square mesh extension placed in the net 50 meshes ahead of the codend reduced (66 percent reduction) the bycatch and discard of small scup without a reduction in the capture of squid.

The Preferred Alternative, and other non-quota measures, being considered by this action are necessary to advance the recovery of summer flounder, scup and black sea bass stocks, and to establish the harvest of these species at sustainable levels. The action benefits in a material way the economy, productivity,

competition and jobs. The action will not adversely affect, in the long-term, competition, jobs, the environment, public health or safety, or state, local, or tribal government communities. Second, the action will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency. No other agency has indicated that it plans an action that will affect the summer flounder, scup or black sea bass fisheries in the EEZ. Third, the actions will not materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of their participants. And, fourth, the actions do not raise novel, legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in E.O. 12866.

3.0 REGULATORY FLEXIBILITY ANALYSIS

3.1 INTRODUCTION AND METHODS

Although positive economic impacts are anticipated as a result of this action due to the quota increases contained in the Preferred Alternative, the Final Regulatory Flexibility Act Analysis (RFA) contained in Section 4.0, 5.0 and 6.0 was prepared to further evaluate the economic impacts of the three quota alternatives and other non-quota measures (i.e. gear requirements and trip limits) on small business entities.

A complete description of the need for, and objectives of, this rule can be found in the Introduction of the EA. A description of ports and communities, an analysis of permit data, and a description of the fisheries are presented in sections 4.1, 4.2, and 5.0 of the EA, respectively. This action is taken under authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and regulations at 50 CFR part 648.

This action does not duplicate, overlap, or conflict with other Federal rules. This action does not contain any new collection of information, reporting, or recordkeeping requirements.

Compliance costs associated with this action are anticipated due to requirements for trawl gear conversion in the scup and black sea bass fisheries, and escape vent modifications for pots and traps in the black sea bass fishery. Costs of trawl gear conversions are expected to vary for inshore and offshore vessels, and with the degree of modifications required. For vessels operating in the inshore fishery, compliance costs are estimated to be approximately \$775, and for vessels operating in the offshore fishery costs are estimated at approximately \$1,354. The cost of replacing escape vents is expected to be minimal, and some commercial pot and trap black sea bass fishers have indicated that they are already using the types of vents that would be required.

The Small Business Administration (SBA) defines a small business in the commercial fishing and recreational fishing activity, as a firm with receipts (gross revenues) of up to \$3.0 million. The proposed measures regarding the 2002 quotas could affect any vessel holding an active Federal permit for summer flounder, scup, or black sea bass as well as vessels that fish for any one of these species in state waters. Data from the Northeast permit application database shows that as of September 5, 2000 there were 1969 vessels that were permitted to take part in the summer flounder, scup, and/or black sea bass

fisheries (both commercial and charter/party sectors). These permitted vessels may be further categorized depending upon which permits or combinations of permits that were held (section 4.2 of the EA). Table 2 reports the number of vessels for all possible combinations of permits. The minimum mesh, minimum fish size, and possession limits for summer flounder, scup, and/or black sea bass could potentially affect all permit holders. However, active participants are more likely to be affected in the near term. All permitted vessels readily fall within the definition of small business.

Since all permit holders may not actually land any of the three species the more immediate impact of the rule may be felt by the 1038 commercial vessels that are actively participating in these fisheries (Table 14). An active participant was defined as being any vessel that reported having landed one or more pounds of any one of the three species in the Northeast dealer data during calendar year 2000. The dealer data covers activity by unique vessels that hold a Federal permit of any kind and provides summary data for vessels that fish exclusively in state waters. This means that an active vessel may be a vessel that holds a valid Federal summer flounder, scup, or black sea bass permit; a vessel that holds a valid Federal permit but no summer flounder, scup or black bass permit; a vessel that holds a Federal permit other than summer flounder, scup, or black sea bass and fishes for those species exclusively in state waters; or may be vessel that holds no Federal permit of any kind. Of the four possibilities the number of vessels in the latter two categories cannot be estimated because the dealer data provides only summary information for state waters vessels and because the vessels in the last category do not have to report landings. Of the active vessels reported in Table 14, 294 commercial vessels did not hold a valid Federal permit for summer flounder, scup, or black sea bass during calendar year 2000. Note that in a manner similar to that of Table 2 these active vessels are also reported by all possible combinations of reported landings.

In this RFA, the primary unit of observation for purposes of performing a threshold analysis is vessels that participated in any one or more of the three fisheries (summer flounder, scup, and black sea bass) during calendar year 2000, irrespective of their current permit status.

Not all landings and revenues reported through the Federal dealer data can be attributed to a specific vessel. Vessels without Federal permits are not subject to any Federal reporting requirements with which to corroborate the dealer reports. Similarly, dealers that buy exclusively from state waters only vessels and have no Federal permits, are also not subject to Federal reporting requirements. Thus, it is possible that some vessel activity cannot be tracked with the landings and revenue data that are available. Thus, these vessels cannot be included in the threshold analysis, unless each state were to report individual vessel activity through some additional reporting system - which currently does not exist. This problem has two consequences for performing threshold analyses. First, the stated number of entities subject to the regulation is a lower bound estimate, since vessels that operate strictly within state waters and sell exclusively to non-Federally permitted dealers cannot be counted. Second, the portion of activity by these uncounted vessels may cause the estimated economic impacts to be over- or underestimated.

The effects of actions were analyzed by employing quantitative approaches to the extent possible. Where quantitative data were not available, qualitative

analyses were conducted.

In order to conduct a more complete analysis, cumulative impacts were examined in three ways to represent three potential quota "alternatives." The first analysis (Preferred Alternative) examined the measures recommended by the Council for each of the three species. The second alternative considered the measures proposed under the "no action" or Status Quo Alternative, which is also the most restrictive alternative, for each of the fisheries. The third alternative looked at the highest quotas (least restrictive). Cumulative impacts were examined because many of the vessels active in these fisheries participate in one or even all three of these fisheries (section 4.2 of the EA). Actions in one fishery, e.g. a decrease in quota, could have an impact on levels of participation in other fisheries. A full description of these three alternatives is provided in sections 4 and 5, below.

Procedurally, the economic effects of the quota alternatives were estimated using five steps. First, the Northeast dealer data were queried to identify all vessels that landed at least one or more pounds of summer flounder, scup, or black sea bass in calendar year 2000. The fact that individual owners' business organization may differ from one another is reflected in the different combinations of species landed by these vessels. Thus, for purposes of the threshold analysis, active vessels were grouped into seven classes or tiers (Table 14) based on combinations of summer flounder, scup and black sea bass landings. In this manner, the original universe of vessels is treated as seven distinct "sub-universes" with a separate threshold analysis conducted for each. Note that the States of Connecticut and Delaware report canvas (summary) data to NMFS, so landings and revenues by individual vessels cannot be included. Thus, vessels that land exclusively in those states cannot be analyzed. Vessels that land in these, plus other states, are analyzed - but landings and revenues represent only that portion of business conducted in states other than Connecticut and Delaware. It is presumed that the impacts on vessels that cannot be identified will be similar to the participating vessels that are analyzed herein.

The second step was to estimate total revenues from all species landed by each vessel during calendar year 2000. This estimate provides the base from which subsequent quota changes and their associated effects on vessel revenues were compared. Since 2000 is the last full year from which data are available (partial year data could miss seasonal fisheries), it was chosen as the base year for the analysis. That is, partial landings data for 2001 were not used in this analysis because the year is not complete. As such, 2000 data were used as a proxy for 2001.

The third step was to deduct or add, as appropriate, the expected change in vessel revenues depending upon which of the three quota alternatives were evaluated. This was accomplished by estimating proportional reductions or increases in the three quota alternatives versus the base quota year 2000 (2001 proxy). Landings to date, indicate that there will be overages in the summer flounder, scup, and black sea bass commercial fisheries. The estimated overages were used to adjust the final 2002 quotas for all evaluated alternatives to reflect the expected fishing opportunities. NMFS quota summary reports at the time this analysis was conducted (September 8, 2001) indicate that in the scup fishery an overage of approximately 16,734 lbs (1 percent) and 368,076 lbs (33

percent) occurred during Winter 1 and Summer periods, respectively; in the black sea bass fishery an overage of 43,562 lbs (4 percent), 58,377 (9 percent), and 40,623 lbs (13 percent) occurred during Quarters 1, 2 and 3, respectively; and in the summer flounder fishery an overage of 20,371 lbs (949 percent) and 47,812 lbs (7 percent) occurred in Maine and Massachusetts, respectively. Vessel landings and revenues of summer flounder, scup, and black sea bass were prorated by state (summer flounder) or period (scup and black sea bass) according to the proportional change in quota in each state (summer flounder) or periods (scup and black sea bass) (section 4.0 below). In addition to this, for the purpose of estimating the 2002 quotas and revenue changes, the following assumptions were made: a) that the states with overages at the time of the analysis will harvest no additional summer flounder, and that the industry will fully harvest, and not exceed, the remaining 2001 state allocations; b) that the scup overages that occurred in the Winter 1 and Summer periods will remain and that the industry will fully harvest, and not exceed, the remaining 2001 allocation; and c) that the black sea bass overages in Quarters 1, 2, and 3 will remain, and that the industry will fully harvest, and not exceed, the remaining 2001 allocation.

The fourth step was to divide the estimated 2002 revenues from all species by the 2000 base revenues for every vessel in each of the classes. For step five, if the dividend from step 3 was less than or equal to 0.95 then the vessel was defined as being impacted (i.e. had an expected loss of gross revenues of 5 percent or more). For each quota alternative a summary table was constructed that report the results of the threshold analysis by class when necessary. These results were further summarized by home state as defined by permit application data when appropriate.

The threshold analysis just described is intended to identify impacted vessels and to characterize the potential economic impact on directly affected entities. To further characterize the potential impacts on indirectly impacted entities and the larger communities within which owners of impacted vessels reside, selected county profiles are typically constructed. Each profile are based on impacts under the most restrictive possible alternative. The most restrictive alternative is chosen to identify impacted counties because it would identify the maximum number possible and thus include the broadest possible range of counties in the analysis. Counties included in the profile typically meet the following criteria: the number of impacted vessels (vessels with revenue loss exceeding 5 percent) per county was either greater than 4, or all impacted vessels in a given state were from the same home county.

In this specifications package, Alternative 2 is the most restrictive alternative. However, as indicated in the threshold analysis conducted in section 5.0 below, there were no counties that were identified as having enough impacted vessels to meet the criteria specified. This is due to the fact that there were no vessels impacted with revenue loss exceeding 5 percent. Since the county analysis was based on impacts under quota Alternative 2, the analyses represent the most profound impacts possible for those counties. Consequently, the other quota alternatives would result in even fewer impacted vessels.

In addition to the threshold analysis described above, the Council also analyzed changes in total gross revenue that would occur as a result of the three quota alternatives. These analyses are presented after the threshold analysis for each alternative.

A description of important ports and communities to the summer flounder, scup, and black sea bass fisheries is presented in Appendix 1 of this document.

It should be noted that county profiles are intended to characterize the relative importance of commercial fishing and fishing related industries in the home counties. As such, the county profiles provide a link to the Social Impact Analysis (section 6.7, of the EA) but are not intended to be a substitute for that analysis. The target counties are identified based on the county associated with the vessel's homeport as listed in the owner's permit application.

Counties are typically selected as the unit of observation because a variety of secondary economic and demographic statistical data were available from several different sources. Limited data are available for place names (i.e. by town or city name) but in most instances reporting is too aggregated or is not reported due to confidentiality requirements. Reported statistics include summaries of landings, Federal permits, demographic statistics, and employment, wages, and number of establishments for each county.

Table 14. Numbers of vessels landing scup, black sea bass and/or summer flounder in 2000.

| Landings Class | Landings Combinations | Commercial Vessels (#) |
|---|---------------------------|------------------------|
| 1 | Scup Only | 29 |
| 2 | Black Sea Bass Only | 169 |
| 3 | Fluke Only | 267 |
| 4 | Scup/Black Sea Bass | 45 |
| 5 | Scup/Fluke | 19 |
| 6 | Black Sea Bass/Fluke | 177 |
| 7 | Scup/Black Sea Bass/Fluke | 332 |
| | Total | 1038 |
| Data from Northeast Region dealer data. | | |

4.0 DESCRIPTION OF QUOTA ALTERNATIVES

All quota alternatives considered in this RFA are based on three harvest levels for each of the species (a high, medium, and low level of harvest). These recommendations, and their impacts relative to the 2000 landings, are shown in Table 15. Table 16 shows the proposed quota specifications as a proportion of the 2001 quotas. Estimated overages for 2001 were used to adjust the final 2002 quotas which reflect expected fishing opportunities. Table 12 shows the

percentage change of the 2002 adjusted allowable commercial landings relative to the quotas specified for 2001. The analysis for comparison in this RFA was conducted employing adjusted final 2002 quotas and these were compared against the adjusted quotas for 2001.

Table 15. 2002 quota recommendations for each alternative versus the 2000 landings.

| | 2002 Commercial Quota Recommendations | 2000 Weighout Landings | 2002 Quota as a Percent of 2000 Landings |
|--|---------------------------------------|------------------------|--|
| Summer Flounder | | | |
| Preferred Alternative | 14,578,288 | 11,217,104 | 29.96 |
| Status Quo Alternative - Least Restrictive | 10,747,535 | 11,217,104 | -4.19 |
| Alternative 3 Most Restrictive | 20,878,658 | 11,217,104 | 86.13 |
| Scup | | | |
| Preferred Alternative | 8,000,000 | 2,659,052 | 200.86 |
| Status Quo Alternative - Least Restrictive | 4,444,600 | 2,659,052 | 67.15 |
| Alternative 3 Most Restrictive | 9,530,000 | 2,659,052 | 258.40 |
| Black Sea Bass | | | |
| Preferred Alternative | 3,332,000 | 2,657,566 | 25.38 |
| Status Quo Alternative - Least Restrictive | 3,024,770 | 2,657,566 | 13.82 |
| Alternative 3 Most Restrictive | 3,970,960 | 2,657,566 | 49.42 |

Table 16. Comparison of the alternatives of quota combinations reviewed. "FLK" is summer flounder.

| | Commercial Quota | Quota Specification as a Proportion of the 2001 Quotas (not adjusted) | Percent Change |
|---|------------------|---|----------------|
| Quota Alternative 1 (Preferred Alternative) | | | |
| FLK Preferred Alternative | 14,578,288 | 1.356 | 34.64 |
| Scup Preferred Alternative | 8,000,000 | 1.799 | 79.99 |
| Black Sea Bass Preferred Alternative | 3,332,000 | 1.101 | 10.15 |
| Quota Alternative 2 (Status Quo, Most Restrictive) | | | |
| FLK Status Quo | 10,747,535 | 1 | 0 |
| Scup Status Quo | 4,444,600 | 1 | 0 |
| Black Sea Bass Status Quo | 3,024,770 | 1 | 0 |

Quota Alternative 3 (Least Restrictive)

| | | | |
|---|------------|-------|--------|
| FLK Non-Selected Alternative 3 | 20,878,658 | 1.942 | 94.26 |
| Scup Non-Selected Alternative 3 | 9,530,000 | 2.144 | 114.41 |
| Black Sea Bass Non- Selected Alternative 3 | 3,970,960 | 1.312 | 31.28 |

4.1 QUOTA ALTERNATIVE 1 (Preferred Alternative)

Alternative 1 analyzes the cumulative impacts of the harvest limits recommended by the Council and Board for summer flounder, scup, and black sea bass on vessels that are permitted to catch any of these three species. Harvest limits were recommended to best achieve the target fishing mortality or exploitation rates specified in each fisheries respective rebuilding schedule.

Specifically, this alternative examines the impacts on industry that would result from a TAL of 24,297,146 lbs for summer flounder (14,578,288 lbs commercial; 9,718,858 lbs recreational); a total allowable catch of 12,920,000 lbs for scup (which results in a TAL of 8,000,000 lbs commercial; 2,770,000 lbs recreational), and a TAL of 6,800,000 lbs for black sea bass (3,332,000 lbs commercial; 3,468,000 lbs recreational). Notice that the commercial allowable landings presented here and in the next 3 alternatives will be adjusted to account for overages in 2001.

In addition to the proposed TALs for summer flounder, scup, and black sea bass, the Council and Commission have approved changes to the minimum mesh, minimum fish size, and possession limits for one or more of these species. A detailed description of the minimum mesh, minimum fish size, possession limits, and research set aside measures was presented in section 3.0 of the EA. A brief discussion and impact of these measures is presented in section 5.0 below.

4.2 QUOTA ALTERNATIVE 2 (Status Quo, Most Restrictive)

Alternative 2 analyzes the cumulative impacts of the most restrictive possible harvest levels - those that would result in the greatest reductions in landings (relative to 2001) for summer flounder, scup, and black sea bass. Alternative 2 evaluates the most restrictive overall harvest levels. This alternative includes non-selected alternatives for all three species. Alternative 2 includes the same harvest limits that were implemented in 2001 for all three species. This alternative would set the 2002 summer flounder TAL at 17,912,559 lbs (10,747,535 lbs commercial; 7,165,024 lbs recreational), a TAL of 6,216,000 lbs for scup (4,444,600 lbs commercial; 1,771,400 lbs recreational), and a TAL of 6,173,000 lbs for black sea bass (3,024,000 lbs commercial; 3,148,230 lbs recreational).

4.3 QUOTA ALTERNATIVE 3 (Least Restrictive)

Alternative 3 analyzes the cumulative impacts of the least restrictive possible harvest levels - those that would result in the least reductions (or

greatest increases) in landings (relative to 2001) for all species. These limits resulted in the highest possible landings for 2002, regardless of their probability of achieving the biological targets. Thus, this alternative includes non-selected alternatives for all three species. Specifically, this alternative considers a TAL of 34,797,763 lbs for summer flounder (20,878,658 lbs commercial; 13,919,105 lbs recreational), a 9,534,200 lbs commercial quota for scup (3,210,000 lbs recreational), and a 8,104,000 lbs TAL for black sea bass (3,970,960 lbs commercial; 4,133,040 lbs recreational) in 2002.

5.0 ANALYSES OF IMPACTS OF ALTERNATIVES

For the purpose of analysis of the following alternatives, several assumptions must be made. First, average revenue changes noted in this analysis are made using 2000 dealer data and participation. In addition to this, 2000 permit files were used to describe permit holders in these fisheries. It is important to mention that revenue changes for 2002 are dependent upon landings in 2001. This dependence occurs because the commercial quotas for all three species require that overages in the quota from the prior year be deducted from the allocation in the current year. Hence, overages in 2001 will decrease the 2002 allocations. As such, for the purpose of analyzing the 2002 revenue changes, the assumptions made in section 3.1 of the RIR/IRFA regarding 2001 landings apply.

For the analyses themselves, reductions are estimated by examining the total revenue earned by an individual vessel in 2000, and comparing it to its potential revenue in 2002, given the 2002 harvest levels. Generally, the percent of revenue reduction for impacted vessels vary considerably based on permits it held (i.e., based on the fisheries in which it was able to participate) and species it landed. Diversity in the fleet, perhaps, helps to balance loss in one fishery with revenue generated from other fisheries. Lastly, it is important to keep in mind that while the analyses are based on landings for Federally permitted vessels only, those vessels may be permitted to, and frequently do, fish in state waters for a species of fish for which it does not hold a Federal permit.

5.1 QUOTA ALTERNATIVE 1 (Preferred Alternative)

This alternative examines the impacts on industry that would result from total harvest limits for summer flounder, scup and black sea bass. To analyze the economic effects of this alternative, the total harvest limits specified in section 4.0 of the RIR/IRFA were employed.

The summer flounder specifications would result in an aggregate 44.3 percent increase in allowable commercial landings relative to the 2001 quota and a 38.6 percent reduction in recreational harvest relative to 2000 landings (Tables 12 and 17). The scup specifications would result in an aggregate 115.6 percent increase in allowable commercial landings and a 46.5 percent decrease in recreational harvest relative to 2000 landings (Tables 12 and 18). The black sea bass specifications would result in an aggregate 19.1 percent increase in allowable commercial landings and a 4.1 percent decrease in the recreational harvest relative to 2000 landings (Tables 12 and 19).

5.1.1 COMMERCIAL IMPACTS

5.1.1.1 Threshold Analysis for Participating Vessels

The result of the threshold analysis of the Preferred Alternative indicates that across all vessel classes, revenues were projected to increase for 1038 vessels (relative to 2001). There were no vessels projected to incur revenue losses relative to 2001. Even though the overall summer flounder quota for 2002 (adjusted) is projected to be over 44 percent higher relative to the quota specified in 2001 for that species, one state, Maine, is projected to decrease its summer flounder quota for 2002 by 100 percent relative to the quota specified for that state in 2001. That is, from 2,146 lbs in 2001 to 0 lbs in 2002. Nevertheless, the threshold analysis indicated that there are no vessels likely to be affected by this projected decrease in summer flounder landings in Maine in 2002. This is probably due to the possibility that vessels landing small quantities of summer flounder in Maine also landed larger quantities of summer flounder in other states, thus benefitting from the increase in quota in those other states in 2002 versus 2001. In addition, it is possible that these vessels also landed black sea bass along with summer flounder, thus benefitting from the increase in black sea bass quota in 2002 and therefore not showing a reduction in ex-vessel revenue. The vessel distribution by landing combination and home port state for these vessels is similar to that presented under the total column, 3rd column from the left in Table 26, and the 2nd second column from the left in Table 27, respectively.

In addition to the threshold analysis described above, the Council also analyzed changes in total gross revenue that would occur as a result of the quota alternatives. Assuming 2000 ex-vessel prices (summer flounder - \$1.65/lb; scup - \$1.25/lb; and bsb \$1.79/lb) and the effect of potential changes in prices due to changes in landings in 2002 versus 2001, the 2002 quotas in Preferred Alternative 1 (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately \$5.4 million, \$6.2 million, and \$0.9 million, relative to 2000 revenues, respectively, for a total revenue increase of \$12.5 million.

Assuming the increase in summer flounder total gross revenues associated with the Preferred Alternative is distributed equally between the 795 vessels that landed summer flounder in 2000, the average increase in revenue associated with the increase in summer flounder quota is \$6,792/vessel.

Assuming the increase in scup total gross revenues associated with the Preferred Alternative is distributed equally between the 425 vessels that landed scup in 2000, the average increase in revenue associated with the increase in the scup quota is \$14,588/vessel.

Finally, if the increase in black sea bass total gross revenues associated with the Preferred Alternative is distributed equally between the 723 vessels that landed black sea bass in 2000, the average increase in revenue associated with the increase in black sea bass quota is \$1,245/vessel.

5.1.2 RECREATIONAL IMPACTS

Landing statistics from the last several years show that recreational summer

flounder landings have generally exceeded the recreational harvest limits, ranging from 5 percent in 1993 to 113 percent in 2000. In 1994 and 1995, summer flounder landings were below the recreational harvest limit by about 20 percent for both years combined (Table 17). In 2000, the recreational landings were 15.82 million lb. Under this alternative, the summer flounder 2002 recreational harvest limit would be 9.72 million lb. Thus, the harvest limit in 2002 would be a decrease of about 38 percent from 2000 recreational landings, and a decrease of 36 percent from the 2001 recreational harvest limit.

Table 17. Number of summer flounder recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2002.

| Year | Number of Fishing Trips ^a | Recreational Harvest Limit (million lb) | Recreational Landings of Summer Flounder (million lb) ^b |
|------|--------------------------------------|---|--|
| 1991 | 4,645,993 | None | 7.96 |
| 1992 | 3,751,815 | None | 7.15 |
| 1993 | 4,829,252 | 8.38 | 8.83 |
| 1994 | 5,761,918 | 10.67 | 9.33 |
| 1995 | 4,742,194 | 7.76 | 5.42 |
| 1996 | 5,086,347 | 7.41 | 9.82 |
| 1997 | 5,620,055 | 7.41 | 11.87 |
| 1998 | 5,296,982 | 7.41 | 12.48 |
| 1999 | 4,230,627 | 7.41 | 8.37 |
| 2000 | 5,554,515 ^c | 7.41 | 15.82 |
| 2001 | N/A | 7.16 | N/A |
| 2002 | - | 9.72 | - |

^a Number of fishing trips as reported by anglers in the intercept survey indicating that the primary species group sought was summer flounder, North Atlantic, Mid-Atlantic, and South Atlantic regions combined. Estimates are not expanded. Source: MRFSS.

^b From Maine to North Carolina. Source: MRFSS.

^cNorth Atlantic and Mid-Atlantic regions combined.

N/A = Data not available.

Scup recreational landings have declined over 89 percent for the period 1991 to 1998, then increased by 448 percent from 1998 to 2000 (Table 18). The number of fishing trips has also declined over 86 percent from 1991 to 1998, and then increased by 316 percent from 1998 to 2000. The decrease in the recreational fishery in 1990 occurred both with and without any recreational harvest limits, and it is perhaps a result of the stock being over-exploited and at a low biomass level. In addition, it is possible that party/charter boats may be targeting other species that are relatively more abundant than

scup (e.g., striped bass), thus accounting for the decrease in the number of fishing trips in this fishery. In 2000, recreational landings were 5.18 million lb. Under this alternative, the scup recreational harvest limit for 2002 would be 2.77 million lb. This represents a 46 percent decrease over the 2000 recreational landings. The proposed recreational harvest limit for 2002 is about 56 percent higher than the recreational harvest limit implemented in 2001.

Table 18. Number of scup recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2002.

| Year | Number of Fishing Trips ^a | Recreational Harvest Limit (million lb) | Recreational Landings of Scup (million lb) ^b |
|------|--------------------------------------|---|---|
| 1991 | 763,284 | None | 8.09 |
| 1992 | 495,201 | None | 4.41 |
| 1993 | 252,017 | None | 3.20 |
| 1994 | 221,074 | None | 2.63 |
| 1995 | 153,008 | None | 1.34 |
| 1996 | 145,814 | None | 2.16 |
| 1997 | 118,266 | 1.95 | 1.20 |
| 1998 | 105,283 | 1.55 | 0.88 |
| 1999 | 133,703 | 1.24 | 1.89 |
| 2000 | 438,040 | 1.24 | 5.18 |
| 2001 | N/A | 1.77 | N/A |
| 2002 | - | 2.77 | - |

^a Number of fishing trips as reported by anglers in the intercept survey indicating that the primary species group sought was scup, North Atlantic, Mid-Atlantic, and South Atlantic regions combined. Estimates are not expanded. Source: MRFSS.

^b From Maine to North Carolina. Source: MRFSS.

N/A = Data not available.

Black sea bass recreational fishing trips have shown a slight upward trend from the early to Mid-1990's (Table 19). Black sea bass recreational landings have also shown a slight upward trend from 1991 to 1997. However, landings decreased considerably from 1995-1996 to 1999, but then substantially increased in 2000. In 2000, recreational landings were 3.62 million lb. Under this alternative, the black sea bass recreational harvest limit for 2002 would be 3.47 million lb. This represents a 4 percent decrease over the 2000 recreational landings. The proposed 2002 recreational harvest limit is about 10 percent higher than the recreational harvest limit implemented in 2001.

Table 19. Number of black sea bass recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2001.

| Year | Number of Fishing Trips ^a | Recreational Harvest Limit (million lb) | Recreational Landings of BSB (million lb) ^b |
|------|--------------------------------------|---|--|
| 1991 | N/A | None | 4.19 |
| 1992 | 218,700 | None | 2.71 |
| 1993 | 296,370 | None | 4.84 |
| 1994 | 265,402 | None | 2.95 |
| 1995 | 315,165 | None | 6.21 |
| 1996 | 282,972 | None | 4.00 |
| 1997 | 313,052 | None | 4.27 |
| 1998 | N/A | 3.15 | 1.15 |
| 1999 | N/A | 3.15 | 1.70 |
| 2000 | 219,860 | 3.15 | 3.62 |
| 2001 | N/A | 3.15 | N/A |
| 2002 | - | 3.47 | - |

^a Number of fishing trips as reported by anglers in the intercept survey indicating that the primary species group sought was black sea bass, North Atlantic, Mid-Atlantic, and South Atlantic regions combined. Estimates are not expanded. Source: MRFSS.

^b From Maine to Cape Hatteras, North Carolina. Source: MRFSS.

N/A = Data not available.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. For example, in the summer flounder fishery, there is no mechanism to deduct overages directly from the recreational harvest limit. Any overages must be addressed by way of adjustments to the management measures. While it is likely that proposed management measures may restrict the recreational fishery for 2002, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season), there is no indication that any of these measures would lead to a decline in the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable. It is unlikely measures will result in any substantive decreases in the demand for party/charter boat trips. It is most likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder, scup, or black sea bass that they are allowed to catch.

The effects of the proposed recreational harvest limits in the Preferred Alternative for summer flounder, scup and black sea bass will be further analyzed when additional information regarding 2001 recreational landings are available, and the Council submits its recommendation for 2002 recreational measures. These recommendations are expected in early 2002.

Effects of Commercial Trip Limits, Minimum Mesh, and Minimum Fish Size

Scup Measures

The Council and Commission recommended no change to commercial scup landing/possession limits for the two winter periods in 2002. For the first winter period (Jan-Apr), they recommended a landing limit of 10,000 pounds. For the second winter period (Nov-Dec), a 2,000 pounds landing limit was adopted (Table 20). The recommended landing/possession limits for both winter periods are the same as the landing/possession limits implemented in year 2001, with the exception that in 2002 the landing limit will drop to 1,000 pounds when 80 percent of the landings are reached in Winter I, instead of the 75 percent used in 2001. The 80 percent landing trigger in 2002 is expected to decrease landings from 10,000 pounds to 1,000 pounds early enough to allow for the equitable distribution of the quota over the Winter I period. It is not expected that the change in the landing trigger during the Winter I period will affect landings in some negative manner during this period. In addition, due to an ASMFC emergency rule action, the originally implemented landing/possession limit for 2001 Winter II period of 2,000 will be reduced to 500 pounds, when 70 percent of the quota is projected to be taken.

Table 20. Summary of possession limits in the scup and black sea bass fisheries, 1999-2001.

| Species | Quota Period | 1999 | 2000 | 2001 | 2002 |
|----------------|-----------------------|-----------------------|--------------------------|-----------------------|-----------------------|
| Scup | Winter I ^a | 12,000 (85%) 1,000 | 10,000 (85%) 1,000 | 10,000 (75%) 1,000 | 10,000 (80%) 1,000 |
| | Summer | N/A | N/A | N/A | N/A |
| | Winter II | 4,000 | 4,000/500 ^b | 2,000 ^d | 2,000 |
| Black Sea Bass | Quarter 1 | 11,000 | 9,000 | 9,000 | 7,000 |
| | Quarter 2 | 7,000 | 3,000 | 1,500 | 2,000 |
| | Quarter 3 | 3,000 | 2,000 | 1,000 | 2,000 |
| | Quarter 4 | 4,000 | 3,000/2,000 ^c | 2,000 ^e | 2,000 |

^aAn example of how to read this row is: The recommended landing limit for the first 2001 winter period (Jan-Apr) is 10,000 pounds. When 75percent of the landings are reached, the landing limit will drop to 1,000 pounds.

^bThe landing limit was reduced from 4,000 pounds to 500 pounds by an ASMFC emergency rule action.

^cThe trip limit was reduced from 3,000 pounds to 2,000 pounds by an ASMFC emergency rule action.

N/A= Not Applicable.

^dDue to an ASMFC emergency rule action, the originally implemented landing/possession limit for 2001 Winter II period of 2,000 will be reduced to 500 pounds, when 70 percent of the quota is projected to be taken.

*Due to an ASMFC emergency rule action, the originally implemented possession limit for 2001 Quarter 4 period was reduced from 2,000 pounds to 300 pounds. However, states will have the option of developing a management program that allows fishermen to land up 2,000 pounds per week.

Amendment 8 to the Summer Flounder and Scup FMP contains provisions that allow for changes in the scup minimum fish size and minimum net mesh provisions each year. Current regulations require a 9" TL minimum fish size in the commercial fishery and a 4.5" minimum mesh in the codend of the net for vessels possessing more than 500 pounds of scup from November through April and 100 pounds from May through October. The minimum fish size went into effect on September 23, 1996 with a minimum mesh size of 4.0". The minimum mesh size increased to 4.5" on April 14, 1997. The minimum fish size, mesh requirements, and threshold may be changed annually based on the recommendations of the Monitoring Committee. The same mesh threshold implemented in 2001 will continue in 2002 (Table 21). The Council and Commission adopted a measure that allows vessels fishing with small mesh and having an escapement extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend be allowed to fish in the GRAs. For the directed scup fishery, the minimum mesh size for nets would be modified such that for large nets, no more than 25 meshes of 4.5" mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh; and for small nets, 4.5" mesh or larger throughout.

Table 21. Summary of mesh threshold in the scup fishery, 1999-2001 and proposed for 2002.

| Period | | 1999 | 2000 | 2001 | 2002 |
|---------|------------------------------|------|------|------|------------------|
| Nov-Apr | Min. mesh size (in, diamond) | 4.5 | 4.5 | 4.5 | 4.5 ^a |
| | Mesh threshold | 200 | 200 | 500 | 500 |
| May-Oct | Min. mesh size (in, diamond) | 4.5 | 4.5 | 4.5 | 4.5 ^a |
| | Mesh threshold | 100 | 100 | 100 | 100 |

^aFor the directed scup fishery minimum mesh size for nets would be modified such that for large nets, no more than 25 meshes of 4.5" mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh and for small nets, 4.5" mesh or larger throughout.

As stated before, the proposed scup quota for 2002 increases scup landings relative to the quotas specified for 2001. Additionally, measures are proposed to reduce scup discards.

Black Sea Bass Measures

The current black sea bass regulations specify that trip limits be implemented for each quarter, and that the trip limit not change over the period. Trip limits are to remain in effect until the fishery is closed by NMFS based on projections that the quarterly quota would be taken. The trip limits for 2001 were 9,000; 1,500; 1,000; and 2,000 pounds for quarters 1 through 4, respectively. However, due to an ASMFC emergency rule action, the originally implemented trip limit for 2001 Quarter 4 period was reduced from 2,000 pounds

to 300 pounds. However, in 2002, states will have the option of developing a management program that allows fishermen to land up to 2,000 pounds per week.

In 2001, like 1999, the commercial fishery closed prematurely in the first, second, and third quarters. Because of those closures, and a likely increase in stock size and effort, possession limits for each of the quarters were modified to allow for landings over the entire period. The Council and Commission recommended that the trip limits be modified for 2002 to 7,000; 2,000; 2,000; and 2,000 for each quarter (Table 20). Additionally the Council and Commission recommended to change the minimum mesh size and the threshold to trigger the minimum mesh size. In 2001, minimum mesh size was 4" mesh with a threshold of 1,000 pounds to trigger the minimum mesh size. For 2002, the Council and Commission are recommending a minimum mesh increase to 4.5" mesh and a threshold of 500 pounds from January through March and 100 pounds from April through December to trigger the minimum mesh size (Table 22).

The current minimum mesh regulations require a 4.0" minimum mesh in the codend of the net for vessels possessing more than 1,000 lbs of black sea bass. The Council and Commission recommended that the net provisions be modified such that fishermen could use nets with at least 75 meshes of 4.5" diamond mesh in the codend or use a net with at least 4.5" diamond mesh throughout, for 2002.

The Council and Commission are recommending an increase of minimum fish size in the commercial fishery, from 10" TL to 11" TL. In addition, the Council and Commission recommended that vent sizes be increased in 2002 to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The proposed vent sizes represent significant increases from the current sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" in diameter for circular vents, and 1 1/2" for square vents.

Table 22. Summary of mesh size and threshold in the black sea bass fishery, 1999-2001, and proposed for 2002.

| Period | | 1999 | 2000 | 2001 | 2002 |
|-----------|------------------------------|-------|-------|-------|------|
| Jan - Mar | Min. mesh size (in, diamond) | 4.0 | 4.0 | 4.0 | 4.5 |
| | Mesh threshold | 1,000 | 1,000 | 1,000 | 500 |
| Apr - Dec | Min. mesh size (in, diamond) | 4.0 | 4.0 | 4.0 | 4.5 |
| | Mesh threshold | 1,000 | 1,000 | 1,000 | 100 |

Analysis of Impacts

In order to analyze the impacts of the proposed possession limits a threshold analysis was conducted. This analysis compares potential changes associated with the proposed 2002 possession limits to the base year. Since 2000 is the last full year from which data are available (partial year data could miss seasonal fisheries), it was chosen as the base year for this analysis. Partial data for 2001 were not used in this analysis because the data are not complete. As such, 2000 data were used as a proxy for 2001. The difficulty in using 2000 data arises from the fact that scup landings in Winter II and

black sea bass landings in quarters 2 and 3 of that year were constrained by trip limits that were higher than those implemented in 2001 and/or proposed for 2002 (Table 20). As such, the results from this analysis would represent the upper bound or worse case impacts. Impacts of the proposed limits are evaluated by projecting potential changes in the number of trips made by the affected vessels and changes in revenues. In order to assess the potential change in the number of trips made by the affected entities, it is assumed that vessels constrained by limits in 2002 versus the base year will continue to make trips to allow them to land the same quantity of fish that was landed during the base year. In order to assess the potential change in revenues for the affected entities, it is assumed that vessels constrained by limits in 2002 versus the base year will not make additional trips to land the same quantity of fish that was landed during the base year, that is, the landing/trip limit is a strict limiting factor.

Scup

As indicated above, the recommended trip limits, minimum mesh size, and mesh threshold remain unchanged from 2001 to 2002. As such, these measures are not expected to have a negative impact on the scup fishery, and will not constrain fishermen in 2002 relative to 2001.

The recommended minimum fish size and minimum mesh provisions for 2002 is the same as those implemented in 2001, with the exception that the Council has recommended that an experimental net configuration be allowed to fish in the GRAs; and that for large nets no more than 25 inches of 4.5" mesh be in the codend with at least 100 meshes of 5.0" inch mesh forward of the 4.5" mesh, and that for small nets 4.5" mesh throughout. Based on retention lengths derived from length and body depth measurements, a 4.5" mesh has an associated L_{50} of 9.1" TL. This means that 50 percent of the 9.1" TL scup that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0", and 5.0" have associated L_{50s} of 4.8" TL, 6.5" TL, 8.3" TL, and 10.1" TL, respectively. The 5.0" mesh forward of the 4.5" mesh is expected to allow for additional escapement of undersized scup. The change in mesh regulations is not expected to have a negative impact on fishermen operations as the fish expected to escape would be discarded because of the size.

Other Impacts

The current minimum mesh regulations require a 4.5" minimum mesh in the codend of the net for vessels possessing more than 500 lbs of scup from November through April and 100 pounds from May through October. The Council recommended that the net provisions be modified such that fishermen could use nets with no more than 25 meshes of 4.5 mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh or use a net with at least 4.5" mesh throughout, for 2002. Based on retention lengths derived from length and body depth measurements, a 4.5" mesh has an associated L_{50} of 9.1" TL, while 5.0" mesh has an L_{50} of 10.1". This means that 50 percent of the 9.1" TL scup that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have associated L_{50s} of 4.8" TL and 6.5" TL and 8.3" TL, respectively. The 5.0" mesh forward of the 4.5" mesh is expected to allow for additional escapement of undersized scup. This will provide for future increases in exploitable scup biomass. This recommendation is not expected to

reduce landings of scup.

The affect of the GRAs on small net fisheries is fully described in the 2001 Specification Document. These measures are not expected to reduce landings of scup in non-directed fisheries. As a matter of fact, the Council and Commission are recommending that small mesh nets that have an escapement panel extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend be allowed to fish in the GRAs. As such, landings of scup in the non-directed fishery may increase in 2002 relative to 2000. It is not possible to assess the monetary value associated with the additional scup harvested as a result of the proposed experimental net exemption, because quantitative data on these nets are limited. The modifications are inexpensive and can be incorporated into existing nets with minimal labor. The modifications are based on a project funded by the Mid-Atlantic Council and conducted by the Manomet Center for Conservation Sciences to develop selective trawls for small-mesh fisheries.

Results of the research indicate that a 5.5" square mesh extension placed in the net 50 meshes ahead of the codend significantly reduced (66 percent reduction) the bycatch and discard of small scup without a reduction in the capture of squid.

The compliance costs associated with gear conversion would vary for inshore and offshore vessels and the degree of modifications required. More specifically these costs would vary according to the various features that can be incorporated into the gear and the horsepower (hp) or size of the fishing vessel. For vessels operating in the inshore fishery (assume 250 hp) cost could approximately be \$775 and for vessels operating in the offshore fishery (assume 670 hp) cost could approximately be \$1,354. These costs are considered direct costs associated with the required gear conversion. Any gear replacement costs for those vessels that participate in the fisheries and need to comply with the mesh size criteria described in this section would be incurred in year one (2002) of the implementation of this management action. These modifications are expected to allow for additional escapement of undersized scup and provide for future increases in exploitable scup biomass.

The current regulations require a 9" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, the existing minimum fish sizes act to increase the size of scup at full recruitment to the fishery, thereby resulting in increased yields as fishermen catch larger, heavier fish. These minimum size regulations also can increase spawning stock biomass by allowing more fish to spawn.

The smaller minimum mesh size and the absence of GRAs would allow for the capture and retention of fish less than the current minimum size of 9" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 9" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant.

The bulk of the scup landed in 2000 corresponded to the medium and large size categories, with only a small quantity (<1,000 lb) of pins landed (Table 23). Pins are typically <9" in size, and in 2000 commanded a price of \$0.45/lb. Price differentials are substantial between pins and small/medium/large scup. Given these price differentials and market demand (i.e., recent quantities of pins landed), it is not anticipated that substantial quantities of scup of less than 9" TL will enter the market as a consequence of this measure.

Table 23. Landings, ex-vessel value, and price of scup by size category for 2000, ME to Cape Hatteras (NC), all gear combined.

| Size Category | Landings (1,000 lbs) | Value (\$1,000) | Price (\$/lb) |
|---------------|----------------------|-----------------|---------------|
| Pins | <1 | <1 | 0.45 |
| Small | 37 | 40 | 1.07 |
| Medium | 768 | 845 | 1.10 |
| Large | 1,025 | 1,386 | 1.35 |
| Large/Mix | 312 | 335 | 10.7 |
| Jumbo | 90 | 142 | 1.58 |
| Unclassified | 425 | 585 | 1.37 |

Black Sea Bass

The proposed possession limits for black sea bass were chosen to balance the need to provide for economically viable fishing trips with the need to ensure an equitable distribution of the quota over the entire period. As indicated above, the proposed possession limit for Quarter 1 in the black sea bass fishery is the only proposed possession limit in 2002 that will constrain commercial fishermen landings when compared to 2001. The proposed possession limits for Quarters 2 and 3 are higher than the possession limit for 2001, and the proposed Quarter 4 possession limit is identical to the possession limit implemented in year 2001. As such, these trip limits are not expected to have a negative impact on fishermen operations in 2002 compared to 2001. The proposed black sea bass trip limit of 7,000 pounds in Quarter 1 is not expected to significantly impact vessels, trips or landings based on 2000 landings. Only one vessel is reported to have landed 7,000 pounds in one trip (Table 24).

Table 24. The total number of vessels, trips, and associated pounds for a given threshold (pounds) of black sea bass, Quarter 1 (January through March) period, 2000.

| Threshold | Vessels | % | Trips | % | Pounds | % |
|-----------|---------|--------|-------|--------|---------|--------|
| >=1 | 307 | 100.00 | 4,103 | 100.00 | 808,468 | 100.00 |
| >=100 | 158 | 51.47 | 970 | 23.64 | 737,255 | 91.19 |
| >=200 | 114 | 37.13 | 653 | 15.92 | 693,813 | 85.82 |

| | | | | | | |
|--------|----|-------|-----|-------|---------|-------|
| >=300 | 88 | 28.66 | 527 | 12.84 | 663,234 | 82.04 |
| >=400 | 73 | 23.78 | 446 | 10.87 | 635,168 | 78.56 |
| >=500 | 62 | 20.20 | 380 | 9.26 | 606,288 | 74.99 |
| >=1000 | 45 | 14.66 | 226 | 5.51 | 498,698 | 61.68 |
| >=1500 | 33 | 10.75 | 135 | 3.29 | 388,317 | 48.03 |
| >=2000 | 30 | 9.77 | 98 | 2.39 | 324,693 | 40.16 |
| >=2500 | 24 | 7.82 | 63 | 1.54 | 248,568 | 30.75 |
| >=3000 | 18 | 5.86 | 44 | 1.07 | 197,374 | 24.41 |
| >=3500 | 14 | 4.56 | 36 | 0.88 | 172,601 | 21.35 |
| >=4000 | 12 | 3.91 | 27 | 0.66 | 139,249 | 17.22 |
| >=4500 | 9 | 2.93 | 17 | 0.41 | 96,976 | 12.00 |
| >=5000 | 9 | 2.93 | 15 | 0.37 | 87,973 | 10.88 |
| >=5500 | 6 | 1.95 | 8 | 0.20 | 51,215 | 6.33 |
| >=6000 | 5 | 1.63 | 7 | 0.17 | 45,552 | 5.63 |
| >=6500 | 3 | 0.98 | 3 | 0.07 | 20,800 | 2.57 |
| >=7000 | 1 | 0.33 | 1 | 0.02 | 7,000 | 0.87 |

Source: Preliminary Unpublished NMFS Weighout (dealer) data, ME-NC.

Other Impacts

The Council and Commission are recommending an increase of minimum fish size in the commercial fishery, from 10" TL to 11" TL. The current minimum fish size for black sea bass is 10" TL. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn. Accordingly, the Council and Commission are also recommending changes in minimum mesh size and escape vent size for pots and traps. The proposed gear modifications in the black sea bass fishery (increased minimum trawl mesh size and pot/trap escape vents) will impose some initial compliance costs (discussed below), but they were deemed necessary to complement the increase in minimum commercial fish size, and, also an increase in the black sea bass TAL. In summary, the larger mesh and larger vent sizes (discussed below) allow for additional escapement of sublegal fish (less than the proposed minimum fish size of 11" TL) and thereby, in conjunction with the increase in minimum fish size, provide for future increases in exploitable black sea bass biomass.

The bulk of the black sea bass landed in 2000 corresponded to the medium and large size categories (Table 25). A change in the black sea bass size limit may affect the landings of some small fish, thus, shifting a portion of the black landings from small size category fish to medium size category. Price differentials in 2000 were substantial between small and medium black sea bass

(Table 25). Therefore, if 2000 price patterns continue in 2002, fishermen will benefit from this change.

Table 25. Landings, ex-vessel value , and price of black sea bass by size category for 2000, ME to Cape Hatteras (NC), all gear combined.

| Size Category | Landings (1,000 lbs) | Value (\$1,000) | Price (\$/lb) |
|---------------|----------------------|-----------------|---------------|
| Pins | <1 | <1 | 1.03 |
| Small | 513 | 536 | 1.05 |
| Medium | 643 | 948 | 1.47 |
| Large | 833 | 1,700 | 2.04 |
| Jumbo | 502 | 1,315 | 2.62 |
| Unclassified | 166 | 259 | 1.56 |

The current minimum mesh regulations require a 4.0" minimum mesh in the codend of the net for vessels possessing more than 1,000 lbs of black sea bass. For 2002, the Council and Board recommended that the net provisions be modified such that fishermen could use large nets with at least 75 meshes of 4.5" diamond mesh in the codend, or use small nets with at least 4.5" diamond mesh throughout. In addition, a threshold of 500 pounds from January through March and 100 pounds from April through December to trigger the minimum mesh size was also recommended (Table 22). Based on retention lengths derived from length and body depth measurements, the proposed minimum mesh size of 4.5" has an associated L_{25} of 10.6" TL. This means that 25 percent of the 10.6" TL black sea bass that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have an associated L_{25} of 4.0" TL, 6.6" TL, and 9.3" TL, respectively. A reduction in the threshold to 500 lbs in the first quarter and 100 lbs in the other quarters would discourage the use of small mesh in areas where black sea bass are concentrated and could offer additional protection to the 2000 year class. This change will accommodate small mesh fishermen while at the same time maintaining a reasonable mesh threshold for the black sea bass fishery.

The modifications are inexpensive and can be incorporated into existing nets with minimal labor. The costs associated with gear conversion would vary for inshore and offshore vessels and the degree of modifications required. More specifically these costs would vary according to the various features that can be incorporated into the gear and the horsepower (hp) or size of the fishing vessel. For vessels operating in the inshore fishery (assume 250 hp) cost could approximately be \$775 and for vessels operating in the offshore fishery (assume 670 hp) cost could approximately be \$1,354. These costs are considered direct costs associated with the required gear conversion. Any gear replacement costs for those vessels that participate in the fisheries and need to comply with the mesh size criteria described in this section would be incurred in year one (2002) of the implementation of this management action.

Current vent size regulations, implemented in 1996, were based on a MAFMC study (for the rectangular sizes) and industry comment (for the circle and

square). Based on industry advice, the Council and Commission recommended that vent sizes be increased in 2002 to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The proposed vent sizes represent significant increases from the current sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" in diameter for circular vents, and 1 1/2" for square vents. Analysis conducted for Amendment 9 indicated that rectangular vent sizes that were 1 3/8" wide had an associated L₅₀ of 11.5" TL. As such, these increases in vent sizes should allow for a significant escapement of undersized fish. The cost of replacing escape vents is expected to be minimal. Currently, according to industry comment, some commercial pot and trap black sea bass fishermen are already using this type of vent.

The current minimum fish size for black sea bass is 10" TL. However, for 2002, the Council and Board are recommending an increase to an 11" TL fish. The larger mesh and larger vent sizes will allow for additional escapement of fish less than the proposed minimum fish size of 11" TL. Assuming that undersized fish are not caught and discarded, the increase in minimum size will result in an increase of size at full recruitment. Thus, yields will be increased as fishermen catch larger, heavier fish. These regulations also may increase future spawning stock biomass by allowing more fish to grow and spawn.

Summary of Impacts

The possession limits were chosen as an appropriate balance between the economic concerns of the industry (e.g., landing enough scup or black sea bass to make the trip economically viable) and the need to ensure the equitable distribution of the quota over the period.

Changes in possession limits can impact profitability in various ways. These impacts would vary depending of fishing practices. The possession limit recommended for Quarter 1 of the black sea bass fishery is not expected to negatively impact the black sea bass fishery. The decrease in the Quarter 1 limit may have some positive impacts by providing the market with a regular product supply and a longer season, avoiding market gluts, and the resulting price fluctuations.

The proposed fish size limits and minimum mesh provisions in the black sea bass fishery and the mesh size provisions in the scup fishery are recommended to reduce the catch of undersized fish. These measures are not expected to affect small entities in a negative manner. If fish smaller than the minimum size limit could be landed they would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish. However, overall mortality rates are controlled by the TAL, and changes in mortality because of these proposed regulations should be insignificant. Additionally, a reduction in the catch of undersized fish may lead to an increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. Therefore, the proposed regulations could help to increase spawning stock biomass by allowing more fish to spawn. If 2000 price differentials between smaller and larger fish in the black sea bass fishery continue, commercial fishermen may benefit from the proposed

minimum size in the sea bass fishery and, in fact, experience an increase in revenue. Overall, the changes are expected to provide for future increases in exploitable biomass.

Effects of the Research Set-Aside Quota

Summer Flounder

The Council approved a research set-aside amount equal to 2 percent of the total allowable harvest for summer flounder. Assuming that NMFS approves the preferred TAL, the research set-aside amount would be 486,000 pounds for summer flounder. The proposed summer flounder research projects would exempt researchers from the minimum mesh size, minimum fish size, and allow for landings of summer flounder during a closure.

The social and economic impacts of this research should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. The set-aside could be worth as much as \$801,900 dockside based on a 2000 price of \$1.65 per pound. As such, assuming an equal reduction amongst all active vessels (i.e., 795 vessels that landed summer flounder in 2000), this could mean a reduction of about \$1,000 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 9.718 to 9.524 million lb (a 2 percent decrease) if 2 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for summer flounder. As such, permit holders that would have landed these summer flounder could be disadvantaged.

Minimum mesh and/or minimum fish size

The current minimum mesh regulations require a 5.5" diamond or 6" square mesh in the entire net for vessels possessing more than the threshold amount of summer flounder (100 lbs). Based on mesh selectivity studies, a 5.5" mesh has an associated L50 of 13.5" TL. This means that 50 percent of the 13.5" summer flounder that encountered the net would be retained by this mesh. Mesh sizes of 4.5" and 5.0" have associated L50s of 11.2" TL and 12.3" TL, respectively.

The current regulations require a 14" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The smaller mesh would allow for the capture and retention of fish less than the current minimum size of 14" TL. If these fish were exempt from the

minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 14" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set aside can not exceed the TAL.

Changes in mesh size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of summer flounder during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the status quo.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Scup

Assuming that NMFS approves the preferred TAL alternative for scup, the research set-aside amount would be 323,100 pounds. The proposed scup research projects would exempt researchers from the minimum mesh size, minimum fish size, and commercial possession limits and allow for landings of scup during a closure.

The social and economic impacts of this research should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. The set-aside could be worth as much as \$403,875 dockside based on a 2000 price of \$1.25 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 425 vessels that landed scup in 2000), this could mean a reduction of about \$950 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 2.770 to 2.687 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for scup. As such, permit holders that would have landed these scup could be disadvantaged.

Minimum mesh and/or minimum fish size

The current minimum mesh regulations require a 4.5" minimum mesh in the codend of the net for vessels possessing more than 500 lbs of scup from November through April and 100 pounds from May through October. The Council recommended that the net provisions be changed for 2002. These changes include a modification such that fishermen could use nets with no more than 25 meshes of 4.5 mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh or use a net with at least 4.5" mesh throughout. If approved by NMFS, the Council's recommended change would become effective in 2002.

The proposed research would use smaller mesh to catch and retain small scup. Based on retention lengths derived from length and body depth measurements, a 4.5" mesh has an associated L50 of 9.1" TL. This means that 50 percent of the 9.1" TL scup that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have associated L50s of 4.8" TL and 6.5" TL and 8.3" TL, respectively.

The current regulations require a 9" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The smaller mesh would allow for the capture and retention of fish less than the current minimum size of 9" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 9" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set aside can not exceed the TAL.

Changes in mesh and minimum fish size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of scup during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the status quo.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Possession limits

Research has been proposed that would allow research vessels to land in excess of the possession limits. The proposed regulations would limit fishermen to 10,000 pounds and 2,000 pounds per trip for the first and second winter

periods, respectively. Although the possession limits could be exceeded, the landings would count against the quota and, as such, the biological/ecological impacts would not change relative to the status quo.

Landings in excess of the possession limit would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and could have no impact on essential fish habitat.

Black Sea Bass

Assuming that NMFS approves the preferred TAL alternative for black sea bass, the research set-aside amount would be 204,000 pounds. The proposed black sea bass research projects would exempt researchers from the minimum mesh size, escape vent requirements, minimum fish size, and commercial possession limits and allow for landings of black sea bass during a closure.

The social and economic impacts of this research should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. The set-aside could be worth as much as \$365,160 dockside based on a 2000 price of \$1.79 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 723 vessels that caught black sea bass in 2000), this could mean a reduction of about \$505 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.468 to 3.364 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for black sea bass. As such, permit holders that would have landed these black sea bass could be disadvantaged.

Minimum mesh and escape vent requirements

The current minimum mesh regulations require a 4.0" minimum mesh in the codend of the net for vessels possessing more than 1000 lbs of black sea bass. The Council recommended that the net provisions be changed for 2002. These changes include a modification such that fishermen could use nets with at least 75 meshes of 4.5" diamond mesh in the codend or use a net with at least 4.5" diamond mesh throughout. If approved by NMFS, the Council's recommended change would become effective in 2002.

The proposed research would use smaller mesh to catch and retain small black sea bass. Based on retention lengths derived from length and body depth measurements, the proposed minimum mesh size of 4.5" has an associated L_{25} of 10.6" TL. This means that 25 percent of the 10.6" TL black sea bass that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have an associated L_{25} of 4.0" TL, 6.6" TL, and 9.3" TL, respectively.

The proposed regulations would require an 11" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The regulations that implemented escape vent sizes for black sea bass became effective on December 16, 1996. The vent sizes were based on a MAFMC study (for the rectangular sizes) and industry comment (for the circle and square). Based on industry advice, the Council recommended that the vent sizes be increased in 2002 to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The proposed vent sizes represent significant increases from the current sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" in diameter for circular vents, and 1 1/2" for square vents. Analysis conducted for Amendment 9 indicated that rectangular vent sizes that were 1 3/8" wide had an associated L₅₀ of 11.5" TL. As such, these increases in vent sizes should allow for a significant escapement of undersized fish.

The smaller mesh and smaller vent sizes would allow for the capture and retention of fish less than the proposed minimum size of 11" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 11" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set aside can not exceed the TAL.

Changes in mesh, vent sizes and minimum fish size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of black sea bass during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the status quo.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Possession limits

Research has been proposed that would allow research vessels to land in excess of the possession limits. The proposed regulations would limit fishermen to 7,000 pounds in the first quarter and 2,000 pounds in the second, third, and fourth quarters, respectively. Although the possession limits could be exceeded, the landings would count against the quota and, as such, the

biological/ecological impacts would not change relative to the status quo.

Landings in excess of the possession limit would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

GRAs for scup, black sea bass, and *Loligo* squid

NMFS implemented gear restricted areas (GRAs) for 2001 based on a recommendation of the Council and Commission. These GRAs regulate the use of otter trawls with codend mesh less than 4.5 inches in areas and times that were identified as having high scup discards. Specific areas and times include a Northern Gear Restricted Area from November 1 to December 31 and a Southern Gear Restricted Area from January 1 to March 15. Research has been proposed that would exempt vessels fishing with small mesh from the GRA regulations, i.e., allow them to catch and retain several species of fish including scup, black sea bass, whiting and *Loligo* squid from these areas when the GRAs are in effect.

Analysis conducted to support the GRAs indicates that these areas and times were associated with high levels of scup discards. As such, fishing with small mesh in these areas could mitigate the effects of the GRAs thereby increasing the discards of scup relative to the status quo. However, given the level of the research set-aside, the effects on scup discards and mortality should be minimal. Furthermore, the research is anticipated to examine methods to reduce scup discards. If the research is successful at reducing discards, there will be significant benefits to the scup fishery in the long term. Finally, because landings of non-exempt species (*Loligo* squid, whiting and black sea bass) would count against the overall quotas established for these species, the overall mortality level for those species would not change relative to the status quo.

The social and economic impacts of this research in the GRAs should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. The set-aside could be worth as much as \$404 thousand, \$365 thousand, and \$750 thousand dockside for scup, black sea bass and *Loligo* squid based on 2000 prices per pound, respectively. As such, assuming an equal reduction amongst all active vessels (i.e., 425, 723, and 495 vessels that caught scup, black sea bass, and *Loligo* in 2000, respectively), this could mean a reduction of \$950, \$505, and \$1,515 per individual vessel, for scup, black sea bass, and *Loligo*, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be higher. In addition, it is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for these species. As such, permit holders that would have landed these species could be disadvantaged.

5.1.3 SUMMARY OF IMPACTS

In sum, the proposed 2002 commercial quotas (adjusted) in Preferred Alternative 1 for summer flounder, scup, and black sea bass for the year 2002 are 44.3, 115.6, and 19.1 percent higher, respectively, compared to the quotas

for year 2001. In 2002, the recreational harvest limits in Preferred Alternative 1 for summer flounder, scup, and black sea bass for the year 2002 are 36, 57, and 10 percent higher, respectively, compared to the recreational harvest limits for year 2001. The commercial quotas and recreational harvest limits selected as the Preferred Alternative were chosen because they provide for the maximum level of commercial and recreational landings, yet still achieve the fishing mortality and exploitation rates specified in the FMP

The threshold analysis indicates that all 1038 commercial vessels are projected to incur revenue gains under Preferred Alternative 1. This is due to the fact that the quotas under this alternative are substantially higher than those established in 2001. The substantial increase in these quotas overcompensates for the reductions in landings due to overages in 2001. Assuming 2000 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2002 versus 2001, the 2002 quotas in Preferred Alternative 1 (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately \$5.4 million, \$6.2 million, and \$0.9 million, relative to 2000 revenues (landings), respectively, for a total increase of \$12.5 million.

It is important to stress that these are potential changes, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to trip limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2002 for quota overages in 2001 that were not accounted for here. These commercial quotas were identified as the Preferred Alternative because they are consistent with the requirement to eliminate overfishing and to attain the rebuilding objectives specified in the FMP for summer flounder, scup and black sea bass, and because they maximize commercial landings to the extent practicable.

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given year is quite variable. In the aggregate, total number of recreational trips (all modes combined) in the North Atlantic and Mid-Atlantic subregions combined have remained relatively stable with a slight downward trend since the early 1990s. In addition, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined have fluctuated throughout the 1990-2000 period, ranging from 2.6 million trips in 1993 to 1.1 million trips in 1999. In 2000, 1.4 million party/charter boat trips were taken in the North Atlantic and Mid-Atlantic subregions combined. On average, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined, from 1999 to 2000, was 1.8 million, and 1.4 million trips for the 1996 to 2000 period. The recreational harvest limits were identified as the Preferred Alternative because they are consistent with the requirement to eliminate overfishing and to attain the rebuilding objectives specified in the FMP for summer flounder, scup and black sea bass, and because they maximize recreational landings to the extent practicable. The effects of the proposed recreational harvest limits for summer flounder, scup and black sea bass will be further analyzed when additional information regarding 2001 recreational landings are available, and the Council submits its recommendation for 2002 recreational measures. Those recommendations are

expected in early 2002.

The affect of the GRAs on small-mesh fisheries is fully described in the 2001 Specification Document. The GRA measures reduce discards of scup in non-directed fisheries. However, the recommendation that will allow a small-mesh experimental net in the GRAs may increase landings of other species relative to 2001. It is not possible to assess the monetary value associated with the additional harvest as a result of the proposed experimental net exemption, because quantitative data on these nets are limited. The modifications are inexpensive and can be incorporated into existing nets with minimal labor. The modifications are based on a project funded by the Mid-Atlantic Council and conducted by the Manomet Center for Conservation Sciences to develop selective trawls for small mesh fisheries. Results of the research indicate that a 5.5" square mesh extension placed in the net 50 meshes ahead of the codend significantly reduced (66% reduction) the bycatch and discard of small scup without a reduction in the capture of squid.

The scup and black sea bass possession limits were chosen as an appropriate balance between the economic concerns of the industry (e.g., landing enough scup or black sea bass to make the trip economically viable) and the need to ensure the equitable distribution of the quota over the period.

Changes in possession limits can impact profitability in various ways. These impacts would vary depending of fishing practices. The possession limit recommended for Quarter 1 of the black sea bass fishery is not expected to negatively impact the black sea bass fishery. However, the decrease in the Quarter 1 limit may have some positive impacts by providing the market a regular product supply, avoiding market gluts, and price fluctuations.

The proposed fish size limits and minimum mesh provisions in black sea bass fishery and the mesh size provisions in the scup fishery are recommended to reduce the catch of undersized fish. These measures are not expected to affect small entities in a negative manner. If fish smaller than the minimum size limit could be landed they would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish. However, overall mortality rates are controlled by the TAL, and changes in mortality because of these proposed regulations should be insignificant. Additionally, a reduction in the catch of undersized fish may lead to an increase in the size at full recruitment, because yields are increased as fishermen catch larger, heavier fish. Therefore, the proposed regulations could help to increase spawning stock biomass by allowing more fish to spawn. If 2000 price differentials between smaller and larger fish in the black sea bass fishery continued, commercial fishermen may benefit from the proposed minimum size in the sea bass fishery and, in fact, experience an increase in revenue.

The social and economic impacts of the summer flounder research set-aside should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management

decisions. The set-aside could be worth as much as \$801,900 dockside based on a 2000 summer flounder price of \$1.65 per pound. As such, assuming an equal reduction amongst all active vessels (i.e., 795 vessels that landed summer flounder in 2000), this could mean a reduction of about \$1,000 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 9.718 to 9.524 million lb (a 2 percent decrease) if 2 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set-aside and, as such, there would be no negative impacts.

The social and economic impacts of the scup research set-aside should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. The set-aside could be worth as much as \$403,875 dockside based on a 2000 scup price of \$1.25 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 425 vessels that landed scup in 2000), this could mean a reduction of about \$950 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 2.770 to 2.687 million lb (a 3-percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

The social and economic impacts of the black sea bass research set-aside should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. The set-aside could be worth as much as \$365,160 dockside based on a 2000 sea bass price of \$1.79 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 723 vessels that caught black sea bass in 2000), this could mean a reduction of about \$505 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.468 to 3.364 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

The social and economic impacts of scup, whiting, black sea bass, and *Loligo* research set-aside in GRAs should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Furthermore, the research is anticipated to examine methods to reduce scup discards. If the research is successful at reducing discards, there will be significant benefits to the scup fishery in the long term. The set-aside could be worth as much as \$404 thousand, \$365 thousand, and \$750 thousand dockside for scup, black sea bass and *Loligo* squid based on 2000 prices per pound, respectively. As such, assuming an equal reduction amongst all active vessels (i.e., 425, 723, and 495 vessels that caught scup, black sea bass, and *Loligo* in 2000, respectively), this could mean a reduction of \$950, \$505, and \$1,515 per individual vessel, for scup,

black sea bass, and Loligo, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be higher. In addition, it is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for these species. As such, permit holders that would have landed these species could be disadvantaged.

5.2 QUOTA ALTERNATIVE 2

This alternative examines the impacts on industry that would result from total harvest limits for summer flounder, scup and black sea bass. To analyze the economic effects of this alternative, the total harvest limits specified in section 4.0 of the RIR/IRFA were employed.

Under this alternative, the summer flounder specifications would result in an aggregate 6.1 percent increase in allowable commercial landings relative to the 2001 quota and a 54.7 percent reduction in recreational harvest relative to 2000 landings (Tables 12 and 17). The scup specifications would result in an aggregate 14.9 percent increase in allowable commercial landings relative to the 2001 quota and a 65.8 percent decrease in recreational harvest relative to 2000 landings (Tables 12 and 18). The black sea bass specifications would result in an aggregate 7.6 percent increase in allowable commercial landings relative to the 2001 quota and a 12.9 percent decrease in the recreational harvest relative to 2000 landings (Tables 12 and 19). Again, this alternative makes the same assumptions about landings as are made in the previous analysis.

5.2.1 COMMERCIAL IMPACTS

5.2.1.1 Threshold Analysis for Participating Vessels

The results of the threshold analysis are reported in Table 26. Across all vessel classes a total of 29 vessels were projected to be impacted by revenue losses of <5 percent. The economic impacts for the 1038 vessels participating in these fisheries range from expected revenue losses on the order of <5 percent for a total of 29 vessels (relative to 2001) to no change in revenues for 5 vessels and increase revenue for 1004 vessels. Most of the vessels with projected revenue losses of <5 percent landed black sea bass only followed by a combination of black sea bass and fluke, and scup, black sea bass, and fluke. The majority of the revenue losses are attributed to quota reductions and overages associated with the black sea bass fishery in Quarter 1.

Table 26. Threshold analysis of revenue impacts for participating vessels, "FLK" is summer flounder, "BSB" is black sea bass, and "SCP" is scup.

| Quota Alternative 2 Status Quo (Most Restrictive) | | | | Increased Revenue (number) | No Change in Revenue (number) | Number of Impacted Vessels by Reduction Percentile (%) | | | | | | |
|--|-------------------------|------------------|--|----------------------------------|--|---|-----|-----------|-----------|-----------|-----------|------|
| Class | Landings Combination | Total Vessels | Number of Vessels Impacted by \geq 5 Reduction | | | <5 | 5-9 | 10- 19 | 20- 29 | 30- 39 | 40- 49 | \$50 |

| | | | | | | | | | | | | |
|---|-------------|------|---|------|---|----|---|---|---|---|---|---|
| 1 | SCP Only | 29 | 0 | 24 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | BSB Only | 169 | 0 | 142 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | FLK ONLY | 267 | 0 | 267 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | SCP/BSB | 45 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | SCP/FLK | 19 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | BSB/FLK | 177 | 0 | 176 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | SCP/BSB/FLK | 332 | 0 | 331 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Totals | 1038 | 0 | 1004 | 5 | 29 | 0 | 0 | 0 | 0 | 0 | 0 |

Impacts of the quotas provisions were examined relative to a vessel's home state as reported on the vessel's permit application (Table 27). "Home state" indicates the state where a vessel is based and primarily ported, and is presumed to reflect to where the costs and benefits of management actions return. However, home state is self-reported at the time an individual applies for a Federal permit and may not necessarily indicate where the vessel subsequently conducts most of its activity. The number of impacted vessels (revenue reduction <5 percent) by home state ranged from none in Massachusetts, Maryland, Maine, and Pennsylvania to a high of 7 in Virginia. The larger number of impacted vessels in Virginia may be due to a relatively higher dependence on black sea bass.

Table 27. Review of revenue impacts under quota Alternative 2, by home state.

^aStates with fewer than 4 vessels were aggregated.

| State | Participating Vessels | Number of Vessels Impacted $\geq 5\%$ | Increased Revenue (number) | No Change in Revenue (number) | Number of Impacted Vessels by Reduction Percentile (percent) | | | | | | | |
|------------------------|-----------------------|---------------------------------------|----------------------------|-------------------------------|--|-----|-------|-------|-------|-------|------|----|
| | | | | | <5 | 5-9 | 10-19 | 20-29 | 30-39 | 40-49 | \$50 | |
| DE | 4 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MA | 169 | 0 | 168 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MD | 12 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ME | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NC | 83 | 0 | 77 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NJ | 122 | 0 | 120 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NY | 153 | 0 | 152 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PA | 11 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RI | 93 | 0 | 91 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| VA | 81 | 0 | 74 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OTHER ^a | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NOT KNOWN ^b | 303 | 0 | 289 | 4 | 10 | NK | NK | NK | NK | NK | NK | NK |
| Total | 1038 | 0 | 1004 | 5 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

^aStates with fewer than 4 vessels were aggregated.

^bVessels have shown landings of either of those three species in 2000, but do not hold any of the requisite Federal permits in 2000. These vessels may be fishing

exclusively in state waters fisheries for those species, and landings are indicated because of reporting requirements for their other Federal permits or they do not hold a Federal permit to participate in these fisheries any longer.

By virtue of holding a valid Federal permit for summer flounder, scup, or black sea bass a vessel is subject to any regulations that are promulgated under the FMP. From this perspective, these vessels are subject to any quota specification whether or not they actually choose to engage in any one of the three (summer flounder, scup, or black sea bass) fisheries. The decision to engage in any given fishery during a given time period is subject to numerous considerations from temporary suspension of fishing due to illness or vessel construction or repair to merely a reasoned decision to pursue other fisheries. Given the limited access nature of the fisheries, a vessel may wish to continue to hold a permit to preserve the opportunity to engage in the fishery when circumstance allows.

In addition to the threshold analysis described above, the Council also analyzed changes in total gross revenue that would occur as a result of the quota alternatives. Assuming 2000 ex-vessel prices (summer flounder - \$1.65/lb; scup - \$1.25/lb; and bsb \$1.79/lb) and the effect of potential changes in prices due to changes in landings in 2002 versus 2001, the 2002 quotas in Alternative 2 (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately \$0.9 million, \$1.7 million, and \$0.4 million, relative to 2000 revenues (2001 proxy), respectively, for a total revenue increase of \$3.0 million.

Assuming the increase in summer flounder total gross revenues associated with Alternative 2 is distributed equally between the 795 vessels that landed summer flounder in 2000, the average increase in revenue associated with the increase in summer flounder quota in Alternative 2 is \$1,132/vessel.

Assuming the increase in scup total gross revenues associated with Alternative 2 is distributed equally between the 425 vessels that landed scup in 2000, the average increase in revenue associated with the increase in scup quota is \$4,000/vessel.

Assuming the increase in black sea bass total gross revenues associated with Alternative 2 is distributed equally between the 723 vessels that landed black sea bass in 2000, the average increase in revenue associated with the increase in black sea bass quota is \$553/vessel.

5.2.2 RECREATIONAL IMPACTS

Under this alternative, the summer flounder 2002 recreational harvest limit would be 7.16 million lb. This limit is a 54.7 percent decrease from 2000 recreational landings, and no change from the 2000 recreational harvest limit (Table 17). The scup recreational harvest limit for 2002 would be set equal to 1.77 million lb. This is a 65.8 percent decrease over the 2000 recreational landings, and no change from the 2000 recreational harvest limit (Table 18). Finally, this alternative would set the black sea bass recreational harvest limit for 2002 at 3.15 million lb. This level represents a 4.1 percent decrease from the 2000 recreational landings, and no change from the 2000 recreational harvest limit (Table 19).

In the summer flounder fishery, there is no mechanism to deduct overages directly from the recreational harvest limit, so any overages must be addressed by way of adjustments to the management measures. It is likely that management measures under this alternative would be required to restrict the recreational fishery for 2002 (compared to 2000 landings) and may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season). However, there is no indication that any of these measures would lead to a decline in the demand for party/charter boat trips. Currently, the market demand for these sectors is relatively stable. It is unlikely these measures will result in any substantive decreases in the demand for party/charter boat trips.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It is most likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder and scup that they are allowed to catch. As such, it is not probable that the decrease in the harvest limits, relative to the 2000 landings will have a substantial impact on the number of party/charter fishing trips.

5.2.3 SUMMARY OF IMPACTS

In sum, the proposed quotas under Alternative 2 (Status Quo) for all three species are identical to that of the 2001 quotas. However, due to overages in 2000 which affected the final adjusted 2001 quotas and due to the projected overages in 2001, the final commercial quotas in 2002 will be higher than in 2001. In 2002, recreational landings would decrease in the case of summer flounder (versus 2000 recreational landings) and increase in the case of black sea bass.

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given year is quite variable. In the aggregate, total number of recreational trips (all modes combined) in the North Atlantic and Mid-Atlantic subregions combined have remained relatively stable with a slight downward trend since the early 1990s. In addition, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined have fluctuated throughout the 1990-2000 period, ranging from 2.6 million trips in 1993 to 1.1 million trips in 1999. In 2000, 1.4 million party/charter boat trips were taken in the North Atlantic and Mid-Atlantic subregions combined. On average, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined, from 1999 to 2000, was 1.8 million, and 1.4 million trips for the 1996 to 2000 period.

Under this alternative, a total of 29 of the 1038 commercial vessels were projected to incur revenue losses of less than 5 percent. In addition, it is estimated that 5 vessels would have no change in revenue in 2002 compared to 2001 and 1004 would have an increase in revenue. Among affected vessels that landed black sea bass only were proportionally more affected with revenue losses of less than 5 percent.

Assuming 2000 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2002 versus 2001, the 2002 quotas in Alternative

2 (after overages have been applied) would increase summer flounder, scup, and black sea bass total ex-vessel gross revenues by approximately \$0.9 million, \$1.7 million, and \$0.4 million, relative to 2000 revenues (landings), respectively, for a total revenue increase of \$3.0 million.

If the increase in total gross revenues associated with the summer flounder quota in Alternative 2 is distributed equally between the 795 vessels that landed summer flounder in 2000, the average increase in revenue associated with the summer flounder quota in Alternative 2 is \$1,132/vessel. If the increase in total gross revenues associated the scup quota in Alternative 2 is distributed equally between the 425 vessels that landed scup in 2000, the average increase in revenue associated with the scup quota in Alternative 2 is \$4,000/vessel and, similarly, if the increase in black sea bass total gross revenues associated with Alternative 2 is distributed equally between the 723 vessels that landed black sea bass in 2000, the average increase in revenue associated with the black sea bass quota in Alternative 2 is \$553/vessel.

The total harvest limit for scup analyzed under this alternative is more conservative than that presented in Alternative 1. More specifically, the commercial summer flounder, scup, and black sea bass harvest limits under this alternative is approximately 3.8, 3.6, and 2.7 million lb lower than the limit specified under Alternative 1. While these measures may present an improved probability of attaining the rebuilding objectives specified in the FMP, the negative economic impacts upon small entities would be higher than under Alternative 1.

It is important to stress that these changes represent merely the potential, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to trip limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2001 for quota overages in 2000 that were not accounted for here.

5.3 QUOTA ALTERNATIVE 3

This alternative examines the impacts on industry that would result from total harvest limits for summer flounder, scup and black sea bass. To analyze the economic effects of this alternative, the total harvest limits specified in section 4.0 of the RIR/IRFA were employed.

Alternative 3 represents the "least restrictive" alternative - those harvest levels considered that would allow the maximum to be harvested. The summer flounder specifications under this alternative would result in an aggregate 108.6 percent increase in allowable commercial landings relative to the 2001 quota and a 12.0 percent reduction in recreational harvest relative to 1999 landings (Tables 12 and 17). The scup specifications would result in an aggregate 159.0 percent increase in allowable commercial landings relative to the 2001 commercial quota and a 38.0 percent reduction in recreational harvest relative to 2000 landings (Tables 12 and 18). The black sea bass specifications would result in an aggregate 43.0 percent increase in allowable commercial landings relative to the 2001 commercial quota and a 14.1 percent increase in the recreational harvest relative to 2000 landings (Tables 12 and

19). Again, this alternative makes the same assumptions about landings as are made in the previous analyses.

5.3.1 COMMERCIAL IMPACTS

5.3.1.1 Threshold Analysis for Participating Vessels

The results of the threshold analysis indicates that across all vessel classes, a total of 1038 vessels were projected to be impacted by revenue increase (relative to 2001). There were no vessels projected to incur in revenue losses relative to 2001. Even though, the overall summer flounder quota for 2002 (adjusted) is projected to be over 106 percent higher relative to the quota specified in 2001 for that species, one state, Maine, is projected to decrease its summer flounder quota for 2002 by 100 percent relative to the quota specified for that state in 2001. That is, from 2,146 lbs in 2001 to 0 lbs in 2002. Nevertheless, the threshold analysis indicated that there are no vessels affected by this projected decrease in summer flounder landings in that state in 2002. This is probably due to the possibility that vessels landings small quantities of summer flounder in Maine also landed larger quantities of summer flounder in other states, thus benefitting from the increase in quota in those other states in 2002 versus 2001. In addition, it is possible that these vessels also landed black sea bass along with summer flounder, thus benefitting from the increase in black sea bass quota in 2002 and therefore not showing a reduction in exvessel revenue. The vessel distribution by landing combination and home port state for these vessels is similar to that presented under the total column, 3rd column from the left in Table 26 and 2nd second column from the left in Table 27, respectively.

In addition to the threshold analysis described above, the Council also analyzed changes in total gross revenue that would occur as a result of the quota alternatives. Assuming 2000 ex-vessel prices (summer flounder - \$1.65/lb; scup - \$1.25/lb; and bsb \$1.79/lb) and the effect of potential changes in prices due to changes in landings in 2002 versus 2001, the 2002 quotas in Alternative 3 (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately \$15.8 million, \$8.1 million, and \$2.1 million, relative to 2000 revenues (2001 proxy), respectively, for a total revenue increase of \$26.0 million.

Assuming the increase in summer flounder total gross revenues associated with Alternative 3 is distributed equally between the 795 vessels that landed summer flounder in 2000, the average increase in revenue associated with the increase in summer flounder quota in Alternative 3 is \$19,874/vessel.

Assuming the increase in scup total gross revenues associated with Alternative 3 is distributed equally between the 425 vessels that landed scup in 2000, the average increase in revenue associated with the increase in scup quota is \$19,058/vessel.

Assuming the increase in black sea bass total gross revenues associated with Alternative 3 is distributed equally between the 723 vessels that landed black sea bass in 2000, the average increase in revenue associated with the increase in black sea bass quota is \$2,904/vessel.

5.3.2 RECREATIONAL IMPACTS

Under this "least restrictive" alternative, the summer flounder 2001 recreational harvest limit would be 13.9 million lb. This level is a 12.1 percent decrease from 2000 recreational landings, and a 6.74 million lb increase over the 2001 recreational harvest limit. Under this alternative, the scup recreational harvest limit for 2002 would be 3.2 million lb. This is a 38.0 percent decrease over the 2000 landings, and a 1.4 million lb increase over the 2001 harvest limit. For black sea bass, the recreational harvest limit for 2002 would be 4.13 million lb, a 14.2 percent increase over the 2000 recreational landings, and 0.98 million lb over the 2001 recreational harvest limit.

It is likely that management measures proposed to restrict the recreational summer flounder and scup fisheries for 2002 (compared to 2000 landings) may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season). Given that the black sea bass level is projected to increase, it is not anticipated that restrictive measures would be required under this alternative. There is no indication that any of these measures would lead to a decline in the demand for party/charter boat trips. Given the relatively stable market demand that these sectors are experiencing, it is unlikely these measures will result in any substantive decreases in the demand for party/charter boat trips.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It is most likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder that they are allowed to catch. It is not probable that the decrease in the summer flounder harvest limits, relative to the 1999 landings, will have a substantial impact on the number of party/charter fishing trips, as the increased scup and black sea bass harvest limits will allow for greater recreational opportunities in those fisheries.

5.3.3 SUMMARY OF IMPACTS

Alternative 3 allows fishermen to land more summer flounder in 2002 versus 2001, 2000, 1999, 1998, 1997, and 1996. It would also allow fishermen to land more scup in 2002 versus 2001, 2000 and 1999, and more black sea bass versus 2001, 2000, 1999, and 1998. Recreational landings would increase for black sea bass (relative to 2000 landings) and decrease for summer flounder and scup.

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given year is quite variable. In the aggregate, total number of recreational trips (all modes combined) in the North Atlantic and Mid-Atlantic subregions combined have remained relatively stable with a slight downward trend since the early 1990s. In addition, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined have fluctuated throughout the 1990-2000 period, ranging from 2.6 million trips in 1993 to 1.1 million trips in 1999. In 2000, 1.4 million party/charter boat trips were taken in the North Atlantic and Mid-Atlantic subregions combined. On average,

the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined, from 1999 to 2000, was 1.8 million, and 1.4 million trips for the 1996 to 2000 period.

The threshold analysis indicates that all 1038 commercial vessels were projected to incur revenue gain. This due to the fact that the quotas under this alternative are substantially higher than those established in 2001. The substantial increase in these quotas overcompensate for the reductions in landings due to overages in 2001.

Assuming 2000 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2002 versus 2001, the 2002 quotas in Alternative 3 (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately \$15.8 million, \$8.1 million, and \$2.1 million, relative to 2000 revenues (landings), respectively, for a total revenue increase of \$26.0 million.

If the increase in total summer flounder gross revenues associated with Alternative 3 is distributed equally between the 795 vessels that landed summer flounder in 2000, the average increase in revenue associated with the summer flounder quota in Alternative 3 is \$19,874/vessel. If the increase in total scup gross revenues is distributed equally between the 425 vessels that landed scup in 2000, the average increase in revenue associated with the scup quota in Alternative 3 is \$19,058/vessel and, similarly, if the increase in total gross revenues associated with the black sea bass quota in Alternative 3 is distributed equally between the 723 vessels that landed black sea bass in 2000, the average increase in revenue associated with the black sea bass quota in Alternative 3 is \$2,904/vessel.

These measures would allow for significant increases in the harvest of summer flounder, scup, and black sea bass. Neither limit for these species has a high probability of achieving the rebuilding goals of the FMP. Therefore, while this alternative may mitigate the impacts on small entities, it does not comport with the fishing mortality and exploitation rates specified in the FMP. Therefore, this alternative was not proposed by the Council.

It is important to stress that these changes represent merely the potential, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to trip limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2002 for quota overages in 2001 that were not accounted for here. These measures are specified in order to eliminate overfishing and to attain the rebuilding objectives specified in the FMP for summer flounder, scup and black sea bass.

6.0 OTHER IMPACTS

6.1 COUNTY IMPACTS

For the reasons specified in section 3.1 of this PREE, the economic impacts on vessels of a specified h-port were analyzed on a county wide basis. As stated in section 3.1 of the PREE, this profile of impacted counties was based on

impacts under quota Alternative 2 - the most restrictive possible alternative. Counties included in the profile had to meet the following criteria:

- the number of impacted vessels (vessels with revenue loss exceeding 5 percent) per county was either greater than 4, or
- all impacted vessels in a given state were from the same home county.

The results of these analyses are summarized below. Since the counties have been identified based on impacts under quota Alternative 2, the analyses represent the most profound impacts possible for those counties. Consequently, other quota alternatives would result in fewer impacts.

Based on the above criteria, there were no counties projected to be impacted, that is, did not have enough impacted vessels to meet the criteria specified. This is an obvious result since there were no vessels impacted with revenue losses or 5 percent or greater associated with the alternatives evaluated. Since the county analysis was based on impacts under quota Alternative 2, the analyses represent the most profound impacts possible for those counties. Consequently, other quota alternatives would result in no impacts as well.

A description of important ports and communities to the summer flounder, scup, and black sea bass fisheries is presented in section Appendix 1 of this document.

7.0 References

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