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**FRAMEWORK SEASONAL ADJUSTMENT  
OF HARVEST LEVELS AND PROCEDURES  
UNDER THE  
FISHERY MANAGEMENT PLAN  
FOR COASTAL MIGRATORY PELAGICS  
IN THE  
GULF OF MEXICO  
AND SOUTH ATLANTIC  
INCLUDES ENVIRONMENTAL ASSESSMENT  
AND  
REGULATORY IMPACT REVIEW**

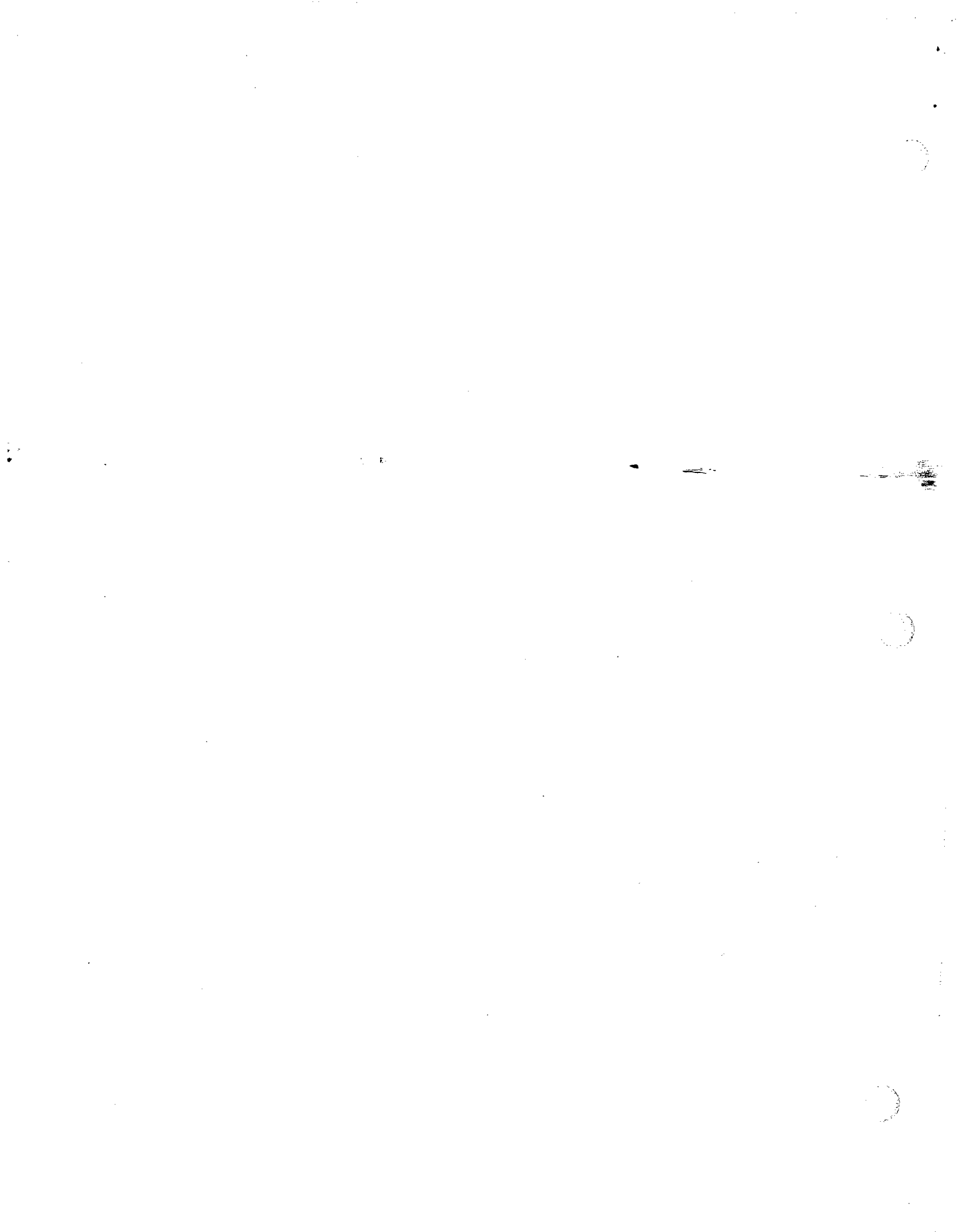
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## **I. HISTORY OF MANAGEMENT**

The "Mackerel" FMP, approved in 1982 and implemented by regulations effective in February of 1983, treated king and Spanish mackerel each as one U.S. stock. Allocations were established for recreational and commercial fisheries, and the commercial allocation was divided between net and hook-and-line fishermen.

Amendment 1, implemented in September of 1985, provided a framework procedure for pre-season adjustment of total allowable catch (TAC), revised king mackerel maximum sustainable yield (MSY) downward, recognized separate Atlantic and Gulf migratory groups of king mackerel, and established fishing permits and bag limits for king mackerel. Commercial allocations among gear users were eliminated. The Gulf commercial allocation for king mackerel was divided into eastern and western zones for the purpose of regional allocation.

Amendment 2, implemented in July of 1987, revised Spanish mackerel MSY downward, recognized two migratory groups, and set commercial quotas and bag limits. Charter boat permits were required, and it was clarified that TAC must be set below the upper range of acceptable biological catch (ABC). The use of purse seines on overfished stocks was prohibited.

Amendment 3 was partially approved in 1989, revised, resubmitted, and approved in 1990. It prohibited drift gill nets for coastal pelagics and purse seines for the overfished groups of mackerels.

Amendment 4, implemented in 1989, reallocated Spanish mackerel equally between recreational and commercial fishermen on the Atlantic group.

Amendment 5, implemented in August 1990, made a number of changes in the management regime which:

- o Extended management area for Atlantic groups of mackerels through the Mid-Atlantic Council's area of jurisdiction;
- o Revised problems in the fishery and planned objectives;
- o Revised the fishing year for Gulf Spanish mackerel from July-June to April-March;
- o Revised the definition of "overfishing";
- o Added cobia to the annual stock assessment procedure;
- o Provided that the South Atlantic Council will be responsible for pre-season adjustments of TACs and bag limits for the Atlantic migratory groups of mackerels while the Gulf Council will be responsible for Gulf migratory groups;
- o Continued to manage the two recognized Gulf migratory groups of king mackerel as one until management measures appropriate to the eastern and western groups can be determined;
- o Redefined recreational bag limits as daily limits;
- o Deleted provision specifying that bag limit catch of mackerel may be sold;
- o Provided guidelines for corporate commercial vessel permits;
- o Specified that Gulf king mackerel may be taken only by hook-and-line and run-around gill nets;



For the purpose of allocating a limited resource among users, the FMP has set ratios based on historic unregulated catches. The Gulf migratory group is allocated with 68 percent for recreational fishermen and 32 percent for commercial fishermen. The commercial allocation is further subdivided 69 percent for the Eastern Zone and 31 percent for the Western Zone.

Amendment 7 which is pending approval and implementation would equally divide the Gulf commercial allocation in the Eastern Zone at the Dade-Monroe County line in Florida. The suballocation for the area from Monroe County through Western Florida would be equally divided between commercial hook-and-line and net gear users.

The mechanism for seasonal framework adjustments is described in Appendix 1.

### **Management Objectives**

The current FMP as amended lists eight plan objectives:

1. The primary objective of this FMP is to stabilize yield at MSY, allow recovery of overfished populations, and maintain population levels sufficient to ensure adequate recruitment.
2. To provide a flexible management system for the resource which minimizes regulatory delay while retaining substantial Council and public input in management decisions and which can rapidly adapt to changes in resource abundance, new scientific information, and changes in fishing patterns among user groups or by areas.
3. To provide necessary information for effective management and establish a mandatory reporting system for monitoring catch.
4. To minimize gear and user group conflicts.
5. To distribute the total allowable catch of Atlantic migratory group Spanish mackerel between recreational and commercial user groups based on the catches that occurred during the early to mid 1970's, which is prior to the development of the deep water run-around gill-net fishery and when the resource was not overfished.
6. To minimize waste and bycatch in the fishery.
7. To provide appropriate management to address specific migratory groups of king mackerel.
8. To optimize the social and economic benefits of the coastal migratory pelagic fisheries.

## **II. PURPOSE AND NEED FOR ACTION**

The proposed action would adjust ABC and total allowable catches for Atlantic groups of king and Spanish mackerels and provide equitable distribution of Eastern Zone Gulf group king mackerel among commercial fishermen.

The recommended range of ABC by the Councils' Stock Assessment Panel is below the current TAC for the Atlantic Migratory group of king mackerel; so TAC is to be reduced accordingly. TAC for Atlantic Spanish mackerel is increased to the upper range of ABC to provide additional catch for the commercial fishery which is quickly taking its allocation and has the capacity for additional catch.

A federal court ruling had the effect of vacating Florida's king mackerel trip limit rule for commercial vessels in December of 1992. That, coupled with unseasonable weather, resulted in the filling of the commercial quota in south Florida before the migrating schools became available to Florida east coast fishermen north of the Dade-Monroe County line. To give economic relief to these fishermen, an emergency allocation of 259,000 pounds of king mackerel was provided over the quota to these fishermen, with trip limits of 25 fish per day.

In order to obtain information to prevent a repeat of this occurrence, the councils convened a workshop for king mackerel fishermen in February of 1993 in Miami attended by about 50 fishermen. The issue was also reviewed by the Council's Mackerel Advisory Panel in April 1993, and public comment was received from 35 mackerel fishermen and interested persons at the Council's May 1993 meeting in Tampa, Florida. The consensus was that for the 1993-1994 fishing season the commercial quota for the Eastern Zone of Gulf group king mackerel should be divided equally at the Dade-Monroe County, Florida line, the same arrangement as had been used by the state. There were various alternatives suggested for trip limits.

The Council requested emergency implementation of the following actions to become effective on November 1, 1993:

1. The commercial quota for Eastern Zone Gulf group king mackerel (1.73 million pounds) be divided equally at the Dade-Monroe County line, with subquotas of 865,000 pounds north, and the same amount south and west of the line.
2. In the area Dade through Volusia Counties, daily commercial trip limits of up to 50 fish per vessel are to be allowed until 50 percent of the subquota is filled, then 25 fish per daily trip until the quota is filled.
3. In the area Monroe County to the Florida-Alabama border, there are to be no commercial trip limits until 75 percent of the subquota is taken, then 50 fish per vessel per day until the subquota is taken.

NMFS approved for emergency implementation only the first action, geographic division of the commercial allocation, advising the Council to implement the trip limits under framework procedures. (See Appendix 1 for Framework Procedures). These allocations were implemented for the fishing season begun in November, 1993.

Because of the adverse weather conditions in the 1993-1994 season, fishermen in the Northern area (Dade through Volusia Counties) were unable to catch their allocation. This was partly due to the trip limit reduction to 25 fish when half of their suballocation was taken. Action proposed herein would extend the larger trip limit until 75 percent of the suballocation is taken, to give fishermen more opportunity to take their allocated portion of catch.

In the Southwest area (Monroe County to the Florida-Alabama border) net vessel daily trip limits are to be set at 25,000 pounds to be reduced to 15,000 pounds when 90 percent of the suballocation is taken. This would help to prevent quota overrun in this high capacity fleet. Hook-and-line vessels in this same area will have no daily trip limit.

### **III. AFFECTED ENVIRONMENT**

#### **1. Description of the Fishery**

King mackerel and Spanish mackerel are major target species of an important commercial fishery in South Florida as well as a major target species for the private boat and charter boat recreational fishery along widespread areas within the Gulf and South Atlantic regions. King mackerel are particularly important to the charter boat and offshore private boat fleets. In addition, smaller amounts of king mackerel are caught as a commercial supplement by the North Carolina charter boat fleet. North Carolina and Virginia follow Florida in commercial production of Spanish mackerel, their combined catches in 1992 amounting to about 900,000 pounds. Small amounts of Spanish mackerel are caught as an incidental catch or supplemental commercial target species off Alabama, Mississippi, Louisiana, and to a smaller degree Georgia and South Carolina.

Most of the commercial fishery for king mackerel is located in Florida, and most are taken there from November through March. A winter troll fishery takes place along the east and south coast, and a run around gill net fishery occurs in the Florida Keys (Monroe County) during January. A net fishery on the east coast of Florida, which occurred later (March), has been eliminated since 1985 due to the filling of the commercial quota before fish became seasonally available there. Florida attempted to allocate king mackerel catches among fishermen in different geographic areas by subquotas and landing limits. The Florida trip limit regulations were vacated in December 1992, by a federal court ruling, and the commercial quota was quickly taken in the Keys with 900,000 pounds landed there in a 10-day period in January, 1993. An emergency allocation of 259,000 pounds was given to Florida's east coast commercial fishermen. Boats were limited to 25-fish daily, and took the supplemental allocation between February 18 and March 27, 1993.

A hook-and-line fishery for king mackerel was developed commercially off Louisiana in the winter of 1982-1983. A trolled handline fishery is similar to the Florida hook-and-line fleet and is centered in the Grand Isle area.

Recreational users have increased in numbers over time. Many come from outside the management area as well as areas within it. Increased income, leisure time, and a wide variety of supplies have increased participation. This participation has, in turn, generated significant amounts of economic value and also employment.



The habitat of king mackerel is described and updated in Amendments 1 and 3. No new information is available.

## 2. Status of Stocks

Atlantic group king and Spanish mackerel are not classified as overfished. Gulf group king and Spanish mackerel are overfished and are in a rebuilding program to restore the stocks.

## IV. PROPOSED ACTIONS INCLUDING ALTERNATIVES

### 1a. Proposed Action: Atlantic Group King Mackerel (Acceptable Biological Catch (ABC): 7.6 to 10.3 million pounds)

Total Allowable Catch (TAC) is lowered from 10.5 to 10 million pounds. Allocations are calculated according to formula, and the bag limit remains unchanged at five per person per day off Georgia through New York and two per person per day off Florida.

**TAC = 10 million pounds**  
**Commercial Allocation (37.1%) = 3.71 million pounds**  
**Recreational Allocation (62.9%) = 6.29 million pounds / 8.87 pounds/fish = 709,100 fish.**

**Rationale:** The Council proposes to reduce TAC for Atlantic group king mackerel from 10.5 to 10 million pounds. The stock is not overfished, and the proposed TAC is within the range of ABC. The Council recommended lowering the TAC to remain within the boundaries of the ABC range. The change in TAC will likely not affect total commercial and recreational catches, as the 1993/94 fishing year ended with approximately half of the commercial and recreational quotas being met. This was the preferred option of the mackerel advisory panel.

### 1b. Rejected Alternative: No change, TAC remains at 10.5 million pounds for Atlantic group king mackerel.

**Rationale:** The Council accepted the stock assessment panel's recommendation of the 50th percentile in the distribution for the ABC range as the upper limit for TAC. The 1994 assessment lowered the upper limit of the ABC range to 10.3 million pounds. Since neither the commercial nor recreational fisheries approached the quotas during the 1993/94 fishing year, neither fishery is expected to be affected by the upper limit of TAC. The Council rejected this option so as not to exceed the ABC range.

### 1c. Rejected Alternative: Set TAC of 10.3 million pounds for Atlantic group king mackerel.

**Rationale:** The Council chose to set a TAC slightly lower than the highest TAC possible within the ABC range, 10.3 million pounds. Since neither the commercial nor recreational quotas were approached during the 1993/94 fishing year, neither fishery is expected to be affected by the upper limit of TAC. Given the doubts

raised about the accuracy of estimates of MSY for king mackerel, the Council rejected this option to set a slightly more conservative TAC than the highest option allowable.

- 1d. **Rejected Alternative:** Set TAC of 7.6 million pounds for Atlantic group king mackerel.

**Rationale:** A TAC of 7.6 million pounds for Atlantic group king mackerel would be the lowest possible TAC the Council could have chosen within the ABC range. The Council rejected this option to set a higher TAC to allow for more fish to be available to the fisheries.

- 1e. **Rejected Alternative:** Set TAC of 7.7 million pounds for Atlantic group king mackerel.

**Rationale:** A TAC of 7.7 million pounds for Atlantic group king mackerel would be equal to the expected MSY for Atlantic group king mackerel as indicated by the equilibrium production model prepared for the 1993 stock assessment. While this TAC is within the range of ABC, the Council rejected this option to set a higher TAC to allow more fish to be available to the fisheries.

- 1f. **Rejected Alternative:** Set TAC of 9.69 million pounds for Atlantic group king mackerel.

**Rationale:** A TAC of 9.69 million pounds would equal the expected MSY for Atlantic migratory group king mackerel as indicated by the equilibrium production model calculated for the 1993 stock assessment. While this TAC is within the range of ABC, the Council rejected this option to set a higher TAC to allow for more fish to be available to the fisheries.

- 1g. **Rejected Alternative:** Set TAC of 8.2 million pounds for Atlantic group king mackerel.

**Rationale:** A TAC of 8.2 million pounds would equal the average yield from 1986/87 through 1992/93 including 80 percent of fish in the mixing zone as Atlantic migratory group. While this TAC is within the range of ABC, the Council opted for a higher TAC to allow for more fish to be available to the fisheries.

- 2a. **Proposed Action: Atlantic Group Spanish Mackerel**  
(Acceptable Biological Catch [ABC]: 4.1 to 9.2 million pounds)

**Total Allowable Catch (TAC) is increased from 9 to 9.2 million pounds. Allocations are calculated according to formula, and the bag limit remains unchanged at 10 fish per person per day.**

**TAC = 9.2 million pounds**

**Commercial Allocation (50%) = 4.6 million pounds**

**Recreational Allocation (50%) = 4.6 million pounds / 1.41 pounds/fish = 3,262,400 fish**

**Rationale:** The Council proposes to increase TAC for Atlantic group Spanish mackerel from 9 to 9.2 million pounds. The commercial fishery has caught their 50 percent allocation by February each fishing year, while the recreational fishery in the last three fishing years caught less than half of their quota. The Council decided to increase the TAC by 200,000 pounds, with a likely effect of increasing harvest by 100,000 pounds in the commercial sector. This was the preferred option of the mackerel advisory panel.

- 2b. Rejected Alternative:** No change, set TAC of 9.0 million pounds for Atlantic group Spanish mackerel.

**Rationale:** The Council accepted the stock assessment panel's recommendation of the 50th percentile in the distribution for the ABC range as the upper limit for TAC. The Council rejected this option to set a higher TAC to provide more fish to the commercial sector.

- 2c. Rejected Alternative:** Set TAC of 4.1 million pounds for Atlantic group Spanish mackerel.

**Rationale:** A TAC of 4.1 million pounds would be the lowest TAC within the ABC range the Council could set. The Council rejected this option to set a higher TAC to provide more fish to the commercial sector.

- 3. Alternatives for commercial Gulf migratory group king mackerel in the Eastern Zone, Northern Area.**

- 3a. Proposed Action:** In the Northern area (Dade through Volusia Counties), daily commercial trip limits of up to 50 fish per vessel are to be allowed until 75 percent of the suballocation of 865 thousand pounds is filled, then 25 fish per daily trip until the allocation is filled.

**Rationale:** Commercial trip limits of 50 fish declining to 25 fish in the northern portion are intended to extend the fishing season as long as possible and still allow full utilization of the suballocation. Of these small vessel hook-and-line troll fishermen approximately 150 are full-time fishermen, who have few alternative fisheries and are dependent almost entirely on the king mackerel. On February 7, 1994, the vessel trip limit was reduced from 50 to 25 fish. When the season ended on April 1st only about 600,000 pounds of the 865,000 pound suballocation had been taken.

The proposed trip limits are too small to allow for the reintroduction of the use of nets in this fishery north of the Dade-Monroe boundary. There are approximately 12 net boats in the area equipped to fish for king mackerel. However, although that gear has been used to harvest Atlantic group king mackerel, it has not been used on the Gulf stock since 1985 because of quota closures before the fish school and become vulnerable to nets in this area, usually in February and March. Net vessels have the opportunity to fish on Atlantic king mackerel beginning in April and on Spanish mackerel. Some net vessels may also elect to troll for king mackerel under the 50-fish trip limit, as some net vessels did in Monroe County in December of

1992. The extension of the 50 fish trips to 75 percent of allocation is intended to extend the open season, and to allow full utilization of the suballocation.

The implementation of this alternative conforms to FMP objectives:

2. To provide a flexible management . . . for changes in fishing patterns among user groups or by areas,
4. To minimize gear and user group conflicts,
7. To provide appropriate management to address specific migratory groups of king mackerel, and
8. To optimize the social and economic benefits of the coastal migratory pelagic fisheries.

The 12 net boats in the fishery, each with catch capacities of about 20,000 pounds per trip, have the potential to take about 35 percent of the commercial allocation of the Northern area in a single day and virtually the entire allocation in 3 days. Pulse landings would glut the market, lower value to fishermen, create gear and user conflict, and shorten the fishing season for 150 other hook-and-line fishermen dependent on this fishery. It is questionable whether the Gulf migratory group king mackerel will ever again be able to sustain the level of fishing effort applied in the early 1980's. Net fishermen have the option during November-March of fishing for Spanish mackerel, a lower valued fish, which is not economically available to the hook-and-liners.

The few trollers north of Cape Canaveral, who must travel further to reach fishing grounds, may find the 25 fish per daily trip to be economically impractical. However, they do have the option of fishing south of the Cape where ports are closer to fishing grounds, as some did last season. The alternative of a quota closure before fish arrive on the East Coast is less attractive.

- 3b. **Rejected Alternative:** Status quo; in the Northern area (Dade through Volusia Counties) daily commercial trip limits of up to 50 fish per vessel are to be allowed until 50 percent of the suballocation of 865 thousand pounds is filled, then 25 fish per daily trip until the allocation is filled.

**Rationale:** This procedure did extend the fishing through March, but about 265,000 pounds of the allocation was not taken. An extension of the 50 fish limit to the proposed 75 percent of allocation may better achieve both objectives.

- 3c. Rejected Alternative:** King mackerel vessel trip limits for eastern zone, Northern area; a 50 fish per daily trip limit reverting to 25 fish when 50 percent of the suballocation is taken. If 50 percent of the suballocation is not taken by January 15, the trip limit remains at 50 fish until 75 percent of the suballocation is taken. If 75 percent of the suballocation is not reached by March 1, the limit remains at 50 fish until the suballocation is taken.

**Rationale:** This alternative, recommended by the Gulf Council's advisory panel was considered to be complicated and requiring too much monitoring and administrative tinkering.

**4. Alternatives for commercial Gulf migratory group king mackerel in the Eastern Zone South/West Area.**

- 4a. Proposed Action:** For net vessels; daily trip limit of 25,000 pounds until 90 percent of the suballocation is taken; then 15,000 pound daily trip limit.

**Rationale:** This recommendation of the Gulf Council's advisory panel would allow efficient use of the high capacity net fleet in taking its allocation. A reduced trip limit for the last 10 percent of allocation would help reduce the chance of exceeding the catch quota.

- 4b. Proposed Action:** No trip limit for commercial hook-and-line vessels.

**Rationale:** Amendment 7 will provide 50 percent of the South/West commercial quota, or 0.432 MP. Because of the distance travelled a limitation of 50 fish per vessel provides insufficient revenue to most vessels for a profitable trip. Since hook-and-line vessels no longer must compete with the net vessels under a single quota, a trip limit is no longer necessary.

- 4c. Rejected Alternative:** Status quo; No commercial trip limits until 75 percent of the subquota is taken, then 50 fish per vessel per day until the subquota is taken.

**Rationale:** This arrangement was provided for both net and hook-and-line vessels when all were fishing under one quota. After allocating each gear group a separate subquota this trip limit procedure is no longer appropriate.

## **V. REGULATORY IMPACT REVIEW**

### **Introduction**

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: 1) it provides a comprehensive review of the level and incidence of impacts associated with a proposed or final regulatory action, 2) it 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 problem, and 3) it ensures 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.

The RIR also serves as the basis for determining whether any proposed regulations are a "significant regulatory action" under certain criteria provided in Executive Order 12866 and whether the proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act of 1980 (RFA).

This RIR analyzes the probable impacts of the proposed changes in the TAC's for the South Atlantic groups of king and Spanish mackerels and in the commercial trip limits in the Eastern Zone of the Gulf group king mackerel fishery.

There are no proposed changes in TAC's for the Gulf groups of king and Spanish mackerels, in commercial trip and recreational bag limits for the South Atlantic groups of king and Spanish mackerels, and in TAC's, commercial trip limits, or recreational bag limits for the other species in the Fishery Plan for Coastal Migratory Pelagics (FMP).

### **Problems and Objectives**

The general problems and objectives are enumerated in the FMP, as amended. The purpose and need for the present regulatory amendment are found in Section II of the amendment document. Essentially the current regulatory amendment addresses the following issues:

1. Reduction in TAC for the South Atlantic group of king mackerel
2. Increase in TAC for the South Atlantic group of Spanish mackerel
3. Change in the commercial trip limit in the North Area, Eastern Zone, of the Gulf group of king mackerel
4. Change in the commercial trip limit for netters in the South/West Area, Eastern Zone, of the Gulf group of king mackerel

### **Methodology and Framework for Analysis**

Ideally, the expected present values of net yield streams over time associated with the different alternatives would be compared in evaluating impacts. Net yield streams in the present context mean producer and consumer surpluses in both the commercial and recreational sectors of the Atlantic Spanish mackerel fishery. Unfortunately, estimates of the yield streams and their associated probabilities are not available. The approach taken

in analyzing alternative TACs and trip limits is to describe and/or quantify the changes in short-term net benefits. A qualitative discussion of long-term impacts is also attempted.

### Impacts of Proposed Actions and Alternatives

#### 1. Atlantic Group King Mackerel

##### 1a. Proposed Action:

Total Allowable Catch (TAC) is lowered from 10.5 to 10 million pounds. Allocations are calculated according to formula, and the bag limit remains unchanged at five per person per day off Georgia through New York and two per person per day off Florida.

**TAC = 10 million pounds**

**Commercial Allocation (37.1%) = 3.71 million pounds**

**Recreational Allocation (62.9%) = 6.29 million pounds / 8.87 pounds/fish = 709,100 fish.**

- 1b. **Rejected Alternative:** No change, TAC remains at 10.5 million pounds for Atlantic group king mackerel.
- 1c. **Rejected Alternative:** Set TAC of 10.3 million pounds for Atlantic group king mackerel.
- 1d. **Rejected Alternative:** Set TAC of 7.6 million pounds for Atlantic group king mackerel.
- 1e. **Rejected Alternative:** Set TAC of 7.7 million pounds for Atlantic group king mackerel.
- 1f. **Rejected Alternative:** Set TAC of 9.69 million pounds for Atlantic group king mackerel.
- 1g. **Rejected Alternative:** Set TAC of 8.2 million pounds for Atlantic group king mackerel.

The Stock Assessment Panel (SAP) estimates the 1992/1993 median spawning potential ratio (SPR) for the Atlantic group of king mackerel at 45 percent, and projects SPR levels to be above 30 percent for the fishing years 1993/1994 through 1997-1998. Worth noting is the fact that SPR for this stock has not dropped below 30 percent since the 1979/1980 fishing year (see Figure 15 of the 1994 SAP report). Being well above the minimum SPR level of 30 percent, the SAP declares this stock as not overfished.

For fishing year 1994/1995, the SAP recommends an allowable biological catch (ABC) ranging from 7.6 to 10.3 million pounds (MP) for the Atlantic group of king mackerel. There is a 16 percent chance that ABC is below the lower bound and 50 percent chance that it is below the upper bound of the recommended ABC range. The SAP also estimates an 84 percent chance of the ABC to be less than 13.8 MP (SAP, 1994).

Among the TAC alternatives, only the status quo option is outside the recommended ABC range, although it does not appear to be significantly different from the upper bound of the recommended ABC range. The user group allocation of TAC remains at 37.1 percent commercial and 62.9 percent recreational.

Except for the 1988/1989 fishing season, neither the commercial nor the recreational allocation has been filled, and for the last five consecutive fishing years no closure of either sector has ever occurred. In the 1988/1989 fishing season, the total catch from both sectors amounted to about 7.5 MP, and this amount has never been exceeded in more recent years. For fishing year 1993/1994, combined commercial and recreational catches were only about 50 percent of the TAC (see Appendix 2). It is unclear at present as to why both commercial and recreational allocations for Atlantic king mackerel are not taken. The ban on drift gill nets could have contributed to low commercial catches. It is possible that the Gulf king mackerel fishery may have filled the market and depressed prices so that the Atlantic king mackerel fishery may not be profitable enough to induce more vessels to undertake the trip or some vessels to make more trips. In addition, net vessels in this area also target other species, particularly Spanish mackerel, that may provide relatively higher profitability. The recreational sector is subject to a bag limit of 5 fish per person per day (charterboats on trips of more than 24 hours may possess up to two 5-fish daily bag limits. Moreover, the recreational allocation of 62.9 percent of the TAC may also be high relative to the number of anglers targeting Atlantic king mackerel. These and perhaps other unknown factors may have contributed to harvests below the commercial and recreational allocations.

Given the historical harvests of both the commercial and recreational sectors of the Atlantic king mackerel fishery, the preferred TAC, which in principle means a reduction in commercial and recreational allowable harvests, is very unlikely to result in actual reductions in commercial and recreational harvests, at least in the near future. In this case, the Proposed Action, and for that matter any of the alternatives including the most restrictive, i.e., Rejected Alternative 1d, is expected to have very minimal effects on short-term net benefits to both the commercial and recreational sectors of the Atlantic king mackerel fishery. Of course, it may be noted that a TAC as low as 7.6 MP (Rejected Alternative 1d) may be interpreted by fishing participants that their respective historical harvest may be reduced. In this situation, they may increase their fishing effort so that harvests of both the commercial and recreational sectors may be pushed at or near their respective harvest allocations. It is in this sense that an alternative with higher TAC, e.g., Proposed Action or status quo, may be considered slightly better in terms of net benefits accruing to fishing participants than any alternative with lower TAC, e.g. Rejected Alternative 1d or 1e.

The choice of a TAC within the SAP's recommended ABC range provides a relatively high chance of maintaining a healthy stock over time. Thus while higher than most other alternatives, the TAC under the Proposed Action may be expected to sustain relatively high net benefits over time. Naturally maintenance of such relatively high net benefits over a longer period depends on the management strategy adopted in the future. While currently it is possible that, in the case of the commercial sector, fishermen hold down their landings to maintain high prices, over time under an open access system of management new vessels may enter the fishery. This could result in increased landings



over a short period of time and subsequently in lower prices. In this case, the mentioned net benefits would tend to be dissipated over the long run unless some form of effort limitation, possibly in terms of limiting entry of new vessels, is adopted for the fishery.

## **2. Atlantic Group Spanish Mackerel**

### **2a. Proposed Action:**

**Total Allowable Catch (TAC) is increased from 9 to 9.2 million pounds. Allocations are calculated according to formula, and the bag limit remains unchanged at 10 fish per person per day.**

**TAC = 9.2 million pounds**

**Commercial Allocation (50%) = 4.6 million pounds**

**Recreational Allocation (50%) = 4.6 million pounds / 1.41 pounds/fish = 3,262,400 fish**

**2b. Rejected Alternative:** No change, set TAC of 9.0 million pounds for Atlantic group Spanish mackerel.

**2c. Rejected Alternative:** Set TAC of 4.1 million pounds for Atlantic group Spanish mackerel.

The SAP estimates the 1993/1994 median SPR for the Atlantic group of Spanish mackerel at 42 percent, and projects SPR levels to be above the minimum level of 30 percent for fishing years 1994/1995 through 1997/1998. SPR for this stock has been above the 30 percent minimum since fishing year 1990/1991 (see Figure 26 of the 1994 SAP report). Thus, the SAP determines this stock as not overfished.

The recommended 1994/1995 ABC for this group ranges from 4.1 to 9.2 MP. There is a 16 percent chance that ABC is below the lower bound and 50 percent chance that it is below the upper bound of the recommended ABC range. The SAP also estimates an 84 percent chance of the ABC to be less than 15.2 MP (SAP, 1994).

All TAC alternatives are within the SAP's recommended ABC range. The allocation formula provided in the FMP, as amended, calls for a greater share to the recreational sector for any TAC increase until a TAC of 6.6 MP is reached; thereafter the recreational and commercial shares are equalized. The proposed TAC of 9.2 MP for this year, as with the case for the last three years' TAC, allows the equalization of the two shares. Hence the 50/50 commercial/recreational allocation is maintained for the current year under the proposed TAC.

The proposed TAC is higher than that of the status quo, and given the same allocation ratio as that of the status, it directly translates to an increase in commercial quota and recreational allocation. In principle, such an increase in allowable harvest is bound to raise the short-term benefits to both the commercial and recreational user groups. However, the realization of such increased benefits is expected to differ between the commercial and recreational sectors as will be discussed below.

For fishing seasons 1987/1988 through 1991/1992, the commercial fishery closed about 9 to 10 months after it opened, and exceeded its allocation by as high as 52 percent. The commercial harvest approximated the commercial allocation in the past two seasons, and there was no closure of the fishery for these two seasons. The commercial trip limits adopted for that fishing year enabled the fishery to remain open throughout the 1992/1993 season. With slight modifications, the same trip commercial trip limits were adopted for the 1993/1994 season. Again the fishery remained open the entire season. In all fishing years, however, since the more restrictive regulations were imposed on the fishery, the commercial quota has been fully taken, including that of last year despite a 1 MP increase in commercial quota. It can be expected then that the increase in commercial quota of 0.1 MP under the proposed TAC would lead to an increase in commercial harvest.

Although there is no current empirical estimate of demand for Spanish mackerel, it may be inferred from a recent demand study for king mackerel (see Easley et al., 1993) that such demand is probably highly elastic. This means that an increase in commercial quota translates to an increase in ex-vessel revenues, since landings increases far outweigh price decreases. Given an average ex-vessel price of \$0.33 per pound for Spanish mackerel, a 0.1MP increase in quota corresponds to an increase in revenue of slightly less than \$33 thousand. Although there is no available information on vessel cost and effort elasticity, it may be argued that such increase in revenues would translate to an increase in profitability. Since the quota increase is relatively small, the additional cost of harvesting it is minimal and likely to be outweighed by the revenue increase.

An increase in commercial quota may be expected to benefit consumers of the resource in terms of an increase in consumer surplus. But if the demand for Spanish mackerel is highly elastic as is the case with king mackerel, a 0.1 MP increase in commercial quota (and landings) may be expected to bring about a minimal increase in consumer surplus.

Florida's share of the Atlantic Spanish mackerel landings averaged at about 64 percent for the 1990/1991 and 1991/1992 fishing seasons, increased to about 69 percent in the 1992/1993 season, and increased further to about 80 percent in the 1993/1994 season (see Appendix 2). Such increase in Florida's share also reflected an increase in total landings, especially noting that for three consecutive years, i.e., 1991/1992, 1992/1993, and 1993/1994 the TAC and commercial quota stayed the same. Apparently, the adoption of the trip limit system in the last two years did not decrease the share and total landings of Florida, but might have constrained the landings in states north of Florida, except North Carolina, which already adopted similar trip limits prior to the 1992/1993 season. Should the 1994/1995 catches in states north of Florida remain close to those of the last two seasons possibly due to the established trip limits in these areas, most of the TAC and commercial quota increase would be shared by Florida boats.

As mentioned earlier, the stock is determined by the SAP to be way above the minimum SPR for overfishing. Since the proposed TAC of 9.2 MP is within the recommended ABC range, overfishing of the stock is unlikely to occur. Thus, the proposed increase in TAC and commercial quota may be maintained over a longer period. But whether the accompanying benefits to the commercial sector are maintained over a longer period depends on the type of management adopted in the future.

Generally under an open access system for the fishery, a short-run increase in profits, as likely the case under a higher quota, is likely to attract more effort into the fishery over time. In the current situation of the Atlantic Spanish mackerel, the commercial quota has been fully taken in the past several years. The commercial quota for the 1994/1995 season, inclusive of the proposed increase, is also likely to be taken by existing fishery participants. Under the scenario of no new entrants and current vessel trip limits, such increase in quota would mean that more fish would be landed and become available in the market over a longer period. Even if the trip limits are maintained over time, more vessels may still be expected to enter the fishery. In this latter case, more fish would be landed over a shorter period with the consequence of depressing prices and eventually decreasing profits to all vessels. Thus, the long-run outlook of a quota increase is not necessarily beneficial to the industry unless some effort limitation strategy, particularly in terms of limiting new entrants, is adopted for the fishery.

The recreational fishery did not fish out its allocation in the past seven fishing seasons. In the 1989/1990 fishing season, only about half of the quota was filled. Part of the explanation comes from the fact that there was a large increase in recreational allocation for that season. Another possible reason is the lagged reaction of anglers to quota overruns and controversial fishery closure in the previous year (1988/1990). This is partly borne out by the fact the total recreational catch in the 1989/1990 fishing season was only about 62 percent of that of the 1988/1989 season. Positive reaction of anglers to management actions picked up in the 1990/1991 fishing season when harvest increased to as much as 165 percent that of the year before. This harvest was about 96 percent of recreational quota was taken, although we may note that the 1990/1991 recreational allocation was 0.9 MP less than its 1989/1990 level. In the 1991/1992 fishing year the recreational allocation (through a TAC increase) was substantially increased and was about 88 percent more than that of the previous year. Recreational catch about leveled for this year, and was less than 50 percent of the recreational quota. In 1992/1993 season, recreational catch increased slightly but was only about 53 percent of total recreational allocation although this excludes catch data for March which had been relatively high in the past years. In the 1993/1994 season, recreational allocation was raised by 1 MP as a result of raising the TAC by 2 MP. For that year, recreational catch amounted to only about 0.94 MP or 21 percent of the sector's allocation. Again data for March is not yet included in the catch estimates. However, given the harvest history of the recreational sector even inclusive of catches in March, the proposed increase in TAC (resulting in higher recreational allocation) is not expected to directly increase recreational catch. To some extent, recreational catch is constrained by the bag limits, and bag limits are not proposed to be increased for the 1994/1995 season. If results from a more recent study on Gulf king mackerel (which determined the absence of relationship between catch rates and trips per angler) applies to Spanish mackerel, even an increase in bag limits may not be expected to increase benefits to current participants of the mackerel recreational fishery (see Milon, 1993 for an estimate of recreational demand). Indirectly, however, the expected shortfall in recreational catch relative to its allocation will assure maintenance of relatively high SPR for the species.

**3. Gulf Group King Mackerel in the Eastern Zone, North Area.**

- 3a. Proposed Action:** In the Northern area (Dade through Volusia Counties), daily commercial trip limits of up to 50 fish per vessel are to be allowed until 75 percent of the suballocation of 865 thousand pounds is filled, then 25 fish per daily trip until the allocation is filled.
- 3b. Rejected Alternative:** Status quo; in the Northern area (Dade through Volusia Counties) daily commercial trip limits of up to 50 fish per vessel are to be allowed until 50 percent of the suballocation of 865 thousand pounds is filled, then 25 fish per daily trip until the allocation is filled.
- 3c. Rejected Alternative:** King mackerel vessel trip limits for eastern zone, Northern area; a 50 fish per daily trip limit reverting to 25 fish when 50 percent of the suballocation is taken. If 50 percent of the suballocation is not taken by January 15, the trip limit remains at 50 fish until 75 percent of the suballocation is taken. If 75 percent of the suballocation is not reached by March 1, the limit remains at 50 fish until the suballocation is taken.

The fishing season for Gulf king mackerel starts on July 1 of every year and extends to June 30 of the following year. A TAC of 7.8 million pounds (MP) has been maintained for the fishery. The established 68/32 recreational/commercial allocation ratio translates to a 2.5 MP overall quota for the commercial sector. Out of this commercial quota, 1.73 MP is allocated to the Eastern Zone and the rest to the Western Zone. Under the 50/50 allocation established temporarily under an emergency action and more permanently under a plan amendment (currently pending for Secretarial approval), the Northern Area will be allocated 0.865 MP. Under a supplemental regulatory amendment, a commercial trip limit was established for the Northern Area -- 50 fish per vessel per trip until 50 percent of the area's allocation, or about 0.432 MP, is taken, and thence the trip limit drops to 25 fish until the area's allocation is filled or the until March 31, whichever comes first. We may note that the fishery in the Northern Area starts on November 1 of each year and ends on March 31 of the following year.

The Proposed Action and Rejected Alternative 3c are alternatives to the mentioned trip limits (or Rejected Alternative 3b) established last fishing season for the Northern Area. The rationale for these alternatives is to allow the Northern Area king mackerel hook and line fishermen to fully harvest the area's allocation. Last year, only 0.6 MP of the 0.865 MP allocation (or 69 percent) were taken by fishermen in the area. The commercial trip limit was reduced from 50 fish to 25 fish per vessel per daily trip on February 7, 1994.

Since the implementation of more restrictive regulations on the mackerel fishery, the commercial fishing season for Gulf king mackerel in the Eastern Zone has never remained open beyond January. The only exception before last year is the 1992/1993 season due to the re-opening of the fishery from February 18 through March 26, 1993 through an emergency action upon request from commercial fishermen in the area. Upon implementation of the 50/50 split of the Eastern Zone subquota between the South/West and Northern Areas and of the commercial trip limit in the Northern Area, the fishery in this latter area remained open throughout 1993/1994 season (i.e., from November 1 through March 31).

With fishery closures occurring around January, net vessels (12 vessels by current account) that used to fish Gulf king mackerel in the Northern Area have been practically excluded from the fishery since the effective fishing season for these vessels starts around late February. The 50/50 allocation of the Eastern Zone sub-quota could have re-opened this net fishery, but the trip limits adopted for the North Area were too restrictive for net vessels to re-enter the fishery. The trip limits under any of the alternatives for the Northern Area would maintain the hook and line fishery with an estimated 150 full-time fishing crafts, and in this way would allocate all the allocation for the Northern Area to the hook and line fishing vessels.

The RIR for Amendment 7 concluded that the under the then proposed trip limits (i.e., status quo alternative here), the Northern Area allocation would be taken in about three months. This conclusion was inferred from the re-opening of the fishery under a 25-fish trip limit in which 0.259 MP were harvested between February 18 and March 26, 1993. The past fishing year proved to be different. Of the 0.6 MP harvested only about 0.168 MP were caught from February 7 through March 31, 1994 under a 25-fish trip limit. About 0.265 MP, or 31 percent, of the Northern Area allocation was left unharvested when the 1993/1994 fishing season ended (see Appendix 2).

Among the alternatives for trip limits, the Proposed Action and Rejected Alternative 3c offer a higher probability that trollers will catch the entire Northern Area allocation. With king mackerel demand being elastic (Easley et al., 1993) an increase in harvest translates to gross revenue increases for these trollers in the short run. While catch rates may increase, the trip limits appear to be still relatively restrictive as to leave the fishery open until the normal end of the season on March 31. We may note that while net vessels in this area are not excluded from the fishery by explicit regulation, the trip limits are restrictive enough as to make net vessel trips unprofitable. A steady supply of king mackerel over the entire season can take advantage of a relatively higher seasonal demand shifter in February and March (see Easley et al., 1993 for the relative magnitude of monthly demand shifters).<sup>1</sup> While more revenues do not necessarily mean higher net vessel profits, in the particular case of the Northern Area king mackerel fishery a higher net profit may be expected since vessels are rendered more efficient with higher trip limits.

With potentially higher landings under the Proposed Action and Rejected Alternative 3c, consumer surplus may also increase as more fish become available over a longer period and at a relatively lower prices.

Between the Proposed Action and Rejected Alternative 3c, the latter may be deemed to effect a relatively higher net profits to trollers in the sense that they are allowed to operate under a higher trip limit if certain conditions stipulated in this alternative do not occur. If such conditions occur, both alternatives will generate about the same effects on the profitability of vessels. However, Rejected Alternative 3c may incur more costs from the standpoint of compliance, enforcement, and monitoring of catches due to various changes that can potentially occur.

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<sup>1</sup> It may be pointed out that this particular study was not intended to rigorously examine monthly demand for king mackerel, but it does provide monthly demand shifters that may be roughly considered as indicative of the relative strength of demand on a month to month basis.

The long-run effects of higher trip limits depends on additional regulatory measures that may be adopted in the future. The proposed change in trip limits may appear to be restrictive enough for new vessels to enter the fishery. But if the expected increase in vessel profitability due to the proposed change in trip limits persist over a longer period, new vessels may enter the fishery under an open access management system. While these new vessels may still be constrained by the trip limits, their presence in the fishery would mean that eventually the 75 percent benchmark for lowering the trip limits may be reached sooner. In this eventuality prices would be depressed and vessel profitability would tend to fall. In a sense then a derby-like fishery may occur. Lower trip limits that may be imposed to prevent a derby may only render the vessels inefficient, with adverse consequences on industry profitability. Thus, the long-run status of the fishery may not necessarily be beneficial as a result of the change in trip limits unless some form of effort limitation, possibly in terms of limiting entry of new vessels, is adopted.

**4. Gulf Group King Mackerel in the Eastern Zone, South/West Area.**

**4a. Proposed Action:** For net vessels; daily trip limit of 25,000 pounds until 90 percent of the suballocation is taken; then 15,000 pound daily trip limit.

**4b. Proposed Action:** No trip limit for commercial hook-and-line vessels.

**4c. Rejected Alternative:** Status quo: No commercial trip limits until 75 percent of the subquota is taken, then 50 fish per vessel per day until the subquota is taken.

There are certain issues worth noting about these alternatives for the commercial fishery in the South/West Area of the Eastern Zone. First, the status quo alternative which was established last year applied when there was only one suballocation for the South/West Area of the Eastern Zone. Under Amendment 7 (currently pending Secretarial approval), the South/West Area commercial suballocation is further divided between net and hook-and-line fishermen (50/50 ratio). Considering this new suballocation between different gear users, the status quo alternative becomes inappropriate, since without additional stipulation of its applicability only to each user group's allocation it could result in one user group affecting the trip limit of another. For example, if the netters fish out their allocation and hook-and-line fishermen harvest half of their own allocation, thence hook-and-line fishermen will be subject to the 50-fish trip limit and the net fishery closed. Conversely, if hook-and-line fishermen harvest their allocation and netters harvest half of their own allocation, thence netters will be subject to the 50-fish trip limit and the hook-and-line fishery closed. In this latter case, the low trip limit may preclude any profitable net vessel trips. Second, under the 50/50 allocation, the net and hook-and-line fisheries would be closed when their respective allocations are fished. Closure of these two fisheries may or may not coincide in time.

Unlike the Northern Area, effective fishing for Gulf king mackerel in this area starts around July 1 but prior to November 1, the South/West Area spans only the area south of the Florida/Alabama state line up through the Collier/Monroe county line. From November 1 through March 31, the South/West area also includes Monroe county. Before November 1, however, only a limited fishery exists and mostly occurs in the Florida Panhandle. For the past 9 years (1985/1986 - 1993/1994), the average landings of this limited fishery

amounts to about 62,000 pounds. The peak of the South/West fishery occurs around late November through early January. A record catch for a single month occurred in January 1993 when about 899,600 pounds of king mackerel were landed. In fact, these catches were landed in a span of 10 days. Inclusive of catches during closures in the EEZ, the average catch of king mackerel in the South/West Area for the 8 years prior to the 1993/1994 season is about 738 thousand pounds. The 1993/1994 season was the first year when the Eastern Zone commercial quota was split 50/50 between the North and South/West Areas. For this year, the South/West Area harvested about 0.958 MP or 111 percent above its allocation of 0.865 MP. The fishery closed on January 27, 1994 although a 50-fish trip limit was imposed on December 29, 1993 (see Appendix 2).

As mentioned earlier, the South/West Area's commercial allocation of 0.865 MP is divided equally between net and hook-and-line fishermen. Under the proposed actions (4a and 4b), the net fishery allocation of 0.432 MP would be subject to trip limits while that of the hook-and-line fishery (0.432 MP) would not be subject to any trip limit. Potentially affected by the proposed actions are 12 to 20 net vessels and 75 to 100 troll vessels that target king mackerel in the Keys during the peak season starting late December. Most king mackerel fishermen in the Florida Keys also target other species such as stone crabs, spiny lobster, and reef fish.

In the last fishing year when the 50-fish trip limit applied only when 75 percent of the South/West Area allocation was met, 12 Florida Keys gillnet vessels harvested about 0.486 MP, or 56 percent of the South/West allocation, in four days (Godcharles, 1994). The daily harvests by the 12 net vessels in these four days ranged from a low of 0.021 MP to a high of 0.252 MP. Two net vessels landed single catches of around 0.035 MP and three net vessels produced an aggregate of 0.083 MP. These numbers imply that existing capacity of net vessels can fill their allocation in less than a week under an unlimited catch scenario. Considering the daily landings by net vessels, the proposed trip limit of 0.025 MP per vessel per daily trip (reduced to 0.015 MP when 90 percent of the net allocation is taken) would do very little to extend the fishing season for this fishery. Although there are some vessels that may be affected by the proposed trip limit, e.g. those that caught 0.035 MP in one day, these vessels' forgone daily harvest could most likely be picked up by other vessels of equal or lesser capacity. For the net fishery however, extending the fishing season is not necessarily beneficial since large harvests (implying shorter season for the given quota) can take advantage of economies of scale at the harvester and processor levels. If other fisheries they engaged in also become favorable, a shorter mackerel season can provide these vessels with more time to spend on these other fisheries.

Since the fishing season would not be extended under the proposed trip limit, net vessels would likely receive prices equal to those they would receive without the trip limit. One major implication of this is that while revenues to the net vessel fishery would not increase, some vessels, and therefore the entire net fishery, would experience reduced efficiency. While it cannot be quantified, this reduction in efficiency is deemed minimal.

It appears then that with respect to effects on net vessels the proposed trip limit would not significantly differ from a situation without trip limits. In this regard, the issue turns to the question of whether quota overages can be minimized under the proposed trip limit.

Under Proposed Action 4a, the trip limit reduces from 0.025 MP to 0.015 MP when 90 percent of the net vessel allocation is taken. Thus when the lower trip limit becomes effective, only about 0.043 MP (10% of 0.432 MP) would be left of the net vessel allocation. This remaining amount can be readily taken in half a day so that overages are still bound to occur for this fishery. To the extent, however, that most net vessels do not find it profitable to fish at the lower trip limit, large overages may be prevented. Only in this context then can the proposed trip limit be considered beneficial.

The hook-and-line vessels may experience short-term increases in profitability. With an assured allocation of 0.432 MP and no trip limit under Proposed Action 4b, the more efficient vessels may experience higher revenues. Such higher revenues are likely to come from more catches than from better prices, because although hook-and-line vessels would not compete with net vessels in harvest, they would compete with them in the market. Moreover, if their season extended beyond January they would also compete with vessels in the North Area in the market for king mackerel. Their fishing costs, on the other hand, may not substantially increase so that such costs would likely be outweighed by revenue gains. Thus, this fishery's profitability may increase. One may note though that smaller hook-and-line vessels fishing under the 50-fish trip limit in the past season when 75 percent of the South/West allocation was taken would face stiffer competition from larger hook-and-line vessels. But if they operate efficiently, they may still profit despite the competition provided by larger vessels.

If such profitability increase is maintained for some time, additional vessels can be expected to enter the fishery or vessels in the fishery may increase their effort to partake as much as they can of the given quota. This situation is bound to happen unless some effort limitation strategy is adopted for the fishery.

Currently, monitoring procedure is already established to track the two subquotas in the South/West Area. The proposed trip limits for net vessels and no trip limits for hook-and-line vessels are adequately covered by this monitoring procedure. The trip limit for net vessels would require additional enforcement cost.

### **Government Costs of Regulation**

Federal government costs of this action were associated with meetings, travel, calculation of ABCs, preparation of various documents and reviewing all documents. Other sources of additional costs include extraordinary research specifically done for the purpose of this particular action, additional statistics costs, additional monitoring costs, and additional enforcement costs resulting from the action. In the latter cases, except enforcement, no additional costs are anticipated.



Council costs of document preparation, meetings, and information dissemination.....	\$ 30,000
NMFS administrative costs of document preparation, meetings and review.....	\$ 15,750
Law enforcement costs.....	\$ 30,000
Monitoring costs.....	None additional
Research and statistics.....	None additional
<b>TOTAL.....</b>	<b><u>\$ 75,750</u></b>

### Summary and Expected Net Impact of Proposed Action

The proposed regulatory action constitutes changes in management for the Atlantic groups of king and Spanish mackerel and for the Eastern Zone of the Gulf king mackerel fishery. The emphasis of the summary is on the expected economic impact of the proposed actions. The analysis done in this RIR presupposes approval and implementation of Amendment 7 to the mackerel FMP.

The Proposed Action to reduce the Atlantic group king mackerel TAC from 10.5 to 10 MP is expected to have very minimal short-run impacts on the commercial and recreational sectors of the fishery, because the harvests of both sectors have been historically well below 10 MP. Both consumer and producer surplus would not materially change under this proposed change in TAC. Considering that the proposed TAC is within the ABC range recommended by the SAP, overfishing may not happen over time. However, maintenance of long-term benefits from the choice of TAC within ABC depends on the type of management strategy adopted in the future.

The Proposed Action to increase the Atlantic group Spanish mackerel TAC from 9 to 9.2 MP has minimal effects on the recreational sector, because more recent harvest of this sector has been well below its allocation. Commercial revenues may slightly increase (about \$33 thousand), with costs expected to remain about the same. Producer surplus may slightly increase in this case. With more fish available over a longer period, consumer surplus may also increase although by a small amount only.

The Proposed Action for the commercial trip limits in the Northern Area is expected to result in higher short-run net economic benefits, in terms of producer and consumer surplus, to the fishery. The long-run effects will be towards dissipation of such benefits as more vessels enter the fishery at the prospect of higher short-run profitability.

For the South/West Area, the Proposed Action is determined to have minimal effects on the profitability of the fishery. It may prevent overruns of net vessel allocation to the extent that most net vessels find it unprofitable to fish under the lower trip limit. The absence of any trip limit on the hook-and-line vessels may increase the overall profitability

of this fishery, with a greater portion of the benefit increase going to more efficient vessels. Consumer surplus may increase by a small amount.

Government costs for preparing and implementing this action are estimated at \$ 75,750.

### **Determination of a Significant Regulatory Action**

Pursuant to E.O. 12866, a regulation is considered a "significant regulatory action" if it is likely to result in: a) an annual effect on the economy of \$100 million or more; b) a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions; or c) significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

The entire commercial Gulf and Atlantic king mackerel fishery is valued at significantly less than \$100 million. The Proposed Action to reduce the Atlantic king mackerel TAC is expected to have no revenue effects on both the commercial and recreational (including for-hire vessels) sectors of the fishery. The Proposed Action to increase the Atlantic Spanish mackerel TAC has no effects on the recreational sector and only a relatively minimal revenue effects on the commercial sector. The trip limits proposed for the Northern Area and for the net fishery in the South/West Area, including no trip limit for hook-and-line vessels in this area, are expected to result in revenue increases but are deemed to be significantly less than \$100 million annually. Hence, given the size of the fishery and the mentioned revenue effects of the proposed actions, it is concluded that impacts on the fishery resulting from this regulatory action would be significantly less than \$100 million annually.

The proposed changes in the TAC's for the Atlantic groups of king and Spanish mackerel and in the commercial trip limits for the Northern and South/West Areas of the Eastern Zone of the commercial king mackerel fishery have been determined to result in an increase in revenues to the harvest sector and therefore in an increase in expenditures to the consumers. However, price per pound to consumers are not expected to increase, and in fact may decrease due to an increase in landings that would drive the prices down given that mackerel demand is elastic.

The proposed changes in TACs for the Atlantic groups of king and Spanish mackerel and in the commercial trip limits for the Northern and South/West Areas of the Eastern Zone Gulf king mackerel fishery are expected to effect no major cost increase to the Atlantic and Gulf mackerel industries. The \$45,750 identified as federal cost has been incurred in the preparation of the regulatory action. An additional \$30,000 is expected to be incurred to enforce the changes in trip limits for the net fishery segment in the South/West Area of the Eastern Zone Gulf king mackerel fishery.

The proposed changes in TAC's for the Atlantic groups of king and Spanish mackerel and in the trip limits on the South/West Area are also expected to rule out any adverse effects on employment, investment, productivity, innovation, or on the competitive status of the

domestic fishery relative to domestic and foreign markets. On the other hand, the proposed trip limits on net vessels in the South/West Area of the Eastern Zone Gulf king mackerel fishery may create inefficiencies but the extent of such effects is considered to be relatively small.

It is therefore concluded that this regulation if enacted would not constitute a "significant regulatory action" under any of the mentioned criteria.

### **Determination of a Need for an Initial Regulatory Flexibility Analysis**

#### **Introduction**

The purpose of the Regulatory Flexibility Act is to relieve small businesses, small organizations, and small governmental entities from burdensome regulations and record keeping requirements. The category of small entities likely to be affected by the proposed regulatory amendment is that of commercial businesses currently engaged in the Eastern Zone of the Gulf king mackerel fishery. The impacts of the proposed action on these entities have been discussed above. The following discussion of impacts focuses specifically on the consequences of the proposed action on the mentioned business entities. An Initial Regulatory Flexibility Analysis (IRFA) is conducted to primarily determine whether the proposed action would have a "significant economic impact on a substantial number of small entities." Although an IRFA focuses more on adverse effects, determination of beneficial significant effects is also an integral component of the analysis. In addition to analyses conducted for the Regulatory Impact Review (RIR), the IRFA provides an estimate of the number of small businesses affected, a description of the small businesses affected, and a discussion of the nature and size of the impacts.

#### **Determination of Significant Economic Impact on a Substantial Number of Small Entities**

In general, a "substantial number" of small entities is more than 20 percent of those small entities engaged in the fishery (NMFS, 1992). In the Gulf area, a total of 3,069 mackerel permits were issued broken down into 1,623 commercial, 938 charter boat, and 549 both commercial and charter boat permits. In the South Atlantic area, a total of 1,983 mackerel permits were issued broken down into 1,008 commercial and 975 charter boat permits. In the Northern Area of the Eastern Zone of the Gulf king mackerel fishery, there are about 150 hook and line vessels and 12 net vessels, and in the South/West Area of this Eastern Zone there are about 100 troll vessels and 20 net vessels. The Small Business Administration (SBA) defines a small business in the commercial fishing activity as a firm with receipts of up to \$2.0 million annually. Since the proposed action will affect practically all participants of the Eastern Zone commercial Gulf king mackerel fishery, the "substantial number" criterion will be met in general.

Economic impacts on small business entities are considered to be "significant" if the proposed action would result in any of the following: a) reduction in annual gross revenues by more than 5 percent; b) increase in total costs of production by more than 5 percent as a result of an increase in compliance costs; c) compliance costs as a percent of sales for small entities are at least 10 percent higher than compliance costs as a percent of

sales for large entities; d) capital costs of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities; or e) as a rule of thumb, 2 percent of small business entities being forced to cease business operations (NMFS, 1992).

The proposed reduction in the TAC for the Atlantic group of king mackerel is not expected to affect the revenues of small entities. The proposed increase in the TAC for the Atlantic group of Spanish mackerel will effect only a very small increase in revenues to the commercial sector. For both actions reductions in gross revenues (item a) are ruled out. These actions also rule out any increases in compliance costs (items b through d). The proposed trip limits for both the Northern and South/West Areas are expected to increase benefits to the industry and therefore rule out potential major reduction in gross revenues (item a) and potential major increases in compliance costs (items b through d) to the entire industry.

Considering that all participants in the commercial Gulf king mackerel fishery may be deemed small business entities, the issue of big versus small business operations is not relevant in determining distributional/regional effects of regulations, and it thus also rules out disproportionate effects on capital costs of compliance (item d). Since the reduction in TAC for the Atlantic group of king mackerel has no revenue effects and the increase in TAC for the Atlantic group of Spanish mackerel will slightly increase revenues to the commercial sector, both actions can be expected to have no effects on the decision of certain small businesses to cease operation (item e). The proposed trip limits for both the Northern and South/West Areas of the Eastern Zone of the Gulf king mackerel fishery are not very restrictive (or no restriction at all with respect to hook-and-line vessels in the South/West Area) as to force any business operation to cease business (item e).

It can be inferred from the foregoing discussion that the proposed regulation, if enacted, will have no significant economic impact on a substantial number of small entities in the commercial Gulf king mackerel fishery. Therefore, an IRFA is not required.

## **VI. ENVIRONMENTAL CONSEQUENCES**

**Physical Environment:** To the extent that can be ascertained, the action proposed in this amendment will have no impact on the physical environment. Gear traditionally used in this fishery (hook-and-line and run around gill-nets) have no adverse impact on the bottom substrate or other habitat. As deployed in this fishery, both gear are selective to the target species. Continuing studies have provided no new information beyond that already contained in the FMP as amended and which further defines the relationship between stocks and habitat.

**Fishery Resources:** The TACs are consistent with the Council's objective of rebuilding overfished stocks within the prescribed periods. The proposed action is intended to protect coastal pelagic fish stocks from recruitment and growth overfishing while allocating allowable catch among fishermen. The proposed action would have insignificant effect on the fishery resources.

**Human Environment and Social Impact Assessment:** The management of fisheries may directly affect the human environment. Current social data on users in the mackerel fishery affected by this amendment are sparse. Most of the known impact is of an economic nature. A determination of the net impact on the users of the resource by the proposed action is in the regulatory impact review and initial regulatory flexibility analysis (Section V). The impact on fishery resource users in adjacent areas has been coordinated with the appropriate Council.

**Effect on Endangered Species and Marine Mammals:** The NOAA conducted a consultation under Section 7 of the Endangered Species Act regarding the impact of Amendment 6 which included the framework measures under which this action is being taken. Therefore, no additional Section 7 consultation is necessary. A biological opinion resulting from that consultation found that (1) Amendment 6 did not contain any regulatory changes that would adversely affect listed species of sea turtles, marine mammals, or fish, or their respective habitats; and (2) the fisheries for coastal migratory pelagic resources will not jeopardize the continued existence of any listed species.

**Effect on Wetlands:** The proposed action will have no effect on flood plains, wetlands, or rivers.

**Mitigating Measures:** No mitigating measures related to the proposed action are necessary because there are no harmful impacts to the environment.

**Unavoidable Adverse Affects:** The proposed action does not create unavoidable adverse affects.

**Irreversible and Irretrievable Commitments of Resources:** There are no irreversible commitments of resources caused by implementation of this amendment.

## Finding of No Significant Environmental Impact

The proposed action is not a major action having significant impact on the quality of the marine or human environment of the Gulf of Mexico. The proposed action is an adjustment of the original regulations of the FMP under the framework procedure set forth in Amendment 6 to rebuild overfished stocks. The proposed action should not result in impacts significantly different in context or intensity from those described in the environmental impact statement and environmental assessment published with the regulations implementing the FMP and Amendment 6. The environmental consequences of this action are almost entirely economic in nature and are discussed in the Regulatory Impact Review and Initial Regulatory Flexibility Analysis in Section V.

Having reviewed the environmental assessment and available information relative to the proposed actions, I have determined that there will be no significant environmental impact resulting from the proposed actions. Accordingly, the preparation of a formal environmental impact statement on these issues is not required for this amendment by Section 102(2)(c) of the National Environmental Policy Act or its implementing regulations.

Approved: \_\_\_\_\_

Assistant Administrator for Fisheries

\_\_\_\_\_ Date

### Scientific Data Needs

To monitor stocks to determine whether overfishing occurs, the SEFC of NMFS currently monitors catch by size (age) to estimate recruitment and acceptable biological catch. No additional collection of scientific data would be required by this amendment. The Mackerel Stock Assessment Panel and the Socioeconomic Assessment Panel have identified the following data needs:

1. An evaluation of CPUE indices should be completed relative to standardization methods and management history.
2. The socioeconomic risks of selecting TAC's above the recommended ABC range needs to be completed.
3. The size at age of both king and Spanish mackerel need to be evaluated.
4. Size/age samples need to be increased for cobia, particularly in the Gulf.
5. The identification of Spanish mackerel stocks through multiple research techniques need to be completed.
6. Yield per recruit analyses should be conducted relative to alternative selective fishing patterns.
7. Mexican landings data needs to be obtained.
8. Research on the consequences and estimation of bycatch needs to be completed.
9. Research on the application of assessment and management models relative to dynamic species such as Spanish mackerel needs to be completed.
10. Recreational and commercial demand studies on the Spanish mackerel fishery need to be conducted and there is a need to estimate supply functions for the vessels involved in the commercial and for-hire mackerel fishery. The supply studies would

involve collection of vessel costs and returns information. The studies should also involve consideration of the effect of Mexican fisheries for Spanish and king mackerel.

11. There remains a need to determine the priority research which is necessary to provide minimally acceptable analyses of stock allocation among user groups.
12. The Socioeconomic Assessment Panel recommends that the Marine Recreational Fisheries Statistical Survey be augmented in ways that provide additional data for estimating economic models.

## **VII. OTHER APPLICABLE LAW**

**Impacts on Other Fisheries:** The proposed action distributes the limited quota among fishermen throughout the area by means of trip limits. It does not redirect effort to other fisheries. The majority of those fishermen in the South/West Area have indicated a preference to a short fishing season for king mackerel because of their diversified options and access to other fisheries which they traditionally pursue.

**Vessel Safety:** The proposal for implementation of daily commercial trip possession limits for mackerel was discussed with representatives of the affected Coast Guard District and commercial fishermen. They believed that because some catch was allowed on all days during the restricted daily limit period, fishermen would not require alternative fishing opportunity to compensate for unsafe weather for fishing. It was felt that these possession limits posed fewer safety problems than the current derby fishing in which vessels tend to fish as hard as possible regardless of weather conditions before the quota is taken.

Therefore, the proposed actions do not impose requirements for use of unsafe (or other) gear nor do they direct fishing effort to periods of adverse weather conditions.

**Paperwork Reduction Act:** The Council proposes no additional permit or data collection programs in this amendment.

**Federalism:** This proposed action does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under E.O. 12612.

## **VIII. PUBLIC REVIEW**

Hearings to obtain public comment on this regulatory amendment were held by the South Atlantic Fishery Management Council at and by the Gulf of Mexico Fishery Management Council at Brunswick, Georgia on April 20, 1994 and Corpus Christi, Texas on May 11, 1994.

**List of Agencies Consulted:**

**Gulf of Mexico Fishery Management Council's and South Atlantic Fishery Management Council's**

- Scientific and Statistical Committee
- Mackerel Stock Assessment Panel
- Socioeconomic Assessment Panel
- Mackerel Advisory Panel

**National Marine Fisheries Service**

- Southeast Fisheries Science Center
- Southeast Regional Office

**List of Organizations Consulted:**

- Concerned Fishermen of Florida
- Organized Fishermen of Florida
- Monroe County Concerned Fishermen, Inc.

**Responsible Agency:**

**Gulf of Mexico Fishery Management Council**  
5401 West Kennedy Boulevard  
Suite 331  
Tampa, Florida 33609  
813-228-2815

**South Atlantic Fishery Management Council**  
Southpark Building, Suite 306  
1 Southpark Circle  
Charleston, South Carolina 29407-4699  
803-571-4366

**List of Preparers:**

**Gulf of Mexico Fishery Management Council**  
Terrance Leary, Fishery Biologist  
Antonio Lamberte, Economist

**South Atlantic Fishery Management Council**  
Jane DiCosimo, Fishery Biologist  
Theophilus Brainard, Economist



## IX. REFERENCES

Easley, J. E., Jr., C. Adams, W. N. Thurman, and J. Kincaid. 1993. The derived demand for commercially harvested Gulf and South Atlantic king mackerel: partial and general equilibrium models. Project report to the Gulf of Mexico Fishery Management Council. Available from the Gulf of Mexico Fishery Management Council, Tampa, Florida.

Godcharles, M. 1994. Preliminary landings of Gulf and Atlantic king and Spanish mackerel. Southeast Region, NMFS, St. Petersburg, Florida.

\_\_\_\_\_. 1994. Letter to Terrance Leary.

Gulf of Mexico Fishery Management Council and South Atlantic Fishery Management Council. 1992. Amendment 6 to the fishery management plan for coastal migratory pelagics in the Gulf of Mexico and South Atlantic. Available from the Gulf of Mexico Fishery Management Council, Tampa, Florida.

Milon, J. W. 1992. A study of recreational demand for Gulf of Mexico group king mackerel using 1990 and 1991 MRFSS data. Project report to the Gulf of Mexico Fishery Management Council. Available from the Gulf of Mexico Fishery Management Council, Tampa, Florida.

National Marine Fisheries Service. 1992. Appendix 2.d: Guidelines on regulatory analysis of fishery management actions. In Operational guidelines for fishery management plan process. NMFS, Silver Spring, Maryland.

Socioeconomic Assessment Panel (R. Riechers, Chairman). 1994. Report of the second mackerel socioeconomic panel meeting. Available from the Gulf of Mexico Fishery Management Council, Tampa, Florida.

Stock Assessment Panel (J. Powers, Chairman). 1994. Report of the mackerel stock assessment panel. Available from the Gulf of Mexico Fishery Management Council, Tampa, Florida.

## Appendix I

Section 6.1.1: Mechanism for Determination of Framework Adjustments, as modified by this and previous amendments, is revised as follows:

### Section 12.6.1.1

- A. An assessment panel appointed by the Councils will normally reassess the condition of each stock or group of king and Spanish mackerel and cobia in alternate years for the purpose of providing for any needed preseason adjustment of TAC and other framework measures. However, in the event of changes in the stocks or fisheries, the Councils may request additional assessments as may be needed. The Councils, however, may make annual seasonal adjustments based on the most recent assessment.

The panel shall be composed of NMFS scientists, Council staff, Scientific and Statistical Committee members and other state, university, and private scientists as deemed appropriate by the Councils. The panel will address the following items for each stock:

1. Stock identity and distribution. This should include situations where there are groups of fish within a stock which are sufficiently different that they should be managed as separate units. If several possible stock divisions exist, the assessment panel should describe the likely alternatives.
2. MSY for each identified stock. If more than one possible stock division exists, MSY for each possible combination should be estimated.
3. Condition of the stock(s) or groups of fish within each stock which could be managed separately. When the panel is able to provide separate ABC ranges for the eastern and western groups of Gulf king mackerel, separated at the Alabama-Florida border, the ratio of the mix is to be calculated on allele frequencies. Allocations between recreational and commercial users are to remain unchanged or 68 to 32 percent. For each stock, this should include but not be limited to:
  - a. Fishing mortality rate relative to  $F_{msy}$  or  $F_{0.1}$ .
  - b. Abundance relative to an adequate spawning biomass.
  - c. Trends in recruitment.
  - d. Acceptable Biological Catch (ABC) which will result in long-term yield as near MSY as possible.
  - e. Calculation of catch ratios based on catch statistics using procedures defined in the FMP.
4. Overfishing.
  - a. A mackerel or cobia stock shall be considered overfished if the spawning potential ratio (SPR) is less than the target level percentage recommended by the assessment panel, approved by the Scientific and Statistical Committee (SSC), and adopted by the Councils.

The target level percentage shall not be less than 20 percent. (Based on the recommendation of the assessment panel and approval by the SSC, the Councils and RD have approved a SPR of 30 percent for king and Spanish mackerels.)

- b. When a stock is overfished (as defined in a), the act of overfishing is defined as harvesting at a rate that is not consistent with programs to rebuild the stock to the target level percentage, and the assessment panel will develop ABC ranges based on a fishing mortality rate that will achieve and maintain at least the minimum specified SPR. The recovery period is not to exceed 12 years for king mackerel beginning in 1985 and 7 years for Spanish mackerel beginning in 1987.
- c. When a stock is not overfished [as defined in (a)], the act of overfishing is defined as a harvest

rate that if continued would lead to a state of the stock that would not at least allow a harvest of OY on a continuing basis, and the assessment panel will develop ABC ranges based upon OY (currently MSY).

5. Management options. If recreational or commercial fishermen have achieved or are expected to achieve their allocations, the assessment panel may delineate possible options for nonquota restrictions on harvest, including effective levels for such actions as:
    - a. Bag limits
    - b. Size limits
    - c. Gear restrictions
    - d. Vessel trip limits
    - e. Closed season or areas, and
    - f. Other options as requested by the Councils
  6. Other biological questions as appropriate.
- B. The assessment panel will prepare a written report with its recommendations for submission to the Councils, by such date as may be specified by the Councils. The report will contain the scientific basis for their recommendations and indicate the degree of reliability which the Council should place on the recommended stock divisions, levels of catch, and options for nonquota controls of the catch.
  - C. The Councils will consider the report and recommendations of the assessment panel and such public comments as are relevant to the assessment panel's submission. A public hearing will be held at a time and place where the Councils consider the panel's report. The Councils may convene the joint Advisory Panel and may convene the Scientific and Statistical Committee to provide advice prior to taking final action. After receiving public input, Councils will make findings on the need for changes.
  - D. If changes are needed in MSYs, TACs, quotas, bag limits, size limits, vessel trip limits, closed seasons or areas, gear restrictions, or initial requirement of permits for each stock of king or Spanish mackerel or cobia, the Councils will advise the Regional Director of the Southeast Region of the National Marine Fisheries Service (RD) in writing of their recommendations, accompanied by the assessment panel's report, relevant background material, and public comment.

Recommendations with respect to the Atlantic groups of king and Spanish mackerel will be the responsibility of the South Atlantic Council, and those for the Gulf groups of king and Spanish mackerel will be the responsibility of the Gulf Council. This report shall be submitted by such date as may be specified by the Councils.

- E. The RD will review the Councils' recommendations, supporting rationale, public comments, and other relevant information, and if he concurs with the recommendation, will draft regulations in accordance with the recommendations. He may also reject the recommendation, providing written reasons for rejection. In the event the RD rejects the recommendations, existing regulations shall remain in effect until resolved. However, if the RD finds that a proposed recreational bag limit for Gulf migratory group or groups of king mackerel is likely to exceed the allocation and rejects the Council's recommendation, the bag limit reverts to one fish per person per day.
- F. If the RD concurs that the Councils' recommendations are consistent with the goals and objectives of the plan, the National Standards, and other applicable law, he shall implement the regulations by notice in the Federal Register prior to the appropriate fishing year or such dates as may be agreed upon with the Councils. A reasonable period for public comment shall be afforded, consistent with the urgency, if any, of the need to implement the management measure.

Appropriate regulatory changes which may be implemented by the Regional Director by notice in the Federal Register include:

1. Adjustment of the point estimates of MSY for cobia, for Spanish mackerel within a range of 15.7 million pounds to 19.7 million pounds, and for king mackerel within a range of 21.9 million pounds to 35.2 million pounds.
2. Setting total allowable catches (TACs) for each stock or group of fish which should be managed separately, as identified in the FMP provided:
  - a. No TAC may exceed the best point estimate of MSY by more than ten percent.
  - b. No TAC may exceed the upper range of ABC if it results in overfishing as defined in Section 12.6.1.1, A.4.
  - c. Downward adjustments of TAC of any amount are allowed in order to protect the stock and prevent overfishing.
  - d. Reductions or increases in allocations as a result of changes in the TAC are to be as equitable as may be practical utilizing similar percentage changes to allocations for participants in a fishery. (Changes in bag limits cannot always accommodate the exact desired level of change.)
3. Adjusting user group allocations in response to changes in TACs according to the formula specified in the FMP.

Implementing or modifying quotas, adjusted quotas, bag limits, size limits, vessel trip limits, closed seasons or areas, gear restrictions, or initial requirement of permits, as necessary to limit the catch of each user group to its allocation.



ATLANTIC GROUP KING MACKEREL  
 (1993/94) PRELIMINARY COMMERCIAL AND RECREATIONAL LANDINGS, (MWS/SEC/MRF/SS/FMRL)  
 Whole Weight in Pounds. (MRR91-92; 04/01/94; MWS.FSER11.M63)

1993/94 Commercial (Quota 1,908)

NORTH AND MID-ATLANTIC STATES	NORTH	NORTHERN AREA		GA	FLORIDA		SOUTH ATLANTIC	
		NC	SC		East Coast	West Coast		
	Apr 93	60,873	15,635	187	76,275	76,275	246,817	323,092
DE	0.02							
MD	0.02	115,923	22,821	462	139,746	215,981	393,011	533,017
NJ	0.22	22,932	13,858	3,168	39,939	255,929	648,470	856,109
NY	6,123	26,991	16,584	3,837	47,412	300,737	78,018	962,036
PA	0.21	15,339	16,997	748	32,946	333,720	936,319	1,078,359
VA	0.13	19,488	5,989	325	25,715	359,335	871,795	1,270,039
	0.02	74,765	8,089	131	82,995	642,070	1,052,134	1,357,230
		170,297	9,451	897	180,645	623,025	1,056,003	1,596,059
		43,349	5,345	266	48,976	649,999	7,819	1,746,067
		15,492		7	15,999	665,908	0,767	1,647,204
		30,113		16	30,123	715,021	3,457	1,070,741
				18		715,031	1,070,741	1,003,403
Total	17,031	592,957	112,590	10,000	715,631	715,631	1,070,741	1,003,403
	2 Month	02.9	35.7	1.4				
	T.S. All	0.9	32.9	6.2	0.6	39.7	T.S. All	59.4

1993/94 Recreational (Quota 6,608)

NORTH AND MID-ATLANTIC STATES	NORTH	NORTHERN AREA		GA	FLORIDA		SOUTH ATLANTIC	
		NC	SC		East Coast	West Coast		
	Apr 93	21,274	26,763	48,037	48,037	48,037	204,270	332,265
DE	0	139,651	155,045	1,547	296,263	344,360	643,381	659,016
MD	0	130,790	240,049	23,202	390,123	742,021	1,290,809	1,053,519
NJ	0	270,042	9,450	5,467	280,967	1,021,308	310,610	795,377
NY	0	396,549			396,549	1,423,957	1,009,419	396,549
PA	0				0	1,423,957	1,009,419	0
VA	11,723	11,723			0	1,423,957	1,009,419	11,723
	09,103	100,826	7		0	1,423,957	1,009,419	09,103
Total	EM 1,490	950,376	435,335	36,296	1,423,957	1,423,957	1,009,419	3,334,202
	2 Month	67.3	30.6	2.1				
	T.S. All	EM	28.7	13.1	0.9	42.7	T.S. All	54.3

1993/94 Combined Commercial and Recreational (TAC 10.50 ft)

NORTH AND MID-ATLANTIC STATES	NORTH	NORTHERN AREA		GA	FLORIDA		SOUTH ATLANTIC	
		NC	SC		East Coast	West Coast		
	Apr 93	60,873	15,635	187	76,275	76,275	246,817	323,092
DE	0.02							
MD	0.02	115,923	22,821	462	139,746	215,981	393,011	533,017
NJ	0.22	22,932	13,858	3,168	39,939	255,929	648,470	856,109
NY	6,123	26,991	16,584	3,837	47,412	300,737	78,018	962,036
PA	0.21	15,339	16,997	748	32,946	333,720	936,319	1,078,359
VA	0.13	19,488	5,989	325	25,715	359,335	871,795	1,270,039
	0.02	74,765	8,089	131	82,995	642,070	1,052,134	1,357,230
		170,297	9,451	897	180,645	623,025	1,056,003	1,596,059
		43,349	5,345	266	48,976	649,999	7,819	1,746,067
		15,492		7	15,999	665,908	0,767	1,647,204
		30,113		16	30,123	715,021	3,457	1,070,741
				18		715,031	1,070,741	1,003,403
Total	17,031	592,957	112,590	10,000	715,631	715,631	1,070,741	1,003,403
	2 Month	02.9	35.7	1.4				
	T.S. All	0.9	32.9	6.2	0.6	39.7	T.S. All	59.4

**GOLF GROUP KING BACTERIAL**  
**1993/94 PRELIMINARY COMMERCIAL AND RECREATIONAL LARVAE, (MMS/SBVC/HRSS/PDR).**  
 Whole Weight in Pounds (G93-94; 06/01/94; MMS/RSDD11-WG)

WESTERN ZONE										EASTERN ZONE										GRUPSIDE									
1993/94 COMMERCIAL (QUOTA 2.50 M)										1993/94 RECREATIONAL (QUOTA 5.30M)										1993/94 COMBINED COMMERCIAL AND RECREATIONAL (TAC 7.80M)									
MONTH	YI	LA	MS	AL	Total	Com. % Quota (0.778)	MONTH	YI	LA	MS	AL	Total	Com. % Quota (5.30M)	MONTH	YI	LA	MS	AL	Total	Com. % Quota (7.08M)									
July 93	29,916	345,597	65	52	375,611	375,611 48.0%	July 93	0	0	0	0	0	0	July 93	0	0	0	0	0	0	0								
August	39,129	214,856	100	579	253,964	629,565 81.0%	August	0	0	0	0	0	0	August	0	0	0	0	0	0	0								
September	22,691	226,185	41	1,317	250,157	679,663 87.7%	September	0	0	0	0	0	0	September	0	0	0	0	0	0	0								
October	12,497	12,497	0	0	12,497	692,158 89.2%	October	0	0	0	0	0	0	October	0	0	0	0	0	0	0								
Closed 10/01/93																													
November	0	0	0	0	0	892,162 115.9%	November	0	0	0	0	0	0	November	0	0	0	0	0	0	0								
December	0	0	0	0	0	892,162 115.9%	December	0	0	0	0	0	0	December	0	0	0	0	0	0	0								
January 94	0	0	0	0	0	892,162 115.9%	January 94	0	0	0	0	0	0	January 94	0	0	0	0	0	0	0								
February	0	0	0	0	0	892,162 115.9%	February	0	0	0	0	0	0	February	0	0	0	0	0	0	0								
March	0	0	0	0	0	892,162 115.9%	March	0	0	0	0	0	0	March	0	0	0	0	0	0	0								
April	0	0	0	0	0	892,162 115.9%	April	0	0	0	0	0	0	April	0	0	0	0	0	0	0								
May	0	0	0	0	0	892,162 115.9%	May	0	0	0	0	0	0	May	0	0	0	0	0	0	0								
June	0	0	0	0	0	892,162 115.9%	June	0	0	0	0	0	0	June	0	0	0	0	0	0	0								
Total	91,746	790,250	209	1,919	892,162		Total	91,746	790,250	209	1,919	892,162		Total	91,746	790,250	209	1,919	892,162										
% West Zone							% West Zone							% West Zone															
% Gulfside							% Gulfside							% Gulfside															
Catch after closure:							Catch after closure:							Catch after closure:															
Pounds:	12,497	0	0	0	12,497		Pounds:	12,497	0	0	0	12,497		Pounds:	12,497	0	0	0	12,497										
WESTERN ZONE										EASTERN ZONE										GRUPSIDE									
1993/94 COMMERCIAL (QUOTA 2.50 M)										1993/94 RECREATIONAL (QUOTA 5.30M)										1993/94 COMBINED COMMERCIAL AND RECREATIONAL (TAC 7.80M)									
MONTH	YI	LA	MS	AL	Total	Com. % Quota (0.778)	MONTH	YI	LA	MS	AL	Total	Com. % Quota (5.30M)	MONTH	YI	LA	MS	AL	Total	Com. % Quota (7.08M)									
July 93	0	0	0	0	0	0	July 93	0	0	0	0	0	0	July 93	0	0	0	0	0	0									
August	0	0	0	0	0	0	August	0	0	0	0	0	0	August	0	0	0	0	0	0									
September	0	0	0	0	0	0	September	0	0	0	0	0	0	September	0	0	0	0	0	0									
October	0	0	0	0	0	0	October	0	0	0	0	0	0	October	0	0	0	0	0	0									
November	0	0	0	0	0	0	November	0	0	0	0	0	0	November	0	0	0	0	0	0									
December	0	0	0	0	0	0	December	0	0	0	0	0	0	December	0	0	0	0	0	0									
January 94	0	0	0	0	0	0	January 94	0	0	0	0	0	0	January 94	0	0	0	0	0	0									
February	0	0	0	0	0	0	February	0	0	0	0	0	0	February	0	0	0	0	0	0									
March	0	0	0	0	0	0	March	0	0	0	0	0	0	March	0	0	0	0	0	0									
April	0	0	0	0	0	0	April	0	0	0	0	0	0	April	0	0	0	0	0	0									
May	0	0	0	0	0	0	May	0	0	0	0	0	0	May	0	0	0	0	0	0									
June	0	0	0	0	0	0	June	0	0	0	0	0	0	June	0	0	0	0	0	0									
Total	0	0	0	0	0	0	Total	0	0	0	0	0	0	Total	0	0	0	0	0	0									
% West Zone							% West Zone							% West Zone															
% Gulfside							% Gulfside							% Gulfside															
Catch after closure:							Catch after closure:							Catch after closure:															
Pounds:	0	0	0	0	0	0	Pounds:	0	0	0	0	0	0	Pounds:	0	0	0	0	0	0									

SELF CONVEY SPARKS EXCELLENCE  
 (1993/94) PRELIMINARY COMMERCIAL AND RECREATIONAL LANDINGS, (HRS/SKC/INRS/TONS)  
 Whole Weight in Pounds. (SMB2-93-06/01/94)

1993/94 COMMERCIAL (QUOTA 4,300)

MONTH	WESTERN ZONE			AL	SOUTH			FLORIDA			Total	Com. Total (4,300)	% of Quota (4,300)	Cum. Total	% of Quota (4,300)	Cum. Total	% of Quota (4,300)
	TX	LA	MS		FL	GA	SC	NC	FL	FL							
April 93								313	97,714	351,660	449,493	10.45	449,493	10.45	449,493	10.45	
May	2,777	1,613	89,231		10,321	1,500	196	6,244	96,376	105,016	2,440	554,933	12.90	604,427	14.05		
June					113,206	2,325	19	1,312	19,645	37,296	37,296	0.87	642,723	14.95	642,723	14.95	
July					117,289	2,411	99	1,390	13,300	21,397	21,397	0.49	664,120	15.44	664,120	15.44	
August					128,627	2,431	53	3,364	19,382	22,319	22,319	0.52	686,439	16.00	686,439	16.00	
September					126,422	2,775	76	31,399	11,186	109,562	109,562	2.55	796,001	18.51	796,001	18.51	
October					116,346	3,001	202	34,353	56,176	93,011	93,011	2.16	889,012	20.67	889,012	20.67	
November					165,426	3,400	264	333,006	784	234,054	1,073,106	24.95	1,073,106	24.95	1,073,106	24.95	
December					145,647	3,001	76	127,040	110	164,560	1,237,746	28.78	1,237,746	28.78	1,237,746	28.78	
January 94					145,647	3,001	126,009	2,107	120,656	1,306,004	1,306,004	30.37	1,306,004	30.37	1,306,004	30.37	
February					145,647	3,001	123,642	1,407	66,530	1,407	211,467	4.92	1,517,471	35.29	1,517,471	35.29	
March					145,647	3,001				204,305	1,601,176	37.23	1,601,176	37.23	1,601,176	37.23	
Total					1,601,176	37,230	1,601,176	646,776	643,692	1,601,176	1,601,176	37.23	1,601,176	37.23	1,601,176	37.23	
% Boat																	
% Gill																	

1993/94 RECREATIONAL (QUOTA 3,700)

MONTH	WESTERN ZONE			AL	SOUTH			FLORIDA			Total	Com. Total (3,700)	% of Quota (3,700)	Cum. Total	% of Quota (3,700)
	TX	LA	MS		FL	GA	SC	NC	FL	FL					
Apr 93															
May/June	1,857	1,517			3,374	3,374	0.91	116,343		116,343	3.15	116,343	3.15	116,343	3.15
July/Aug	19,893	1,110	199,101		121,006	124,906	3.40	217,597		217,597	5.88	333,940	9.03	333,940	9.03
Sept/Oct	25,868	13,356	45,470		82,554	207,334	5.61	182,260		182,260	4.93	516,200	13.95	516,200	13.95
Nov/Dec	3,334	2,190	140,006		154,426	301,776	8.16	751,996		751,996	20.32	1,268,196	34.28	1,268,196	34.28
Jan/Feb	8,290	1,845	8,617		12,952	374,722	10.13	112,351		112,351	3.03	1,380,547	37.31	1,380,547	37.31
Mar/feb 94					0	374,722	10.13					1,380,547	37.31	1,380,547	37.31
Bar					0	374,722	10.13					1,380,547	37.31	1,380,547	37.31
Total					374,722	374,722	10.13	1,396,703		1,396,703	37.47	1,396,703	37.47	1,396,703	37.47
% Boat															
% Gill															

1993/94 COMBINED COMMERCIAL AND RECREATIONAL (TAC 8,600)

MONTH	WESTERN ZONE			AL	SOUTH			FLORIDA			Total	Com. Total (8,600)	% of TAC (8,600)	Cum. Total	% of TAC (8,600)
	TX	LA	MS		FL	GA	SC	NC	FL	FL					
COM TOT	0	10,593	9,634	117,420	145,647	1,601,176	37,230	646,776		646,776	7.51	1,907,823	22.18	1,907,823	22.18
REC TOT	0	56,607	20,504	297,611	374,722	374,722	10.13	1,396,703		1,396,703	16.23	1,765,426	20.53	1,765,426	20.53
GRAND TOT	0	75,200	30,138	415,031	520,369	2,001,898	47.31	2,037,479		2,037,479	23.74	3,153,247	36.61	3,153,247	36.61
% Boat															
% Gill															