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**FRAMEWORK SEASONAL ADJUSTMENT  
OF HARVEST LEVELS AND PROCEDURES  
UNDER THE  
FISHERY MANAGEMENT PLAN  
FOR COASTAL MIGRATORY PELAGIC RESOURCES (MACKERELS)  
IN THE  
GULF OF MEXICO AND SOUTH ATLANTIC REGION  
INCLUDING ENVIRONMENTAL ASSESSMENT  
REGULATORY IMPACT REVIEW  
AND  
INITIAL REGULATORY FLEXIBILITY ANALYSIS**

**JULY 1998**

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## I. HISTORY OF MANAGEMENT

The Coastal Migratory Pelagics "Mackerel" fishery management plan (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, established allocations of TAC for the commercial and recreational sectors, 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:

- Extended the management area for Atlantic groups of mackerels through the Mid-Atlantic Council's area of jurisdiction;
- Revised problems in the fishery and plan objectives;
- Revised the fishing year for Gulf Spanish mackerel from July-June to April-March;
- Revised the definition of "overfishing;"
- Added cobia to the annual stock assessment procedure;
- Provided that the South Atlantic Fishery Management Council (SAFMC) 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;
- 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;

- Redefined recreational bag limits as daily limits;
- Deleted a provision specifying that bag limit catch of mackerel may be sold;
- Provided guidelines for corporate commercial vessel permits;
- Specified that Gulf king mackerel may be taken only by hook-and-line and run-around gill nets;
- Imposed a bag limit of two cobia per person per day;
- Established a minimum size of 12-inch (30.5 cm.) fork length or 14-inch (35.6 cm.) total length for king mackerel and included a definition of "conflict" to provide guidance to the Secretary.

Amendment 6, implemented in November of 1992, made the following changes:

- Identified additional problems and an objective in the fishery;
- Provided for rebuilding overfished stocks of mackerels within specific periods;
- Provided for biennial assessments and adjustments;
- Provided for more seasonal adjustment actions;
- Allowed Gulf king mackerel stock identification and allocation when appropriate;
- Provided for commercial Atlantic Spanish mackerel possession limits;
- Changed commercial permit requirements to allow qualification in one of three preceding years;
- Discontinued the reversion of the bag limit to zero when the recreational quota is filled;
- Modified the recreational fishing year to the calendar year; and
- Changed minimum size limit for king mackerel to 20 inches fork length, and changed all size limit measures to fork length only.

Amendment 7 equally divided 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 is equally divided between commercial hook-and-line and net gear users.

Amendment 8 made the following changes to the management regime:

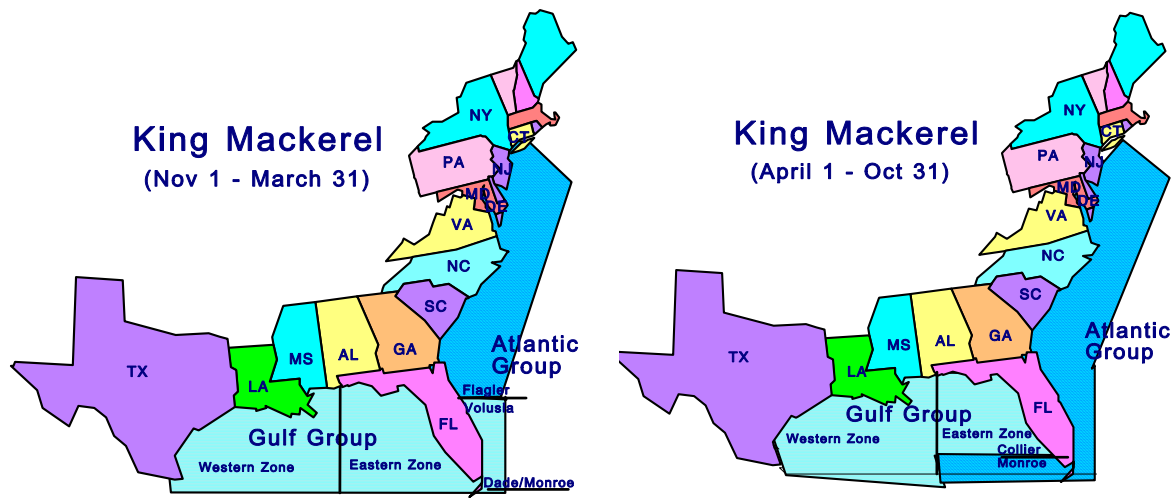
- Clarified ambiguity about allowable gear specifications for the Gulf group king mackerel fishery by allowing only hook-and-line and run-around gill nets. However, catch by permitted, multi-species vessels and bycatch allowances for purse seines were maintained;
- Established the Council's intent to evaluate the impacts of permanent jurisdictional boundaries between the GMFMC and SAFMC and separate FMPs for costal pelagics in these areas;

- Established a moratorium on commercial king mackerel permits until no later than October 15, 2000, with a qualification date for initial participation of October 16, 1995;
- Increased the income requirement for a king or Spanish mackerel permit to 25 percent of earned income or \$10,000 from commercial sale of catch or charter or head boat fishing in 1 of the 3 previous calendar years, but allowed for a 1-year grace period to qualify under permits that are transferred;
- Legalized retention of up to 5 cut-off (barracuda damaged) king mackerel on vessels with commercial trip limits;
- Set an optimum yield target at 30 percent static SPR;
- Provided the SAFMC with authority to set vessel trip limits, closed seasons or areas, and gear restrictions for Gulf group king mackerel in the North Area of the Eastern Zone (Dade/Monroe to Volusia/Flagler county lines);
- Established various data consideration and reporting requirements under the Framework Procedure
- Modified the seasonal framework adjustment measures and specifications (see Appendix I).

The present management regime for king mackerel recognizes two migratory groups, the Gulf migratory group and the Atlantic migratory group. These groups are hypothesized to mix on the east coast of Florida. For management and assessment purposes, a boundary between groups was specified as the Volusia-Flagler County border on the Florida east coast in the winter (November 1-March 31) and the Monroe-Collier County border on the Florida southwest coast in the summer (April 1-October 31). For allocation purposes, the Gulf migratory group is also divided into the Eastern and Western Zones at the Florida-Alabama border (Figure 1).

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 divided by allocating 68 percent of the TAC to recreational fishermen and 32 percent to commercial fishermen. The commercial allocation is further subdivided at 69 percent for the Eastern Zone and 31 percent for the Western Zone.

**Figure 1.** Seasonal boundaries and divisions of the Gulf and Atlantic migratory groups of king mackerel.



## Management Objectives

The current FMP as amended lists eight plan objectives:

1. The primary objectives of the FMP are 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 TAC 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 the acceptable biological catch (ABC) ranges for Gulf migratory group king and Spanish mackerel in accordance with the 1998 Mackerel Stock Assessment Panel (MSAP) Report. Based on these ABC ranges, it recommends that total allowable catch (TAC) for Gulf group king and Spanish mackerel be maintained at the 1997-98 level for the 1998-99 fishing year. In specifying TAC, this regulatory amendment addresses TAC overruns in the Gulf group king mackerel fishery through reductions in the bag limit for captains and crew of for-hire vessels and an increase in the minimum size limit. To ameliorate the effects of derby fishing, extend the season, improve fish quality, and promote safety; the proposed action provides for a trip limit on the commercial hook-and-line fishery for Gulf group king mackerel in the Western Zone. It also maintains the current trip limit for the commercial fisheries of Gulf group king mackerel on the west coast of Florida (South/West Area of the Eastern Zone) and proposes no changes to the management of Gulf group Spanish mackerel.

In setting TAC, the Council considered the comments of its MSAP, Socioeconomic Panel (SEP), Scientific and Statistical Committee (SSC), and Mackerel Advisory Panel (AP). This year's stock assessment calculated a range of ABC for Gulf group king mackerel, within which the Council sets TAC, of between 7.1 and 10.8 million pounds (MP). This range was slightly lower than the 1997 stock assessment update (6.0 to 13.7 MP) on which the Council voted to increase TAC from 7.8 MP in 1996 to 10.6 MP in 1997. Although the range of ABC that was calculated in 1998 was somewhat narrower than in 1997, the mid-points were about the same, 8.9 MP and 8.7 MP, respectively. Additionally, the biomass of the fishable stock continued to show an increase, and testimony from users supported the contention of a strong and recovering stock. Based on the information available, the Council voted to maintain the 10.6 million pound TAC for 1998-99.

In developing Amendment 9 to the Fishery Management Plan for Coastal Migratory Pelagic Resources (Mackerels), the Council reviewed alternatives to increase the minimum size limit on king mackerel from the current 20" fork length (FL). Having received strong support from the industry and noting that the current 20" FL minimum size limit is below the size at sexual maturity for most fish, the Council approved increasing the minimum size limit to 24" FL through this year's framework action.

Catches of Gulf group king mackerel by both recreational and commercial fishermen have consistently exceeded TAC since the 1986/1987 fishing year (Table 1). Although both user groups have been exceeding their TAC, the percent overrun of the recreational allocation has been larger than the commercial overage (Table 1). Available data indicate that the for-hire sector has experienced the greatest increase in landings and effort and could be the major contributor to TAC overruns (SEP Reports 1996, 1997, 1998). These increases could be exaggerated as a result of double-counting of charter catches against both the recreational and commercial TACs. In 1996, the Council reviewed various options to reduce landings by the

recreational king mackerel fishery including: reducing bag limits, increasing minimum size limits, imposing maximum size limits, slot limits, incorporating a combination of bag and size limit adjustments, and eliminating captain and crew bag limits on for-hire vessels. The Council concluded that imposing a zero bag limit for captains and crew of for-hire vessels was the least disruptive measure to the industry that would bring catches in line with the recreational suballocation of TAC. This regulation was implemented in June 1997; however, the 1997 update of the stock assessment for Gulf group king mackerel indicated that the Gulf group king mackerel stock had improved, and TAC could be increased. Subsequently, with the 1997 regulatory amendment, the Council reversed the previous action, and the 2-fish daily bag limit for the captain and crew of for-hire vessels was reinstated. Because the 1998 stock assessment is not quite as optimistic with regard to the ABC range for Gulf group king mackerel and the recreational overruns for 1997-98 were about 1.1 MP, the Council proposes to reinstate the zero fish bag limit for captains and crew to reduce catch and potential overruns because it constitutes the least disruptive management measure.

Since the 1985-86 fishing year, the length of the fishing season for Gulf group king mackerel in the Western Zone (Alabama through Texas) has drastically diminished (Table 2). With a 7.8 MP TAC in effect from the 1992-93 fishing year through most of the 1997-98 fishing year, the season length dropped from over 100 days to 32 days. To combat the vastly accelerating derby fishery in this area that has reduced the season to about 1 month and produced fish of poor quality, the Council proposes setting a 3,000 pound trip limit for king mackerel in the Western Zone.

In the Eastern Zone of the Gulf migratory group king mackerel fishery (Florida), fishermen in the North Area (Florida east coast, Dade through Volusia Counties) did not take their full suballocation during seasons (1993-1994, 1994-1995, and 1995-1996). In 1996, the Council approved a trip limit of 750 pounds in an effort to increase catches and assist the industry in catching its suballocation in this area. This proposed action was not implemented for the 1996-97 commercial fishing season, and the 50-fish trip limit remained in effect; however, this area caught and even exceeded its allocation. The regulatory amendment for 1997-98 returned the trip limit to 50 fish to prevent quota overruns and to be consistent with the seasonal fishery for Atlantic migratory group king mackerel in this area. Subsequent catches in the 1997-98 fishing year were significantly below this area's allocation under the increased TAC of 10.6 MP.

Amendment 8 to the Coastal Migratory Pelagics FMP, which has recently been approved by the National Marine Fisheries Service (NMFS), will allow the South Atlantic Fishery Management Council (SAFMC) to establish trip limits for Gulf group king mackerel on the east coast of Florida during the 1998-99 fishing season. No changes are proposed for the trip limit on the Florida west coast for the 1998-99 fishing season. (The trip limit for the Florida west coast is 1,250 pounds until 75 percent of this area's suballocation is taken, then 500 pounds per trip until the allocation is taken or the season ends.)

For Gulf group Spanish mackerel, the MSAP (1998) calculated an ABC range of 7.3 to 14.1 MP (midpoint 10.3 MP) and transitional SPR at 35 percent. Because this fishery has recovered above the Council's target optimum yield (OY) level, no changes are proposed for this fishery.



(TAC remains at 7.0 MP under a 57% commercial - 43% recreational split and a 10-fish bag limit for all states in the Gulf except Texas which has a 7-fish bag limit.)

### **III. AFFECTED ENVIRONMENT**

#### **Description of the Fishery**

King mackerel and Spanish mackerel are major target species of commercial, recreational, and for-hire fishermen throughout the Gulf and South Atlantic regions, particularly in South Florida. King mackerel are particularly important to the charterboat and offshore private boat fleets. In addition, smaller amounts of king mackerel are caught as a commercial supplement by the North Carolina charterboat fleet.

Most of the commercial fishery for king mackerel occurs in Florida, and most fish are taken in south Florida 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 primarily in March was eliminated in 1985 due to the filling of the commercial quota before fish became seasonally available there. Florida has attempted to allocate king mackerel catches among fishermen in different geographic areas by subquotas and landing (trip) 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 Florida Keys with 900,000 pounds being landed there during a 10-day period in January, 1993.

A commercial hook-and-line fishery for king mackerel developed off Louisiana in the winter of 1982-1983. This trolled-handline fishery was similar to the Florida hook-and-line fishery and was centered in the Grand Isle, Louisiana area. Due primarily to increased effort in the Western Zone, this winter fishery has not been operative since about 1990 because this area's allocation of TAC has been taken by the end of October.

King mackerel have been a popular target for recreational fishermen, particularly in Florida, for many years. Additionally, the coastal population has increased substantially over the past 10-20 years, and it is highly likely that there has been an increase in recreational fishing. If so, it is also likely that there has been an increase in recreational fishing effort for king mackerel. Recreational fishing has also stimulated the economy in many areas and generated employment in both direct and support industries.

The habitat of king mackerel was described and updated in Amendments 1 and 3. Additional information that would substantially modify these descriptions is not available.

#### **Status of Stocks**

The FMP provides that a migratory group of king or Spanish mackerel is defined as overfished when its transitional SPR is below 30 percent. Based on Mace et al. (1996), the Council recommended in Amendment 8 that the overfished threshold be changed to 20 percent transitional SPR and the target OY be set at a static SPR of 30 percent. Subsequently, the NMFS rejected the proposed reduction in the overfished threshold to 20 percent transitional SPR. MSAP (1998) includes an estimate of transitional SPR for Gulf migratory king mackerel at 23 percent; consequently, the Gulf group king mackerel fishery is considered overfished. The

transitional SPR for Gulf group Spanish mackerel is currently estimated at 35 percent which is above the overfished threshold and exceeds the Council's OY target.

#### **IV. PROPOSED ACTIONS INCLUDING ALTERNATIVES**

##### **Action 1: TAC levels for Gulf group king mackerel.**

##### **Proposed Alternative 1.A: Status Quo - Gulf group king mackerel TAC remains at 10.6 million pounds (MP).**

Rationale: Since 1981-82, catches of Gulf group king mackerel have ranged from a low of 3.0 MP in 1987-88 to a high of 12.3 MP in 1982-83 (MSAP 1997). Since 1986-87, landings have consistently exceeded TAC; and from the 1992-93 fishing year through the 1996-97 fishing year, catches averaged 10.0 MP, although TAC was only 7.8 MP (Table 1).

Despite these continuing overruns, the range of ABC has continued to increase. The 1996 stock assessment determined that the ABC range was between 4.7 and 8.8 MP; however, the updated assessment in 1997 provided an estimate of between 6.0 and 13.7 MP. Although the updated assessment used primarily the same data as in 1996, an additional year showing good recruitment was the primary factor that caused the estimate of ABC to increase. The 1998 stock assessment calculated a range of ABC for Gulf group king mackerel between 7.1 and 10.8 MP. This range was slightly lower than the 1997 stock assessment update (6.0 to 13.7 MP) on which the Council voted to increase TAC from 7.8 MP in 1996-97 to 10.6 MP in 1997-98. Although the range of ABC that was calculated in 1998 was somewhat narrower than in 1997, the midpoints were about the same, 8.9 MP and 8.7 MP, respectively, and both were significantly higher than the 6.8 MP midpoint in 1996.

Analyses from the 1998 stock assessment indicate that the Gulf group king mackerel fishery is still in an overfished state (transitional SPR is at 23 percent), and the MSAP (1998) noted that the current mortality rate is expected to continue overfishing, thus precluding recovery above the 30% SPR target. On the other hand, transitional SPR increased slightly from 22% in 1997 to 23% in 1998. More importantly, the biomass of the fishable stock (ages 4+) has continued to increase since about 1989, increasing from only about 25 MP to a projected level of slightly less than 50 MP for the 1998-99 fishing year. Recruitment in terms of numbers of age 1-3 fish has also more than doubled over the same period.

The aforementioned data are corroborated by testimony from users that supports the contention of a strong and recovering stock. This contention is in turn supported by the fact that increased catches are being taken in a shorter period of time. In the Western Zone, harvest at the same allocation of TAC occurred over a 109 day period in 1992-93, but decreased to only 32 days in 1997-98. In addition, the hook-and-line fishery in the Panhandle area of Florida historically harvested less than 15% of the Florida west coast allocation of TAC. Since 1992-93, this area's harvest increased to an average of over 40% of the same available allocation.

In maintaining the status quo, 10.6 MP TAC, the Council also took other actions to reduce potential overruns that are discussed in the following sections.

**Rejected Alternative 1.B: Set the TAC for Gulf group king mackerel at some other level within the range of ABC as calculated in the 1998 stock assessment.**

Rationale: Setting a TAC near the midpoint of the ABC range (8.7 MP) as recommended by MSAP (1998) would probably result in more significant overruns, particularly of the recreational allocation, than those that have occurred in the past, unless other management measures are implemented. If catch could be curtailed at this level of TAC, overfishing could be reduced and recovery would be expedited. Since the recreational fishery has the largest share of TAC (68 percent) and is the greatest contributor to the TAC overruns, the only way to effectively reduce the catch would be with a bag limit reduction to 1 fish (SEP 1998) or extensive seasonal closures. As discussed in the Regulatory Impact Review (RIR), a bag limit reduction or lengthy seasonal closure would probably have significant social and economic impacts.

Increasing TAC to the upper limit of the ABC range would be more consistent with recent landings since 1995 and would likely reduce the percentage of overruns. An increase in TAC would, however, represent a more risk prone approach with regard to reaching the current management (OY) goal of 30% SPR.

**Action 2: Minimum Size Limit for Gulf Group King Mackerel**

**Proposed Alternative 2.A: Increase the minimum size limit for Gulf group king mackerel from 20 inches (fork length) FL to 24 inches FL.**

Rationale: In 1996, the Council considered increasing the minimum size limit for recreational and for-hire fishing in order to reduce TAC overruns. About a 12% reduction in catch was needed in order to maintain the existing 2-fish bag limit at the expected level of effort. Holiman (unpublished data) estimated that adjusting the minimum size alone would require a uniform increase to approximately 28" FL.

The biological effects of increasing the minimum size on the Gulf group king mackerel stock are unknown; however, an increase to 24" FL would probably allow additional fish to spawn. Finucane et al. (1986) estimated the smallest size at maturity at between 18 and 20" FL; however, only 50 percent of females were mature at about 22 to 24" FL. One hundred percent maturity for females was not reached until between 33 and 35" FL. Although Finucane et al. (1986) indicated that their data corresponded with other authors, most of the other studies that they cited reported slightly larger size limits at maturity.

**Rejected Alternative 2.B: Status Quo - The minimum size limit for Gulf group king mackerel remains at 20 inches FL.**

Rationale: The no change option could have a negative effect on recruitment since few fish at the current minimum size have reached sexual maturity. To assess this potential, the size

distribution of recreational and commercial catches would have to be determined along with estimates of release mortality. These data and analyses are currently not available. Under a reduced TAC scenario (8.7 MP) and without an increase in the minimum size limit, the potential and magnitude of recreational TAC overrun is increased unless a uniform reduction in the bag limit to 1 fish is approved (SEP 1998).

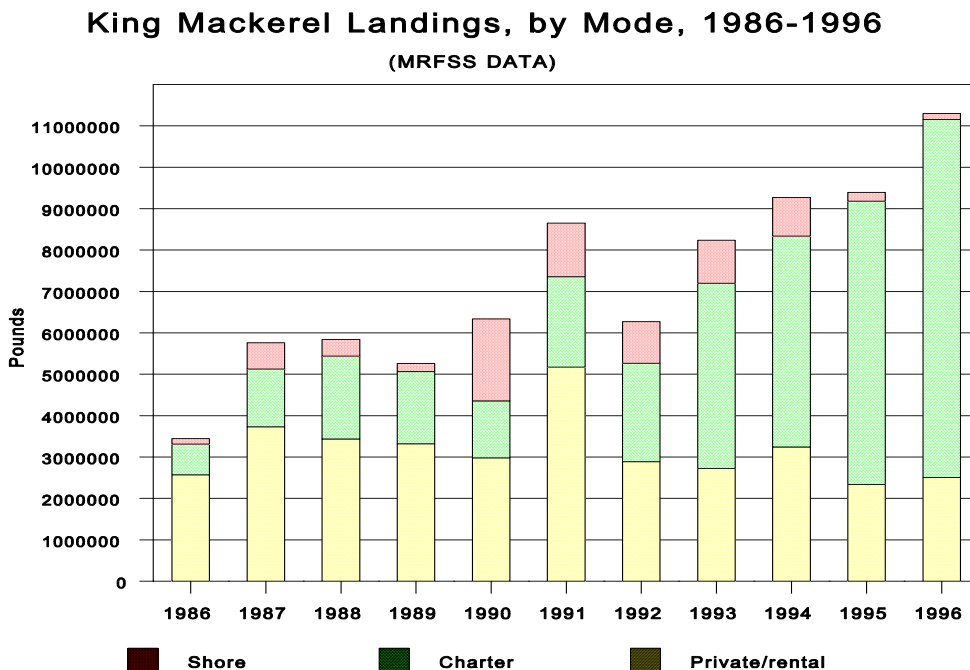
**Action 3: Bag limits for recreational fishermen and for captains and crew of for-hire vessels.**

**Proposed Alternative 3.A: Establish a zero bag limit on Gulf group king mackerel for the captain and crew of for-hire vessels and retain the 2-fish bag limit for all other recreational fishermen.**

Rationale: Both the recreational and commercial suballocations of TAC have consistently been exceeded in recent years, with the exception of the commercial allocation for 1997-98 when the TAC was increased to 10.6 MP (Table 1). Commercial overruns have generally occurred as a result of projection inaccuracies and from sales by for-hire vessels after the quota has been reached. These sales may at times be counted against the commercial and recreational subquotas; consequently, overruns may be slightly exaggerated due to double counting.

With regard to the recreational fishery, landings from the private/rental boat mode of the Marine Recreational Fisheries Statistics Survey (MRFSS) have remained relatively stable since 1990. The shore mode, which includes few king mackerel catches, has declined by about 56% over the same period; however, the charter/head boat mode has shown a steady and substantial increase in landings (Figure 2).

FIGURE 2



Based on these data in 1996, it appeared that for-hire landings were the major contributor to the recreational TAC overruns. Subsequently, the Council voted to reduce the bag limit for the captain and crew of for-hire vessels to zero. The Gulf Council adopted the zero bag limit provision for captains and crew of for-hire vessels based on the 1996 stock assessment that indicated an ABC range of 4.7 to 8.8 MP. The Council also noted that actual catch for the 1994-95 fishing year was approximately 10.8 MP; while TAC was set at 7.8 MP. Furthermore, the recreational catch was about 7.9 MP as compared to a 5.3 MP suballocation of TAC (MSAP 1996a,b).

The Council's action to eliminate the bag limit for captains and crew was based on this relatively low estimate of ABC and the need to curtail harvest, particularly from the for-hire sector. Holiman (1996) determined that a 12.8 percent reduction in catch was needed to constrain catch to a 6.8 MP TAC, which was the midpoint of the ABC range of the 1996 assessment. He also reported that elimination of the captain and crew bag limit allowance would reduce the catch by approximately 12.2 percent. In selecting this option, the Council reviewed various options for reducing recreational catches including: reducing bag limits, increasing minimum size limits, incorporating a combination of bag and size limits, and eliminating bag limit catches of the captain and crew of for-hire vessels (Holiman [1996] [Appendix 2 of SEP 1996]). The zero bag limit for captains and crew was chosen as the least disruptive one that would reduce or prevent overruns at the 7.8 MP TAC. Of the options considered, it was also the one with the greatest support from the for-hire industry.

The 1996 framework measure was not implemented until after the 1997 stock assessment for king mackerel was completed. The 1997 stock assessment (MSAP 1997) showed a much more optimistic view of the status of the king mackerel stock, and the Council voted to increase the TAC from 7.8 MP to 10.6 MP. Based on the increased TAC, it appeared that the recreational catch would be constrained to its allocation, and the Council voted to re-establish the 2-fish bag limit for all recreational fishermen, including captains and crew of for-hire vessels.

Based on the 1997-98 catch, it appears that recreational catches would not be constrained to their suballocation if TAC is set at the 1997-98 level (10.6 MP) (Table 1), unless other measures are taken. The SEP (1998) noted that Dr. Holiman had not been able to update his previous analyses or to conduct additional analyses of the other proposed alternatives included in this regulatory amendment, especially the minimum size increase to 24 inches FL. The available options, however, appear to be the same as those discussed above. Additionally, the Council concluded that the zero bag limit for captains and crew continues to be the least restrictive and most acceptable alternative.

**Rejected Alternative 3.B: Status Quo - Continue the 2 fish per person per day bag limit of king mackerel for all recreational fishermen, including the captain and crew of for-hire vessels.**

Rationale: The no change option would likely result in continued TAC overruns for the recreational suballocation. With a 10.6 MP TAC and an increased minimum size limit to 24

inches FL, overruns may not be as great as in previous years on a percentage basis; however, they would likely be about the same in terms of pounds (Table 1).

#### **Action 4: Commercial Trip Limits for Gulf Group King Mackerel in the Western Zone**

##### **Proposed Alternative 4.A: Establish a trip limit of 3,000 pounds per vessel per trip for king mackerel in the Western Zone**

Rationale: In recent years, an escalating derby fishery has emerged for king mackerel in the Western Zone. As indicated in (Table 2), this portion of the fishery has been harvesting its portion of TAC at an increasingly faster rate with the 1997-98 season lasting only 32 days under a 7.8 million pound TAC. In recent years, vessels with red snapper endorsements have taken in excess of 50 percent of the king mackerel catch by all permittees and as much as 79 percent in the Western Zone (NMFS, Reef Fish Logbook Data). These vessels may be targeting king mackerel because the derby in the red snapper fishery has forced the closure of that fishery prior to the July 1 start of the king mackerel fishery, and they are able to fish in both fisheries; or they are targeting king mackerel to establish a historical dependence on this species should the Council in the future adopt retroactive dependency requirements under a limited access system, as was done with the red snapper endorsement system. In either case, a derby fishery has been the result.

Some vessels in Louisiana are making extended trips and landing in excess of 9,000 pounds per trip. Industry representatives and members of the Mackerel AP have reported that fish taken during these extensive trips (some in excess of 1 week) are in poor market condition and have little value when compared to fish taken during shorter trips. In general, the duration of most trips is less than 1 week, and landings average about 3,000 to 4,000 pounds. Fish taken during these shorter trips have a much higher quality and value than those taken from longer trips. Establishing a reduced trip limit could reduce the impacts of the present derby fishery while providing increased benefits from the available catch. They may also have a positive impact on vessel safety because boats could fish closer to their home ports and not remain at sea for as extensive periods as would likely occur without a trip limit.

The recommended 3,000 pound trip limit in the Western Zone was also proposed in Amendment 9; and since the trip limit has been so strongly supported by the industry and the need to address the significant threats to the resource is so great, the Council also voted to ask NMFS to approve it as an emergency measure to try to insure that it will be in effect for the 1998-99 commercial fishing season.

##### **Rejected Alternative 4.B: Status Quo - no change - no trip limit is established for king mackerel in the Western Zone**

Rationale: The status quo option of having no trip limit not only perpetuates and potentially increases the derby effects in the fishery, it reduces the social and economic benefits that could be derived from the available stock. Furthermore, it creates an unfair advantage with regard to

access to the resource in favor of large vessels; and to the extent that the season is shortened due to the lack of a trip limit, it potentially increases biological impacts on other fish stocks due to additional fishing pressure after the king mackerel allocation is taken.

On the other hand, if this segment of the industry merely increases its effort, trip limits may have little effect on reducing the derby fishery unless other management measures are taken.

## **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). The primary purpose of the RFA is to relieve small businesses, small organizations, and small governmental jurisdictions (collectively: "small entities") of burdensome regulatory and record keeping requirements. The RFA requires that if regulatory and record keeping requirements are not burdensome, then the head of a federal agency must certify that the requirement, if promulgated, will not have a significant effect on a substantial number of small entities.

This RIR analyzes the probable impacts that the alternatives in this regulatory amendment to the Coastal Migratory Pelagics Fishery Management Plan (FMP) would have on the commercial and recreational mackerel fisheries.



## 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 this document. Specifically, the current regulatory amendment addresses the following issues:

1. TAC for Gulf group king mackerel for fishing year 1998-1999.
2. Minimum size limit for Gulf group king mackerel.
3. Bag limits for recreational fishermen and for captains and crew of for-hire vessels.
4. Commercial trip limits for Gulf group king mackerel in the Western Zone.

## 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 the commercial sector and angler-consumer surplus and for-hire vessel profits in the recreational sector of the Gulf group king mackerel fishery. Unfortunately, estimates of the yield streams and their associated probabilities are not available, so the approach taken instead is to describe and/or quantify the changes in short-term net benefits. This task is complemented by a qualitative discussion of long-term impacts.

## Impacts of Proposed Actions and Alternatives

**Action 1: TAC levels for Gulf group king mackerel.**

**Proposed Alternative 1.A: Status Quo - Gulf group king mackerel TAC remains at 10.6 million pounds (MP).**

**Rejected Alternative 1.B: Set the TAC for Gulf group king mackerel at some other level within the range of ABC as calculated in the 1998 stock assessment.**

The TAC for Gulf group king mackerel has been increased over the years from 2.9 MP in 1986-1987 to 10.6 MP in 1997-1998, although before last year's increase, a 7.8 MP TAC had been maintained for 5 consecutive years. Even with such increases, actual landings have consistently exceeded TAC. Over a 12-year period from 1986-1987 to 1997-1998, total landings (92.5 MP) exceeded total TAC (72.4 MP) by approximately 28 percent. The recreational sector, which is allocated 68 percent of TAC, has exceeded its allocation by 32 percent over the 12-year period; the commercial sector exceeded its allocation by 19 percent over the same period. Over the last 5 years (1993-1994 through 1997-1998), total landings exceeded total TAC by 20 percent, with the recreational sector overrunning its allocation by 26 percent and the commercial sector by 7 percent.

Throughout the 12-year period, the stock has steadily improved in terms of recruitment and biomass. Increases in landings, however, have kept the transitional SPR relatively flat at slightly above 20 percent. Relative to the current overfishing threshold of 30 percent transitional SPR, the stock has been considered by the MSAP (1998) as overfished. In addition, the MSAP has declared that the fishery is overfishing the stock, with a static SPR of 21 percent representing a fishing mortality rate greater than that with a static SPR of 30 percent (the Council's optimum yield [OY] goal).

Against this background is set the succeeding analysis of the short-run and long-run impacts of the proposed TAC. The status quo serves as the benchmark for analysis of the alternatives, thus the thrust of the succeeding analysis will be to determine the effects of the rejected alternative. For purposes of comparison, the rejected TAC is assumed to be 8.7 MP, the level within ABC that provides a 50 percent chance of achieving a  $F_{30\%}$  SPR level. The following summarizes the approximate allocation of TAC among various sectors of the fishery:

<u>Sector</u>	<u>TAC = 10.6 MP</u>	<u>TAC = 8.7 MP</u>
Recreational:	7.21	5.92
Commercial:	3.39	2.78
Western Zone:	1.05	0.86
Eastern Zone:	2.34	1.92
North Area (FL east coast):	1.17	0.96
South/West Area (FL west coast):	1.17	0.96
Hook-and-Line:	0.585	0.48
Gillnet:	0.585	0.48

#### Short-term Impacts on the Commercial Sector

Assuming the absence of overruns in the commercial sector, an 8.7 MP TAC means an 18 percent reduction in the commercial quota. The SEP (1998) approximated the short-term impacts of this reduction in terms of changes in consumer and producer surplus. Using an own-price elasticity of demand of 8 from the several reported by Easley et al. (1993, p. 21) and the 18% decline in landings, a price increase of about 2.2% is obtained. For the east and Gulf coasts, the exvessel price averaged \$1.37 a pound for king mackerel in 1997 (Vondruska, 1998a), and a 2.2% increase would mean a price of about \$1.40. Using these two prices, ex-vessel values would be about \$4,647,000 (1997-98) and \$3,998,000 (1998-99), or a decline of about \$649,000. A crude approximation of the change in consumer surplus would be \$93,000 [ (2,780,000 pounds \* \$0.03 per pound) + (610,000 pounds \* \$0.03) / 2 = \$92,550]. Using the medians, net income from fishing represented about 20% of the gross income from fishing, according summaries of data for boats with permits for commercial mackerel fishing in 1997 (Vondruska, 1998b, p. 38), and 20% of the change in ex-vessel value of \$649,000 would result in a change in net income from fishing of about \$130,000, a crude approximation of the change in producer surplus. To summarize, a 20 percent reduction in the commercial quota would result in reductions of \$649,000 in ex-vessel revenues, \$93,000 in consumer surplus, and \$130,000 in producer surplus. The assumption regarding the commercial sector not exceeding its quota seems reasonable for the commercial fishery as a whole, since the preliminary estimate of the 1997-1998 commercial landings places such landings below the overall commercial quota. As noted below, however, some segments of the commercial fishery have consistently exceeded their allocations.

In principle, the decrease in quota under the rejected alternative would be proportionately shared by the various geographical areas and gear users. But this is very unlikely to happen, given the harvest performance of vessels in different areas or using different gear types.

Over the years, the Western Zone has experienced a dwindling season from 254 days in 1985-86 to 32 days in 1997-1998 (under the 7.8 MP TAC) despite quota increases in 1989-90, 1991-92,

and 1992/93. The fishery in this area used to start in July, peak in about August to October, and last until March. This dwindling season prompted the industry to request in 1995-96 a 200,000 pound additional quota for the area. This request was approved by the Council but was ultimately rejected by the Secretary of Commerce. Last year, the Council decided to raise the TAC to 10.6 MP, but before the higher TAC was implemented, the fishery operating under the old, lower TAC closed the second day in August. When the higher TAC was finally implemented, the fishery was reopened in February and lasted for 37 days.

The more recent situation is partly due to the condition in the red snapper fishery. With the exception of the 1995-96 fishing year, red snapper endorsement holders caught more than 50 percent of the commercial king mackerel quota in this area. All reef fish permittees catching red snapper have accounted for two-thirds or more of the area's commercial king mackerel quota. The July opening of the mackerel fishery is in the middle of the closed season for red snapper, prompting red snapper vessels to direct effort to the king mackerel fishery. In addition, there is anecdotal information that some fishermen targeted king mackerel to establish a history in the fishery in the event that a controlled access management system is adopted for the king mackerel fishery. This could be an offshoot of fishermen's experience in the red snapper fishery and the approval of Amendment 8 to the Coastal Pelagics FMP that includes a moratorium on the issuance of new king mackerel commercial permits. The most recent decision of NMFS to withhold opening the fall season for red snapper, unless a certain level of bycatch reduction through the use of bycatch reduction devices (BRDs) is achieved, only tends to intensify the redirection of red snapper effort to mackerel. While in principle vessels in the Western Zone would experience a proportional reduction in benefits since they have been kept within their quota, the scenario described above would lead to an inference that a reduction in quota would only tend to exacerbate the derby problem in the Western Zone. This would result in a further reduction in the producer surplus of vessels in this area than implied in the overall estimate above.

The case of quota overruns in the Florida west coast (South/West Area of the Eastern Zone) is not unidirectional. In the past years, the hook-and-line fishery exceeded its quota (as much as 64 percent in 1996-1997), although in some years overruns were mainly due to supplemental allocations granted by the Council. For the 1997-1998 period, this fishery was kept at only slightly above its quota. The net fishery, on the other hand, had been constrained to its quota in the past years, but in 1997-1998 landings exceeded the quota by as much as 20 percent even with a 35 percent increase in allocation. If the 1997-1998 experience were considered, the reduction in quota would result in a proportional reduction in benefits to the hook-and-line fishery, but more than a proportional reduction to the net fishery.

There is some uncertainty as to the direction of effects of a quota decrease for the Florida east coast (North Area of the Eastern Zone). In the 1995-96 fishing season, landings in this area totaled only about 88 percent of the quota. In the following year and without effective change in regulations, the quota for this area was exceeded by about 7 percent, even with a reduced fishing trip limit in March. Good weather was purported to be the major reason for the difference in fishing performance. With the same trip limits for the 1997-1998 season, the fishery harvested approximately 903,000 pounds, which was only 77 percent of the allocation.

If this fishing performance were to remain the same for the 1998-1999 season, the reduction in quota from 1.17 MP to 0.96 MP would have minimal impacts on the fishery. In this case, this segment of the commercial fishery would not experience any reduction in benefits. In fact, this fishery may experience an increase at least in revenue if the quota reduction results in shorter seasons for the other segments of the commercial fishery.

### Short-term Impacts on the Recreational Sector

Considering that the recreational sector has continued to exceed its allocation and no fishery closure would be adopted in the near future, the estimated recreational harvest is used to assess the short-term effects of a change in TAC on the recreational sector. The SEP (1998) proceeded along this line in determining the short-term impacts of a TAC reduction on the recreational sector.

The estimated 1997-98 recreational harvest is 8.39 MP (MSAP, 1998). A TAC of 8.7 MP, therefore, would require a 29 percent reduction in recreational landings from the 1997-98 season.

Bag and size limit analyses were previously conducted by Holiman (1996). These analyses have not been updated due to ongoing revision of more current data. Nevertheless, the results from the 1996 analysis can provide insight to the magnitude of regulatory change required to achieve the prescribed 29 percent recreational harvest reduction. The results of the analysis, as seen in Table 3, show that under the current 20 inch FL minimum size, a uniform 1-fish bag limit is required to achieve the necessary reduction. If the size limit is increased to 26 inches FL, a 1-fish for-hire bag limit and a 2-fish private bag limit should be sufficient, assuming the reduced bag limit does not result in high-grading of retained fish (Tables 3 and 4). Of the results presented in Holiman (1996), none of the combinations presented support maintenance of the current 2-fish for-hire bag limit (Tables 3, 4 and 5).

Holiman (1997) provided additional information to relate these bag or size limit reductions to the number of potentially affected angler trips. The following assessment is based solely on MRFSS data. Utilizing the same base time frame incorporated in the bag and size limit analysis (1995 data), there were approximately 301,000 angler trips that caught king mackerel in the Gulf in 1995. Approximately 37 percent of these trips landed greater than 1 fish; therefore, approximately 111,000 trips would be affected by a uniform reduction in the bag limit to 1 fish. Under the 1-fish for-hire 2-fish private scenario, there were 168,000 king mackerel for-hire catch trips in 1995 of which 52 percent landed in excess of 1 fish per trip. Therefore, approximately 87,000 for-hire angler trips would be affected by the reduction in the bag limit. It is not possible to generate a similar statistic for the minimum size limit increase because the size distribution of landed fish will not be uniform over all trips. Further, an attempt to combine bag-limit affected trips with size limit affected trips will result in double counting of some trips.

Existing data does not support estimation of the economic impact per affected trip of bag or size limit changes. Results from recreational demand studies for various Gulf species (Green, 1989; Green et al., 1994; Leeworthy, 1990; Milon, 1993) have shown either statistically insignificant results (do not support a relationship between catch rates and trip demand) or have shown results that are inconsistent with expectation (show a negative relationship between catch rates and trip

demand). Nor does existing data support differential limits for the different sectors. It is therefore, currently not possible to estimate consumer surplus losses as a result of these management changes. Future analysis of recently collected recreational economic data acquired through an add-on of the MRFSS in 1997-1998 should allow estimation of this information.

It should be cautioned that, given the precedent of quota management of the recreational red snapper fishery, the existence of continued overruns by the recreational sector increases the possibility of not only jeopardizing stock recovery goals, but also the imposition of quota management upon the king mackerel recreational fishery, potentially requiring closed seasons. It is likely that consumer surplus losses associated with a canceled trip exceed those of a trip taken under a lower bag or more restrictive size limit. It is, therefore, the preferred economic outcome that, in the absence of more direct effort controls (such that the rights to harvest are allocated to those individuals who value the fish the most), the fishery should be managed through uniform bag and/or size limits such that no closure is required.

Public testimonies to the Council claimed that the for-hire sector is particularly vulnerable to a reduction in the bag limit. As mentioned above, a 1-fish bag limit would affect 52 percent of angler trips made through the for-hire mode. How this translates into reductions in actual angler trips cannot be exactly quantified, since current literature is ambiguous as to the relationship between catch rates and angler trips taken. This relationship is generally expressed in terms of "success elasticity," which is a measure of the responsiveness of angler trips to catch rates, or better still, expected catch rates. A unitary elasticity, for example, means that a 52 percent reduction in catch rates would result in an equal reduction in angler trips. In the absence of this vital information, only some general discussions are attempted below to highlight some of the more important information needed to estimate changes in net profits of for-hire vessel as a result of changes in fishing rules affecting catch rates.

A reduction in the bag limit would adversely affect the profitability conditions of for-hire vessels through reductions in catch and expected catch rates. The severity of impacts depends mainly on the amount of reduction in catch and expected catch rates. In principle, both catch and expected catch rates play an important role in the recreational fishery. Expected catch rate plays an even more important role in the for-hire vessel industry, because it serves as a major feature in selling trips. If the bag limit were taken as a proxy for expected catch, the for-hire industry would be faced with the potential impacts of a catch reduction of 50 percent. This is very close to the mentioned 52 percent reduction based on catch distribution of angler trips.

Basically, the impacts on for-hire vessel profits resulting from a reduction in catch and expected catch rates depend on the reaction of fishing customers in terms of the number of trips taken. There are individuals that would take fewer trips or stop fishing at all even if expected catch rates are only slightly reduced. On the other hand, there are others that would continue to fish even at relatively low catch rates. Part of the reason for this behavior is the particular individual's valuation of a fishing trip. Another part of the reason is the presence of other factors, such as income and leisure time, shaping one's demand for a fishing trip. Such behavior can be quantitatively captured by estimating the demand for king mackerel trips, and in particular the demand for king mackerel trips through for-hire vessels. A usual demand

function would show the reduction in trips taken as catch rates are reduced. Unfortunately, as discussed earlier, current estimates of recreational demand for king mackerel are ambiguous.

Another piece of information that is not available but essential in determining the profitability impacts on for-hire vessels is a profit function for these vessels. Through this function, reductions in the number of trips can be translated to profit losses of for-hire vessels. In general, both revenues and costs would fall as the number of trips taken is reduced. Interestingly, profits could fall, remain constant, or even rise under the condition of reduced revenues and costs depending on the relative changes in revenues and costs. At any rate, for-hire vessels could continue to operate even at a reduced number of trips so long as operating revenues (mainly composed of charter fees and other fees, such as bait, food and drinks, fish cleaning, use of rod and reel, etc.) cover operating expenses. Below this “shut-down” point, it would be less costly for vessel owners to stop operation entirely and liquidate the assets. This point ultimately corresponds to some level of expected catch rate or bag limit and likely varies across vessels. That specific bag limit could be 1 fish for some vessels or lower for others. A lower than a 1-fish bag limit is taken here to mean a bag limit that is tied to vessels (e.g., 5 per vessel), or a group of anglers, (e.g., a 5-fish bag limit for every party of 6 anglers). This would be more applicable to charter than party boats.

Despite the absence of information translating the reduction in bag limit to for-hire net profits, it is not unreasonable to expect that a 1-fish bag limit would force some vessels to exit the fishery especially in areas where alternative fisheries are limited due to scarcity of fish resources or to restrictive regulations.

### Long-run Impacts

The long-run impacts of maintaining or changing the TAC depend on, among others, the extent such choice promotes recovery of the stock to a level deemed appropriate for the stock and the type of management regime adopted.

The target level for stock recovery is generally the OY, and it is usually above the overfishing level in SPR terms. The Council’s current definition of OY allows only the explicit inclusion of the biological component. Inclusion of economic and social factors into the definition of OY is hampered by the lack of information. Optimum yield for Gulf king mackerel is defined as 30 percent static SPR, and the threshold for an overfished status is set at 30 percent transitional SPR. A static SPR less than 30 percent signals that overfishing the stock is occurring.

The MSAP has estimated an ABC range of 7.1 MP to 10.8 MP, with 8.7 MP representing a 50 percent probability of achieving a  $F_{30\%}$  SPR. The proposed TAC of 10.6 MP is within the ABC range but provides for less than a 50 percent probability of achieving the target SPR. This choice of TAC is consistent with past Council choices of TAC that have allowed for a low probability of achieving the target SPR. What is even more telling is that landings have consistently exceeded whatever TAC the Council has chosen. Thus, the low probability of success imbedded in the choice of TAC is compounded by landings overruns. Considering,

however, that the stock has not actually declined but by all indicators it has improved over the years, the likely future scenario would be a delay in achieving the target SPR.

Recovery of the stock is only one side of the issue when assessing long-term impacts. An equally important feature is the type of management adopted that affects allocation of fishery resources and other resources used in the fishery and related industries. The type of management has to be such that net benefits to the fishery are maximized. Appropriately, the net benefit calculation incorporates economic and social factors.

The specifics of future management regimes are not known at this time, but in formulating such regimes, it is necessary to consider controlled access type of management. This type of management provides a higher likelihood of translating biological gains to benefits to resource users in particular and the nation in general. Over the long-run, both commercial and recreational demand for king mackerel will continue to increase, and this will put more pressure on the recovering stock. Relying on traditional means to control effort would merely invite more stringent and disruptive regulations on the fishery, regulations that would appear counterintuitive in the face of a recovering stock.

Over the years, management of the Gulf group king mackerel stock has shown signs of success in improving the stock. The stock status has not worsen over the years of active management. In fact, public testimonies before the Council have portrayed the perception of a recovering stock. In addition, TAC for king mackerel has been increased over time, although the current TAC proposal is to maintain status quo. Concomitant with the recovery of the stock is the increase in fishing effort. It is then not surprising that overruns have characterized catches in the fishery. Although overruns have not totally impeded the recovery of the stock, they have probably delayed the achievement of the target level. Under traditional types of management to control effort such as trip limits, bag limits, and size limits, these overruns are likely to continue.

A more effective control of fishing effort is then vital as part of a long-term management regime. Without this type of management, the short-term gains from maintaining the status quo would be dissipated in the long-run. Toward this end, the SEP has reiterated its recommendation to explore limited access management for all sectors of the coastal migratory pelagics fishery (SEP 1998).

## **Action 2: Minimum Size Limit for Gulf Group King Mackerel**

**Proposed Alternative 2.A: Increase the minimum size limit for Gulf group king mackerel from 20 inches fork length (FL) to 24 inches FL.**

**Rejected Alternative 2.B: Status Quo - The minimum size limit for Gulf group king mackerel remains at 20 inches FL.**

s discussed in the rationale section, the biological impacts of the Proposed Alternative are unknown, although this alternative offers some possibility of allowing additional fish to spawn. Fifty percent of female king mackerel have been reported to mature between 22 to 24 inches FL,

but the potential benefit from a higher size limit has to be tempered by the potential increase in release mortality.

The amount of commercial harvest reduction due to an increase in the minimum size limit is also unknown. While it can be contended that fishing costs could possibly increase under the Proposed Alternative due to additional sorting of fish, public testimonies to the Council appear to indicate that a 24-inch FL minimum size limit has minimal negative effects on the commercial harvest.

On the recreational sector, the higher minimum size limit could affect an unknown number of angler trips. Holiman (1996) developed length frequency information of recreationally landed king mackerel in the Gulf using 1994-1995 pooled MRFSS intercept data. This information revealed that an increase in the minimum size limit from 20 to 24 inches FL would affect approximately 9.7 percent of charterboat landings and 10.8 percent of private mode landings, or about 10 percent on combined charter and private boat harvests. To some extent, this potential reduction would place some control on recreational landings, especially the charter mode whose landings have steadily increased through the years. This potential reduction would be equivalent to two-thirds of the 16 percent recreational harvest overruns in the 1997-1998 season.

One very important note to bring out here is the fact that this calculation of the effects of a minimum size limit increase uses MRFSS data only. Headboat and Texas data on angler catch frequency information could change the magnitude of effects. Additionally, translating this potential reduction in harvests into reduction in angler economic benefits cannot be done due to the absence of some vital information discussed earlier in connection with the determination of the impacts of TAC selection.

**Action 3: Bag limits for recreational fishermen and for captains and crew of for-hire vessels.**

**Proposed Alternative 3.A: Establish a zero fish per person per day bag limit on Gulf group king mackerel for the captain and crew of for-hire vessels and retain the 2-fish bag limit for all other recreational fishermen.**

**Rejected Alternative 3.B: Status Quo - Continue the 2-fish per person per day bag limit of Gulf group king mackerel for all recreational fishermen, including the captain and crew of for-hire vessels.**

These alternatives have been considered on various occasions inclusive of this regulatory amendment, with the proposed and rejected alternatives switching positions every time these alternatives are considered. It is then instructive to recount here the previous analysis with updates on some recently available information.

In recent years, the for-hire sector has substantially increased its share of recreational landings. MRFSS data show that over the period 1990 to 1995 the private/rental mode has accounted for about 46 percent of total recreational landings, followed closely by the charter mode at 40 percent, and by the shore mode at 14 percent (Holiman, 1997). Since 1993, charterboat



landings have exceeded private mode landings. This trend becomes more apparent by looking at the rate of change in landings. Annually, over the 1990 to 1995 period, landings from the charter mode increased by an average of 41 percent; whereas those from private mode increased by only 3 percent. Shore-mode landings decreased by 28 percent. Such landings performance is partly explained by the trend in the number of trips targeting or catching king mackerel. Target trips (i.e., trips for which king mackerel is the target species) rose by an annual average of 60 percent for the charter mode, 14 percent for the shore mode, and 2 percent for the private mode. Catch trips (i.e., trips in which king mackerel is caught) rose by an annual average of 26 percent for charter mode and 7 percent for private mode, but the shore mode experienced a reduction of 14 percent. MRFSS data indicate the fast growing importance of the for-hire segment of the recreational fishery.

The Proposed Alternative places a curb on the fastest growing (and currently the largest) segment of the king mackerel recreational fishery. Holiman (1996) has estimated that this measure can reduce total recreational landings by about 584,000 pounds, which is 12.2 percent of total recreational landings. Since the measure applies only to the for-hire boat captain and crew, the impacts of the measure will be borne by the for-hire sector. This landings reduction is roughly equivalent to 17 percent of charterboat landings in 1995.

While the reduction appears to be significant especially for the for-hire sector, there are several issues worth noting regarding the likely magnitude of effects. First, the 12.2 percent reduction is still below the 27 percent average recreational allocation overrun under a 7.8 MP TAC. With last year's increase in TAC to 10.6 MP, recreational overage dropped to 16 percent. Second, Holiman (1996) qualified his estimate by indicating that the estimated catch reduction is an upper bound, and actual savings are likely to be substantially less. This qualification is significant considering that charterboat landings have increased by an annual average of 41 percent from 1990 to 1995. Third, effort in the charter industry has increased over the years by an average of 60 percent in terms of trips targeting king mackerel and 26 percent in terms of trips catching king mackerel. Such rates of change in effort are bound to negate the projected reduction in landings. We may particularly note that the Proposed Alternative affects only the captain and crew and not the individual anglers who fish through the charter mode. These anglers' demands for fishing trips are virtually unaffected by a zero bag limit on captain and crew, unless charter operations raise the price for the trips. Because the charter fishing market is relatively competitive, price increases in charter trips seem unlikely. All these conditions appear to severely limit the Proposed Alternative's effect on total recreational landings.

The impacts of the Proposed Alternative on charter operations are shaped by the nature of charter operations. In some areas in the Gulf, specifically in Southwest Florida, for-hire boats holding Saltwater Product Licenses (SPL) with a restricted species endorsement can sell recreational bag limits of king mackerel even after the commercial season is closed in the EEZ. They can sell the captain and crew's bag limits as well as those left by customers. In letters to the Gulf Council, Captain Bill Wickers (1996, 1998) indicated that in Key West, Florida, 75 percent of king mackerel caught on charterboats are left with the crew. Fish sales comprise 15 to 25 percent of the gross income of charterboats in the Key West, Florida area. In most charter operations, mates get half of the fish sales which make up 20 to 30 percent of their gross income.

This practice of selling fish by charterboats remains unaffected by the Proposed Alternative; however, charterboats would be limited to selling fewer fish. As such, a reduction in charterboat revenues and crew wages is expected.

Since 15 to 25 percent of charterboat gross revenues comes from sale of fish (at least in the Key West, Florida area), a 17 percent reduction in charterboat landings would roughly result in a 2.6 to 4.3 percent reduction in their gross revenues. Also since fish sales contribute 20 to 30 percent of the mates' incomes, these individuals would stand to lose 3.4 to 5.1 percent of their gross income.

In the event that, as contended above, the actual landings reduction would be less than the estimated 17 percent for charterboats and 12.2 percent for the entire recreational fishery, the corresponding reductions in revenues to the charterboats and crew would be substantially less than estimated above.

It is worth stressing at this point that the earlier estimated 10 percent reduction in recreational harvests from a minimum size limit increase and the current 12.2 percent reduction from a zero bag limit on captain and crew are not additive. It is not known to what extent the two proposals interact.

#### **Action 4: Commercial Trip Limits for Gulf Group King Mackerel in the Western Zone**

**Proposed Alternative 4.A: Establish a trip limit of 3,000 pounds per vessel per trip for king mackerel in the Western Zone**

**Rejected Alternative 4.B: Status Quo - no change - no trip limit is established for king mackerel in the Western Zone**

Trip limits can potentially reduce the overall daily landings of king mackerel, especially if they are more restrictive than current harvest levels; however, if the number of participating vessels is not controlled, trip limits would not achieve their intended objectives. In this particular case, more costs would be introduced into the fishery. On the other hand, if the more efficient vessels are constrained to harvests far less than demanded by scale economies, at least some portion of these vessels would be expected to exit the fishery. This loss may lessen the negative effects of the derby fishery, but some efficiency in the industry may be lost.

Table 6, based on logbook records submitted by vessels with reef fish permits, shows the average catch of king mackerel per trip by vessels in various states in the Gulf. On average for all reporting vessels, catch per trip does not exceed 3,000 pounds. While a trip limit of 3,000 pounds would allow many vessels to harvest their usual amount of king mackerel, the concept of average alone indicates that there are some that would be negatively impacted by the trip limit. Some vessels in Louisiana making trips of more than 2 days are reported to catch as much as 9,000 pounds. Public testimonies to the Council also indicate that some shrimp boats with mackerel commercial licenses download large quantities of king mackerel in excess of 3,000 pounds.

At this stage, it is not clear as to whether the proposed trip limit would tone down the derby nature of the fishery. If the experience in red snapper were to be considered the model, then the proposed trip limit for king mackerel may do very little to extend the fishing season, especially because most of the participants in the king mackerel fishery in the Western Zone are also red snapper fishermen. Probably, the only time this measure would be effective in extending the season is when the king mackerel and red snapper fishing seasons coincide. Currently, one fishery is open when the other is closed.

Although only one trip limit is proposed here, it may be instructive to examine other trips limits than 3,000 pounds. A choice of trip limits other than 3,000 pounds involves a trade-off between industry costs and revenues. A lower trip limit, e.g., 500 pounds, would tend to bring about a longer season with relatively higher prices than a 3,000-pound trip limit; but it would penalize larger vessels, resulting in an industry-wide increase in cost per trip. It may be noted that of the total king mackerel landings in the Western Zone, 70 percent has been made by vessels with commercial reef fish permits and about 50 percent has been made by those permitted vessels with red snapper endorsements (Class 1 licenses under Amendment 15). These latter vessels are generally larger and can make trips that last more than 2 days. This serves as a good indication that many vessels would incur higher costs per trip by adopting a 500-pound king mackerel trip limit. This increase in industry cost is not likely to be compensated for by an increase in revenue, thus resulting in lower profits. As the profitability of larger vessels falls, a different fishery configuration in which smaller vessels dominate is bound to evolve. It is not determinable with given information whether the replacement of larger vessels by smaller vessels would bring about an increase in industry profitability.

A higher trip limit between 3,000 pounds and 4,000 pounds is likely to bring about the same effects as a 3,000-pound trip limit considering the fact that the average landing per vessel per trip is around these numbers. A substantially higher trip limit, e.g., 9,000 pounds, would likely maintain the status quo wherein the fishing season gets shorter, as illustrated in Table 2. As experience with shorter seasons has shown, ex-vessel prices have stayed at very low levels especially during July, which is the start of the season (see Table 8 of Vondruska, 1998a). At a given cost per trip, such depressed prices are expected to lower vessel profits. While it is true that a 3,000-pound trip limit would tend to raise the cost per pound of fish harvested, such an increase in cost is likely to be compensated by an increase in revenues due to relatively higher prices. There is then a good chance that profitability at the 3,000-pound trip would be higher than at substantially higher trip limits.

### **Government Costs of Regulation**

Federal government costs of this action are associated with meetings, travel, preparation of various documents, and reviewing all documents. Other sources of additional costs include extraordinary research, additional statistics collection, additional monitoring activities, additional permitting requirements, and additional enforcement activities resulting from the action. For these other sources, no additional costs are anticipated. The proposed trip limit in the Western Zone may necessitate additional enforcement activities, but these activities may be considered part of current enforcement activities with no extra costs incurred.

Council costs of document preparation, meetings, and information dissemination .....	\$20,000
NMFS administrative costs of document preparation, meetings, and review .....	9,500
Law enforcement costs .....	none
Permit costs .....	none
<b>TOTAL .....</b>	<b><u>\$29,500</u></b>

**Summary and Expected Net Impact of Proposed Action**

The Proposed Alternative to retain the status quo TAC of 10.6 MP may be expected to maintain the current short-run profit configuration of commercial vessels. An alternative TAC (assumed to equal 8.7 MP) would result in producer surplus loss of \$130,000 and consumer surplus loss of \$93,000. This loss would be shared by the various segments of the commercial fishery, but not necessarily in proportion to their participation in the fishery. Maintaining the status quo TAC would also benefit the recreational sector to a much greater extent than the commercial sector when contrasted with an alternative TAC of 8.7 MP. This latter TAC would imply a 1-fish bag limit that would negatively affect 37 percent of all recreational trips, or 52 percent of angler trips through the charter mode of fishing. Due to the absence of relevant information, the potential reduction in angler trips cannot be translated to reductions in angler consumer surplus and for-hire vessel profits.

The Proposed Alternative to increase the king mackerel minimum size limit from 20 to 24 inches FL could allow some additional fish to reach spawning age. While this change may be expected to increase the fishing costs of commercial vessels, public testimonies appear to indicate that this change would minimally affect commercial catches. This minimum size limit, however, could result in a 10 percent reduction in recreational catch. Again, the absence of relevant information precludes the translation of this reduction in catch to changes in consumer surplus and for-hire vessel profits.

Reducing to zero the bag limit for captain and crew of for-hire vessels is estimated to reduce recreational landings by 12.2 percent, which is equivalent to a 17 percent reduction in charterboat landings. This percentage reduction does not take into account the growing dominance of the for-hire sector in the recreational mackerel fishery. This is particularly important since angler trips tend to be unaffected by the size of the bag limit for captain and crew.

Government costs for preparing and implementing these actions are estimated at \$29,500.

**Determination of a Significant Regulatory Action**

Pursuant to Executive Order 12866, a regulation is considered a "significant regulatory action" if it is likely to result in a rule that may: 1) have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; 2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; 3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of the recipients thereof; or 4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

The entire commercial Gulf group king mackerel fishery is valued at approximately \$4.2 million, which is significantly less than \$100 million. The proposed TAC is expected to have no effect on revenues, since this is the same TAC established for the 1997-1998 season. The proposed increase in the minimum size limit for king mackerel is not expected to affect ex-vessel revenues. The zero bag limit for captain and crew is expected to reduce the income of for-hire vessels, but only by as much as 4.3 percent. The proposed trip limit for vessels in the Western Zone would reduce the revenues of some larger vessels, but the amount of reduction cannot be estimated. These combined changes in vessel revenues are deemed to fall well below the \$100 million benchmark. Prices of fish to consumers are not expected to increase significantly as a result of this amendment, since there is expected to be no substantial reduction in overall commercial harvest of king mackerel. Overall cost increases to the mackerel vessels, including for-hire vessels, are considered to be minimal. An unknown but probably minimal cost increase could come from the proposed increase in the minimum size limit due to sorting of fish. Costs to the local and federal governments are estimated at about \$29,500, all of which are associated with the preparation of this amendment. The proposed measures are expected to have minimal adverse effects on employment, competition, and investment; although it may be noted that the zero bag limit for captain and crew of for-hire vessels could reduce their income by as much as 5.1 percent.

The proposed regulation does not, in general, interfere or create inconsistency with an action of another agency, including state fishing agencies. It may be noted, however, that the proposed increase in the minimum size limit for king mackerel may be inconsistent with some states' rules. The various states will be informed of this condition so that they can adjust their regulations accordingly. The proposed regulation does not affect any entitlements, grants, user fees, or loan programs. Finally, it is deemed that no novel legal or policy issue is raised by the proposed regulation. All issues in this amendment have been considered in the past by the Council.

The foregoing discussion leads to the conclusion that this regulation, if enacted, would not constitute a significant regulatory action.

### **Initial Regulatory Flexibility Analysis**

#### Introduction

The purpose of the Regulatory Flexibility Act (RFA) is to relieve small businesses, small organizations, and small governmental entities of burdensome regulations and record keeping requirements. The category of small entities likely to be affected by the proposed plan amendment is that of commercial and for-hire businesses currently engaged in the Gulf group king mackerel fishery. The general 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 the analyses conducted for the 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.

The Regulatory Flexibility Act requires a determination as to whether a proposed rule has a significant impact on a substantial number of small entities. If the rule does have this impact then an IRFA has to be completed for public comment. The IRFA becomes final after the public comments have been addressed. If the proposed rule does not meet the criteria for "substantial number" and "significant impact," then a certification to this effect must be prepared.

#### Substantial Number of Small Entities Criterion

In the Gulf area, a total of 3,069 mackerel permits have been issued broken down into 1,623 commercial, 938 charterboat, and 549 both commercial and charterboat permits. The Small Business Administration (SBA) defines a small business in the commercial fishing activity as a firm with receipts of up to \$3.0 million annually and in the charter or party vessel activity as a firm with receipts of up to \$5.0 million annually. Since taken all together the proposed action will affect practically all participants of the commercial and for-hire Gulf group king mackerel fishery, the "substantial number" criterion will be met in general.

The regulations are likely to result in a change in annual gross revenues by more than 5 percent. The proposed TAC of 10.6 MP is the status quo level. Consequently, no change in potential vessel revenues may be expected. The revenue impacts of the other measures are generally expected to result in minimal change in revenues to vessels. It may only be noted that the zero bag limit for captain and crew could reduce by as much as 4.3 percent the gross income of charterboats, at least in the Florida Keys. In addition, the 3,000-pound trip limit for king mackerel vessels in the Western Zone would reduce the revenues of some large vessels, including some shrimp vessels reported to have been landing large quantities of king mackerel.

Annual compliance costs (annualized capital, operating, reporting, etc.) increase total costs of production for small entities by more than 5 percent. The public burden to comply with the provisions of this amendment has been estimated to be practically nil as no additional permits or gear modifications are required.

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. All the firms expected to be impacted by the rule are small entities and hence there is no differential impact.

Capital costs of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities. No additional capital expenditures are expected to result from any of the proposed measures in this amendment.

The requirements of the regulation are likely to result in a number of the small entities affected being forced to cease business operations. This number is not precisely defined by SBA but a "rule of thumb" to trigger this criterion would be two percent of the small entities affected. There is some possibility that the zero bag limit for captain and crew and the 3,000 pound trip limit in the Western Zone would impinge on the income of some vessels, but the general conclusion in the RIR is that no business entity is expected to cease operation as a result of the proposed rule.

## Conclusion

From the forgoing discussion of the various criteria for impact determination on small business entities, it is concluded that the proposed regulation, if enacted, would not result in a significant economic impact on small business entities. Therefore, an IRFA is not required.

## **VI. ENVIRONMENTAL CONSEQUENCES**

Physical Environment: To the extent that it 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. These gear are selective for the target species, and there is little bycatch. Continuing studies have provided no new information beyond that already contained in the FMP, as amended, that further defines the relationship between stocks and habitat.

Fishery Resources: The TACs previously developed and established under this framework seasonal adjustment are consistent with the Council's objective of rebuilding stocks. The proposed action is intended to protect coastal pelagic fish stocks from recruitment and growth overfishing while fairly allocating allowable catch among fishermen. The proposed actions will have insignificant effects 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. The net

impact on the users of the resource by the proposed action is discussed in the RIR and IRFA (Section V). The impact on fishery resource users in adjacent areas has been coordinated with the appropriate Council, where appropriate.

Effect on Endangered Species and Marine Mammals: The National Oceanic and Atmospheric Administration (NOAA) conducted a consultation under Section 7 of the Endangered Species Act regarding the impact of Amendment 6 that 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 regulatory 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 and revised in Amendment 8 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 Amendments 6 and 8. The environmental consequences of this action are almost entirely economic in nature and are discussed in the RIR and IRFA (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 and Analyses 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 Panel have identified the following information needs:

1. Conduct analytical research directed towards optimizing sampling survey designs associated with various stock indices of relative abundance, and that some effort be applied to identifying and promoting those indices that are both accurate and precise.
2. Evaluate the impacts of unbalanced sampling designs on the estimated landings at size (and age).
3. Monitor the Atlantic coast directed shrimp fishery to refine bycatch estimates of Atlantic group king and Spanish mackerels.
4. Develop a comprehensive program of log-book and trip-intercept survey methodologies for coastal pelagics to address nominal fishing effort and its relationship to CPUE estimates.
5. Development innovative fishery-independent monitoring methods to assess stock size for both Gulf and Atlantic group king and Spanish mackerels.
6. Evaluate potential biases associated with inappropriate stratifications of data used to generate age-length keys for Atlantic and Gulf group king and Spanish mackerels.
7. Evaluate the implications of using alternative values of the natural mortality rate (M) on estimates of stock size and attendant ABC recommendations.
8. Analyze the implications to fishery productivity of changing the minimum size of first capture to protect immature fish for Gulf group king mackerel.
9. Evaluate the effects of gear fishing power standardization using GLM techniques on temporal and spatial trends in bycatch, paying particular attention to before and after the implementation of TEDs in the directed shrimp fisheries.
10. Evaluate alternative stock assessment methods for Spanish mackerel such as non-equilibrium age-structured production models that may be particularly useful when assessments are projected from incomplete or imprecise catch-at-age data.
11. Establish a database for identifying fishing communities in the Gulf of Mexico and for determining these communities' level of dependence on fishing.
12. Develop fishery dependence models specifically designed for fishing communities in the Gulf of Mexico.
13. At a minimum, collect the following information for the commercial and for-hire sectors:
  - a. Number of participants and their age, education, and marital status.
  - b. Years fishing, family history of fishing participation.
  - c. Percent of total household income from commercial fishing (include total household income).
  - d. Effort by species, month, and gear type (include all species fished and catch location to assess multispecies nature of mackerel fishermen)
  - e. Job skills and employment history (job training).
  - f. Perceived opportunities for alternative employment.
  - g. Unit harvesting costs for the variable factors of production.
  - h. Factor inputs used in the production of fish products.

- i. Physical characteristics and age of vessels and boats in the fishery.

## VII. OTHER APPLICABLE LAW

Impacts on Other Fisheries: The proposed action should have no additional impacts on other fisheries.

Vessel Safety: The proposed actions to maintain the status quo TAC on Gulf group king mackerel, establish a 3,000 pound trip limit for king mackerel in the Western Zone, increase the minimum size limit for Gulf group king mackerel, and reduce the 2-fish daily bag limit to captains and crew of for-hire vessels to zero should not change the current status of vessel safety. To the extent that the 3,000 pound trip limit in the Western Zone reduces the derby effect in this portion of the king mackerel fishery, an improvement in vessel safety would be expected because boats would remain closer to port and not stay at sea for as extended periods as would be expected without a trip limit. 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

Public comment on the proposals contained in this regulatory amendment was received during the Gulf of Mexico Fishery Management Council meeting in Destin, Florida, May 11-15, 1998.

List of Agencies Consulted:

Gulf of Mexico 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

Partial List of Organizations Consulted:

- Concerned Fishermen of Florida
- Organized Fishermen of Florida
- Monroe County Commercial Fishermen, Inc.
- Coastal Conservation Association
- Southeast Fisheries Association

Responsible Agency:

Gulf of Mexico Fishery Management Council  
3018 U.S. Highway 301, North

Suite 1000  
Tampa, Florida 33619-2266  
813-228-2815

List of Preparers:

Gulf of Mexico Fishery Management Council  
Richard Leard, Fishery Biologist  
Antonio Lamberte, Economist

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## APPENDIX A

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

### Section 12.6.1.1

- A. An assessment panel (Panel) appointed by the Councils will normally reassess the condition of each stock or migratory group of king and Spanish mackerel and cobia in alternate (even numbered) 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 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. For each stock, this should include but not be limited to:
  - a. Fishing mortality rate relative to  $F_{msy}$  and  $F_{0.1}$  as well as  $F_{20\%SPR}$ ,  $F_{30\%SPR}$ , and  $F_{40\%SPR}$ .
  - b. Spawning potential ratio (SPR).
  - c. Abundance relative to an adequate spawning biomass.
  - d. Trends in recruitment.
  - e. Acceptable Biological Catch (ABC) which will result in long-term yield as near MSY as possible.
  - f. Calculation of catch ratios based on catch statistics using procedures defined in the FMP as modified.
  - g. Estimate of current mix of Atlantic and Gulf migratory group king mackerel in the mixing zone for use in tracking quotas.
4. Overfishing:
  - a. A mackerel stock or migratory group is considered to be overfished when the transitional spawning potential ratio (SPR) is below 30 percent.

- b. The South Atlantic Council's target level or optimum yield (OY) is 40 percent static SPR. The Gulf Council's target level or optimum yield (OY) is 30 percent static SPR. ABC is calculated based on the target level or optimum yield (SAFMC = 40 percent static SPR and GMFMC = 30 percent static SPR).
  - c. When a stock or migratory group is overfished (transitional SPR less than 30 percent), a rebuilding program that makes consistent progress towards restoring stock condition must be implemented and continued until the stock is restored beyond the overfished condition. The rebuilding program must be designed to achieve recovery within an acceptable time frame as specified by the Councils. The Councils will continue to rebuild the stock until the stock is restored to the management target (OY) within an unspecified time frame.
  - d. When a stock or migratory group is not overfished (transitional SPR equal to or greater than 30 percent), the act of overfishing is defined as a static SPR that exceeds the threshold of 30 percent (i.e.,  $F_{30 \text{ percent}}$ ). If fishing mortality rates that exceed the level associated with the static SPR threshold are maintained, the stock may become overfished. Therefore, if overfishing is occurring, a program to reduce fishing mortality rates toward management target levels (OY) will be implemented, even if the stock or migratory group is not in an overfished condition.
  - e. The Councils have requested the Mackerel Stock Assessment Panel (MSAP) provide a range of possibilities and options for specifying an absolute biomass level which could be used to represent a depleted condition or state. In a future amendment, the Councils will describe a process whereby if the biomass is below such a level, the Councils would take appropriate action, including but not limited to, eliminating directed fishing mortality and evaluating measures to eliminate any bycatch mortality in a timely manner through the framework procedure.
  - f. For species like cobia, when there is insufficient information to determine whether the stock or migratory group is overfished (transitional SPR), overfishing is defined as a fishing mortality rate in excess of the fishing mortality rate corresponding to a default threshold static SPR of 30 percent. If overfishing is occurring, a program to reduce fishing mortality rates to at least the level corresponding to management target levels will be implemented.
5. Management options. If recreational or commercial fishermen have achieved or are expected to achieve their allocations, the 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 Panel will prepare a written report with its recommendations for submission to the Councils each year (even years - full assessment, odd years - mini assessments) 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 may take action based on the panel report or may take action based on issues/information that surface separate from the assessment group. The steps are as follows:
1. Assessment panel report: The Councils will consider the report and recommendations of the Panel and such public comments as are relevant to the Panel's report. A public hearing will be held at the time and place where the Councils consider the Panel's report. The Councils will consult their Advisory Panels and scientific and Statistical Committees to review the report and provide advice prior to taking final action. After receiving public input, the Councils will make findings on the need for changes.
  2. Information separate from assessment panel reports: The Councils will consider information that surfaces separate from the assessment group. Council staff will compile the information and analyze the impacts of likely alternatives to address the particular situation. The Council staff report will be presented to the Council. A public hearing will be held at the time and place where Councils consider the Council staff report. The Councils consult their Advisory Panels and Scientific and Statistical Committees to review the report and provide advice prior to taking final action. After receiving public input, the Councils will make findings on the need for changes.
- D. If changes are needed in the following, the Councils will advise the Regional Administrator (RA) of the Southeast Region of the National Marine Fisheries Service in writing of their recommendations, accompanied by the assessment panel's report, relevant background material, and public comment:
- a. MSYs,
  - b. overfishing levels,
  - c. TACs,
  - d. quotas (including zero quotas),
  - e. trip limits,
  - f. bag limits (including zero bag limits),
  - g. minimum sizes,
  - h. reallocation of Atlantic group Spanish mackerel,
  - i. gear restriction (ranging from modifying current regulations to a complete prohibition),
  - j. permit requirements, or



k. season/area closure and reopening (including spawning closure).

Recommendations with respect to the Atlantic migratory groups of king and Spanish mackerel will be the responsibility of the South Atlantic Council, and those for the Gulf migratory groups of king and Spanish mackerel will be the responsibility of the Gulf Council. Except that the SAFMC will have responsibility to set vessel trip limits, closed seasons or areas, or gear restrictions for the northern area of the Eastern Zone (Dade through Volusia Counties, Florida) for the commercial fishery for Gulf group king mackerel. This report shall be submitted by such data as may be specified by the Councils.

- E. The RA will review the Councils' recommendation, supporting rationale, public comments and other relevant information, and if he concurs with the recommendation, he will draft regulations in accordance with the recommendation. He may also reject the recommendation, providing written reasons for rejection. In the event the RA rejects the recommendation, existing regulations shall remain in effect until resolved. However, if the RA finds that a proposed recreational bag limit for Gulf migratory group or groups of king mackerels is likely to exceed the allocation and rejects the Councils' recommendation, the bag limit reverts to one fish per person per day.
- F. If the RA 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 proposed and final rules 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 that may be implemented by the RA by proposed and final rules in the Federal Register are:

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. Adjustment of the overfishing level for king and Spanish mackerels.
2. Setting total allowable catches (TACs) for each stock or migratory 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 10 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.

3. Adjusting user group allocations in response to changes in TACs according to the formula specified in the FMP.
4. The reallocation of Spanish mackerel between recreational and commercial fishermen may be made through the framework after consideration of changes in the social and/or economic characteristics of the fishery. Such allocation adjustments shall not be greater than a ten percent change in one year to either sector's allocation. Changes may be implemented over several years to reach a desired goal, but must be assessed each year relative to changes in TAC and social and/or economic impacts to either sector of the fishery.
5. Modifying (or implementing for a particular species):
  - a. quotas (including zero quotas)
  - b. trip limits
  - c. bag limits (including zero bag limits)
  - d. minimum sizes
  - e. re-allocation of Atlantic group Spanish mackerel by no more than 10 percent per year to either the commercial or recreational sector.
  - f. gear restriction (ranging from modifying current regulations to a complete prohibition)
  - g. permit requirements, or
  - h. season/area closures and reopenings (including spawning closure)

Authority is also granted to the RA to close any fishery, i.e., revert any bag limit to zero, and close and reopen any commercial fishery, once a quota has been established through the procedure described above; and such quota has been filled. When such action is necessary, the RA will recommend that the Secretary publish a notice in the Federal Register as soon as possible.

## TABLES

TABLE 1. Comparison of Gulf group king mackerel TAC and landings by fishing year(million pounds), percent of total landings and percent over allocation for recreational and commercial sectors.

Fishing Year	TAC	Total Landings	Recreational				Commercial			
			Allocation	Landings	% of Landings	% Over Allocation	Allocation	Landings	% Of Landings	% Over Allocation
86-87	2.9	4.74	1.97	3.27	69%	66	.93	1.47	31%	58
87-88	2.2	3.02	1.50	2.15	71%	43	.70	.87	29%	24
88-89	3.4	6.69	2.31	5.28	79%	128	1.09	1.41	21%	29
89-90	4.25	5.31	2.89	3.36	63%	16	1.36	1.95	37%	43
90-91	4.25	5.77	2.89	3.95	68%	37	1.36	1.82	32%	34
91-92	5.75	6.89	3.91	4.77	69%	22	1.84	2.12	31%	15
92-93	7.8	9.86	5.30	6.26	63%	18	2.50	3.60	37%	44
93-94	7.8	8.72	5.30	6.15	71%	16	2.50	2.57	29%	3
94-95	7.8	10.8	5.30	7.86	73%	48	2.50	2.94	27%	18
95-96	7.8	8.92	5.30	6.27	70%	18	2.50	2.65	30%	6
96-97	7.8	10.0	5.30	7.15	72%	35	2.50	2.85	28%	14
97-98*	10.6	11.78	7.21	8.39	71%	16	3.39	3.39	29%	0

\* 1997-98 landings are preliminary

Source: MSAP (1998)

TABLE 2. Gulf group king mackerel fishing season length and TACs for the western zone. (Alabama through Texas). (M. Godcharles, unpublished data).

<b>Fishing Year</b>	<b>Quota (million pounds)</b>	<b>Start</b>	<b>End</b>	<b>Days Open</b>
1985-86	0.48	July 1, 1985	March 12, 1986	254
1986-87	0.27	July 1, 1986	February 4, 1987	218
1987-88	0.22	July 1, 1987	November 2, 1987	124
1988-89	0.34	July 1, 1988	December 3, 1988	155
1989-90	0.42	July 1, 1989	October 25, 1989	116
1990-91	0.42	July 1, 1990	October 18, 1990	109
1991-92	0.57	July 1, 1991	September 29, 1991	90
1992-93	0.77	July 1, 1992	October 18, 1992	109
1993-94	0.77	July 1, 1993	October 1, 1993	92
1994-95	0.77	July 1, 1994	September 24, 1994	85
1995-96	0.77	July 1, 1995	September 5, 1995	66
1996-97	0.77	July 1, 1996	August 26, 1996	56
1997-98 <sup>1</sup>	0.77	July 1, 1997	August 2, 1997	32

<sup>1</sup> The 1997-98 fishing season reopened on February 20, 1998 under a revised 1.05 MP TAC for the Western Zone. The remainder of the of the TAC was taken in approximately 37 days.

TABLE 3. GULF OF MEXICO KING MACKEREL RECREATIONAL PROJECTED LANDINGS (THOUSANDS OF POUNDS) AS DERIVED FROM A BAG LIMIT ANALYSIS. TARGET = 12.87 PERCENT REDUCTION.

BAG LIMIT		NON-MRFSS/MRFSS RATIO YEARS			% REDUC.
CHARTER	NON-CHARTER	1986-94	1990-94	1994	USING 1994
2	2	5,219	5,234	4,917	-
2	1	4,792	4,805	4,514	8.2
1	2	4,048	4,059	3,813	22.5
1	1	3,620	3,631	3,410	30.6

Source: Holiman (1996).

TABLE 4. GULF OF MEXICO KING MACKEREL RECREATIONAL PROJECTED LANDINGS (THOUSANDS OF POUNDS) AS DERIVED FROM A SIZE LIMIT ANALYSIS. TARGET = 12.87 PERCENT REDUCTION.		
UNIFORM MINIMUM SIZE		
MINIMUM SIZE (INCHES)	LANDINGS	PERCENT REDUCTION
26	4.508	8.32
27	4.385	10.82
28	4.193	14.72
UNIFORM MAXIMUM SIZE		
MAXIMUM SIZE (INCHES)	LANDINGS	PERCENT REDUCTION
43	4.202	14.54
44	4.234	13.89
45	4.297	12.61
24-INCH MINIMUM AND UNIFORM MAXIMUM SIZE		
MAXIMUM SIZE (INCHES)	LANDINGS	PERCENT REDUCTION
NO MAXIMUM	4.727	3.86
47	4.260	13.36
48	4.378	10.96

Source: Holiman (1996).

TABLE 5. GULF OF MEXICO KING MACKEREL RECREATIONAL PROJECTED LANDINGS (THOUSANDS OF POUNDS) AS DERIVED FROM A 2-FISH FORHIRE AND 1-FISH PRIVATE BAG AND UNIFORM MINIMUM SIZE LIMIT ANALYSIS. TARGET = 12.87 PERCENT REDUCTION.

MINIMUM SIZE (INCHES)	LANDINGS	PERCENT REDUCTION
24	4.339	11.76
25	4.262	13.32

Source: Holiman (1996).



Table 6. Landings, trips, and landings per trip of Gulf group King Mackerel in the Western Zone.

State	1990			1991			1992			1993		
	Pounds	Trips	Pounds/trip	Pounds	Trips	Pounds/trip	Pounds	Trips	Pounds/trip	Pounds	Trips	Pounds/trip
				20.8	1	21	3373.3	20	169	6463.6	36	180
AL FL-W	747.8	17	44	4750.6	22	216	5758.9	16	360	25746.4	65	396
LA	10277.3	12	856	131549	77	1708	265426.3	131	2026	519591.1	263	1976
MS				1247.7	3	416	1834.6	2	917	195.6	7	28
TX				13313	7	1902	28083.3	17	1652	37441.2	27	1387
Unknown								5	1225	1721.2	3	574
TOTAL	11025.1	29	380	150881.1	110	1372	310602.1	191	1626	591159.1	401	1474
State	1994			1995			1996					
	Pounds	Trips	Pounds/trip	Pounds	Trips	Pounds/trip	Pounds	Trips	Pounds/trip			
	11189.2	31	361	1783.4	13	6125.7	546.1	4	137			
AL FL-W	31820.1	100	318	42237.7	154	274	9083.3	94	97			
LA	497870.2	264	1886	525003.7	228	2303	509049.9	199	2558			
MS	3629.1	5	726					4	13			
TX	53190.8	27	1970	96887.7	27	3588	75774.9	25	3031			
Unknown												
TOTAL	597699.4	427	1400	665912.5	422	1578	594505.1	326	1824			

Source: NMFS, unpublished data