GULF OF MEXICO FISHERY MANAGEMENT COUNCIL
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May 7, 1990

Dr. Andrew J. Kemmerer
Regional Director
National Marine Fisheries Service
Duval Building
9450 Koger Boulevard
St. Petersburg, Florida 33702

Dear Andy:

At our April 25 joint meeting, the Gulf and South Atlantic Councils reviewed the report of their Mackerel Stock Assessment Panel (Panel), recommendations of the Scientific and Statistical Committees (SSC) and Advisory Panels (AP), and heard public comment with respect to the setting of annual levels of total allowable catches for king and Spanish mackerels for the 1990-1991 fishing year. A copy of the Panel's report and summaries of the recommendations of the SSCs and APs are attached.

In accord with the provisions of the FMP, the Councils have developed recommendations for the TACs for the migratory groups of king and Spanish mackerels as follows:

<u>Gulf Group King Mackerel</u>

TAC = 4.25 million pounds (M) - no change
Recreational (68%) = 2.89 M = 0.301 M fish
Commercial (32%) = 1.36 M
Eastern Zone (69%) = 0.94 M
Western Zone (31%) = 0.42 M

Bag limits for recreational fishermen remain at 2 per person per trip on private vessels or 3 per angler on charter vessels except for captain and crew (or 2 for all).

<u>Rationale</u>: The TAC of 4.25 falls within the ABC range of 3.2 to 5.4 M and is only slightly above the most likely value of F 0.1 at 3.9 M. The current TAC and recreational bag limit have been appropriate to provide recreational fishing throughout the fishing year without a closure. The assessment report indicates the possibility of increased recruitment in 1985 and 1986. The Councils believe that maintaining the current TAC is prudent, allows for rebuilding stocks, and allows fishermen to continue fishing at current levels.

The conversion of the recreational allocation from pounds to number of fish is based on the average size of fish for the most recent 12 months for this migratory group as cited on page 25 of the Panel's report.

The Councils note that this group of fish by current definition and by the definition proposed in Amendment 5 is "overfished."

Atlantic Group King Mackerel

TAC = 8.3 M (now 9.0 M)
Recreational (62.9%) = 5.22 M = 0.601 M fish
Commercial (37.1%) = 3.08 M

Bag limits: 2 fish per angler off Florida and 3 fish off other Atlantic states in the management area.

Rationale: This stock of fish is not overfished and fishermen have not been able to take the current TAC of 9.0 M. The Panel has recommended an ABC range of 6.5 to 15.7 M with the most likely value of F 0.1 at 8.3. The Councils recommend this for TAC and believe it will provide sufficient allocation to fulfill the needs of the user groups. With approval and implementation of Amendment 5, the quotas and bag limits would also apply to the Mid-Atlantic Council's area of jurisdiction.

Gulf Spanish Mackerel

TAC = 5.25 M (no change)
Recreational (43%) = 2.26 M = 1.569 M fish
Commercial (57%) = 2.99 M

Recreational bag limit is to be 10 fish per person per trip, except off Texas it is to be 3 fish and off Florida, 4 fish. If the bag limit in Florida waters is revised to 5 fish on January 1, 1991, the bag limit in the adjacent EEZ will conform.

Rationale: The proposed TAC falls within the range of ABC (3.9 - 7.4 M) and is slightly above the most likely value of F 0.1 at 4.9 M. This is the current level of TAC which was not reached with neither recreational or commercial quota being filled. The bag limit has proved to be appropriate for this recreational allocation. The bag limit off Texas of 3 fish will conform to the state bag limit and will enhance enforcement. A limit of 4 fish off Florida, increasing to 5 fish if changed by Florida in 1991, would again be consistent and enhance enforcement efforts.

The commercial quota was not taken in 1989-1990 because of low exvessel prices and adverse weather conditions. The Councils feel the lower catches justify retaining the current level of TAC even though it is slightly higher than the most likely value of F 0.1.

This stock of fish is considered to be "overfished" by definition in the current FMP and pending Amendment 5.

Atlantic Group Spanish Mackerel

TAC = 5.0 M (now 6.0 M)
Recreational = 1.86 M = 1.216 M fish
Commercial = 3.14 M

Bag limit to remain 10 fish off the Atlantic states, except 4 fish off Florida. If the Florida bag limit increases to 5 fish in January, 1991, the bag limit in the adjacent EEZ will conform.

Rationale: The proposed TAC of 5.0 M is the most probable value of F 0.1 in an ABC range of 4.2 to 6.6 M and is recommended to restore this stock which is designated as being "overfished" by the definition in the current FMP and pending Amendment 5.

The allocation, which is being revised eventually to divide the catch equally between commercial and recreational users (Amendment 4), is calculated from a base TAC of 4 million pounds with 10 percent of any additional catch going to the commercial users and 90 percent going to recreational users.

The recreational bag limit is to remain the same, 10 fish per trip except 4 in the EEZ off Florida. The Florida bag limit is 4 fish for state waters, and is expected to increase to 5 fish in January of 1991, at which time the EEZ bag limit would increase to 5 fish. On approval of Amendment 5, the quotas and bag limits will extend to the EEZ in the jurisdiction of the Mid-Atlantic Council.

Definition of Overfishing

In accordance with the procedures proposed in pending Amendment 5, the Panel has suggested minimum levels of 40 percent spawning stock biomass per recruit for king mackerel and 35 percent for Spanish mackerel. Below these levels, a migratory group of these fish will be considered to be "overfished."

The Councils' SSC has accepted the report and the Councils recommend these levels be adopted for the definition of overfishing.

Enclosed is a Regulatory Impact Review for the actions requested herein. We will appreciate your favorable consideration and implementation.

Sincerely,

Walter
TRL

Walter W. Fondren, III
Chairman

WWF:TRL:plb

Enclosures

cc: Gulf Council
Bob Mahood
John Bryson
Standing Scientific and Statistical Committee
Special Mackerel Scientific and Statistical Committee
Mackerel Advisory Panel
Mackerel Stock Assessment Panel
Staff

# SUMMARY
# INTERCOUNCIL SSC COMMENTS ON REPORT OF THE MACKEREL STOCK ASSESSMENT PANEL
## TAMPA, FLORIDA
## TUESDAY, APRIL 10, 1990

1. The SSC expressed dissatisfaction with the lack of sufficient time to review the Stock Assessment Panel's Report prior to the convening of the committee. (The Stock Assessment Panel met six days prior to the convening of the SSC, and the report was distributed the evening before.) This short review time did not allow for full review and analysis by members.

2. Members noted that the report itself did not estimate periods of time for stock recovery at various ranges or levels of ABC.

3. When data are available, the SSC would like to see development of an ABC range for the western Gulf group of king mackerel.

4. The following motion was adopted: The SSC would like additional review time to be provided, but under the circumstances accepts the Panel's report.

SUMMARY
RECOMMENDATIONS OF THE MACKEREL ADVISORY PANEL
GULF OF MEXICO FISHERY MANAGEMENT COUNCIL
TAMPA, FLORIDA
APRIL 18, 1990

Members in attendance:

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|---|---|
| John Blackwell | Raymond Berard |
| Tom Clark | Bobby O'Barr |
| Marvin Burnett | Lenwood Sawyer |
| Andy Burns | Bob Zales, II |

Motions Adopted:

1. Gulf group king mackerel - set TAC at 3.9 M, the most likely value in the ABC range of 3.2 to 5.4 M.

2. Atlantic group king mackerel - set TAC at 8.3 M, the most likely value in the ABC range of 6.5 to 15.7 M.

3. Gulf group Spanish mackerel - set TAC at 5.25 M, maintaining the same level as the current TAC, in a range of 3.9 to 7.4 M.

   The panel felt they had recognized an increase in abundance of this stock, and the present TAC was working to restore populations. The increase in the ABC range (last year it was 4.9 to 6.5 M) indicated some uncertainty in the analysis, and the 5.25 M is still a conservative level within the ABC.

4. Atlantic group Spanish mackerel - set TAC at 5.0 M, the most likely value in the ABC range of 4.2 to 6.6 M.

5. Other matters - the panel requests that the Councils establish reasonable bag limits and quotas for dolphin, bluefish, and little tunny. As quotas and closures are being implemented for other species, effort can be expected to be transferred to unrestricted fisheries resulting in declines in these stocks as well.

# SAFMC MACKEREL ADVISORY PANEL MEETING

# TAMPA, FLORIDA
# APRIL 10, 1990

## MOTIONS:

1. Atlantic king mackerel TAC = 9.75 million pounds and the bag limit be 4 fish per person in North Carolina, 3 in South Carolina/Georgia and 2 in Florida.

2. Gulf king mackerel TAC = 3.9 million pounds and the bag limit remain the same.

3. Atlantic Spanish mackerel TAC = 5.6 million pounds and the bag limit remain the same (10) in North Carolina, South Carolina and Georgia but change to 5 in Florida to track recent Florida action.

4. Gulf Spanish mackerel TAC = 4.9 million pounds and by consensus agreed that the bag limit remain the same.

5. Recommend that the Councils' reiterate their intent that drift gillnets not be altered to circumvent the prohibition on use.

## OTHER ISSUES:

1. Concerned about unequal representation by State on the Advisory Panel.

2. Concerned that the South Atlantic Council's Advisory Panel will not have representation into the Gulf Council's deliberations on setting the Gulf king mackerel TAC and bag limit if Amendment 5 is approved. Recommend that the South Atlantic Council manage fishing on the lower Florida east coast based on the higher percentage composition of Atlantic king mackerel.

3. Concerned about the mackerel bycatch in shrimp trawls in the Atlantic and recommend that the data be analyzed.

4. Dolphin assessments should be done and the fishery monitored.

5. Can the Councils look at provisions for someone with a boat obtaining a permit if they do not meet the 10% earned income requirement?

# REGULATORY IMPACT REVIEW

of

# CHANGES IN TAC, QUOTAS, AND BAG LIMITS

for

# KING AND SPANISH MACKEREL

# GULF OF MEXICO AND ATLANTIC MIGRATORY GROUPS

managed under the

FISHERY MANAGEMENT PLAN

for the

COASTAL MIGRATORY PELAGIC RESOURCES

of

GULF OF MEXICO AND THE SOUTH ATLANTIC

**Prepared by**
**Gulf of Mexico Fishery Management Council**
**and**
**National Marine Fisheries Service**

**May 1990**

## INTRODUCTION

Executive Order 12291 "Federal Regulations" establishes guidelines for promulgating new regulations and reviewing existing regulations. Under these guidelines each agency, to the extent permitted by law, is expected to comply with the following requirements: (1) administrative decisions shall be based on adequate information concerning the need for and consequences of proposed government action; (2) regulatory action shall not be undertaken unless the potential benefit to society for the regulation outweighs the potential costs to society; (3) regulatory objectives shall be chosen to maximize the net benefits to society; (4) among alternative approaches to any given regulatory objective, the alternative involving the least net cost to society shall be chosen; and (5) agencies shall set regulatory priorities with the aim of maximizing the aggregate net benefit to society, taking into account the condition of the particular industries affected by regulations, the condition of the national economy, and other regulatory actions contemplated for the future.

In compliance with Executive Order 12291, the Department of Commerce (DOC) and the National Oceanic and Atmospheric Administration (NOAA) have determined that this proposed notice action for changes in the total allowable catch, allocations and bag limits for king and Spanish mackerel reflect important DOC/NOAA policy concerns and are the object of considerable public interest. In such a case, DOC/NOAA require the preparation of a Regulatory Impact Review (RIR). The RIR provides a comprehensive review of the level and incidence of impact associated with the proposed or final regulatory actions. The analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve problems. The purpose of the analysis is to ensure that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way.

## COASTAL MIGRATORY PELAGICS PLAN

The Fishery Management Plan for the Coastal Migratory Pelagic Resources of the Gulf of Mexico and the South Atlantic (FMP) was prepared jointly by the Gulf of Mexico and South Atlantic Fishery Management Councils (Councils). The Assistant Administrator for Fisheries, NOAA (Assistant Administrator) approved the FMP on April 1, 1982, and the Secretary of Commerce (Secretary) implemented final regulations on February 4, 1983, under the authority of the Magnuson Fishery Conservation and Management Act, as amended (Magnuson Act). Amendment 1 to the FMP was prepared jointly by the Councils, approved on July 26, 1985 by the Regional Director, NMFS, and implemented September 22, 1985. Amendment 2 was submitted on April 1, 1987 and implemented in July, 1987. Amendment 3 was submitted on March 14, 1989 and was approved on March 15, 1990. Amendment 4 was submitted on May 22, 1989 and was implemented on October 19,1989.

The FMP manages the coastal migratory pelagics fishery throughout the exclusive economic zone (EEZ) off the South Atlantic coastal states from the Virginia-North Carolina border south and through the Gulf of Mexico to the U.S.A.-Mexico border. Pending approval of Amendment 5 to the fishery plan, management area could extend to areas currently under the jurisdiction of the Mid-Atlantic Council. Major species in the management unit for the FMP are Spanish mackerel, king mackerel, and cobia. Within the mackerel stocks, Gulf of Mexico and Atlantic migratory groups are distinguished for both species. Amendments 1 and 2 provide for annual assessments and adjustment of acceptable biological catch (ABC), total allowable catch (TAC), and bag limits for king and Spanish mackerels, both of which have within them one or more overfished migratory groups.

## PROBLEMS BEING ADDRESSED

1. <u>Atlantic and Gulf Spanish Mackerel and Gulf King Mackerel are Overfished</u>

The 1990 report of the joint Councils' stock assessment panel states that until the risk of recruitment overfishing is no longer a concern, Spanish mackerel and the Gulf migratory group of king mackerel should be considered overfished.

2. <u>New Recruits into the Atlantic and Gulf Spanish Mackerel and Gulf King Mackerel Stocks Need Protection to Allow for an Increase in the Spawning Stock Biomass</u>

There is evidence of some increase in recruitment in most recent years. The stock assessment panel felt there was potential for the increased recruitment to contribute to recovery of the spawning biomass as well as increased catch levels. However, conservative fishing mortality rates are still needed as there is considerable uncertainty in the strength of the newest year classes. Female Spanish mackerel may begin spawning at age 1, and age 2 females make a significant contribution to the spawning potential of the stock. Female king mackerel are sexually mature at age 4.

## OBJECTIVES

1. To restore the spawning stock biomass of Spanish mackerel and Gulf king mackerel.

2. To protect new recruits in the mackerel fishery so they can add to the spawning biomass and thereby allow for larger catches in the future.

## DESCRIPTION OF THE COMMERCIAL AND RECREATIONAL KING AND SPANISH MACKEREL FISHERIES

King and Spanish mackerel are important to both recreational and commercial fishermen in the Gulf of Mexico and South Atlantic waters. Following is a brief description of the conditions in both of these fisheries. A more complete description exists in the Coastal Migratory Pelagics FMP. Table 1 presents a summary of the performance of the fishery in the 1989-1990 fishing year. Although the report covers the entire fishing season for most of individual species, the data are highly preliminary.

Recreational anglers are estimated to have caught 4.1 (4.44) million pounds (M) of Atlantic and 2.06 (3.37) M of Gulf king mackerel in the 1989 fishing year (ending March 31 or June 30, 1988, depending on the stock). Anglers also took 1.38 (2.78) M of Atlantic and 1.02 (.79) M of Gulf Spanish mackerel. The majority of the recreationally caught king mackerel were taken by charter and private boat anglers with a small percentage being caught from man-made structures. Recreational catches of Spanish mackerel were more evenly distributed between charter boat, private boat, and man-made structures than were king mackerel catches. In the 1989-1990 fishing year, recreational quotas were not exceeded for all mackerel species. This is in stark contrast to the previous year's performance when all, but Gulf Spanish mackerel, recreational quotas were exceeded and the fishery closed before the fishing season ended.

Commercial landings of Atlantic and U.S. Gulf king mackerel were 2.61 (2.96) and 1.62 (1.15) M, respectively. Spanish mackerel commercial landings for the Atlantic and U.S. Gulf groups were 3.34 (3.05) and 1.74 (2.94) M. King mackerel were caught mostly with gill nets and hooks and lines, but purse seines and drift nets, which is a newly developing fishery off the east coast of Florida, were also used for this species. Spanish mackerel were caught almost exclusively with gill nets and over 85 percent of the commercial fishery occurs in Florida. Preliminary estimates place the number of active large gill net vessels, all in Florida, at 47 in 1989 and 237 small vessels in all states. The estimates for hook and line vessels in Florida are 250 for 1985 and 200 for 1986. In the 1989-1990 fishing year, commercial quotas of Gulf king and Atlantic Spanish mackerel were met before the fishing season ended. The commercial quota for the Gulf king mackerel was met in the Western Zone about four months after the season opened. It took about seven months before the quota for the Eastern Zone was met. Compared to the previous year, commercial fishing season for Gulf king mackerel was longer in the Eastern Zone but shorter in the Western Zone. Commercial fishery for the Atlantic Spanish mackerel closed about eight months after the season began. The fishing season for this segment of the fishery is about the same as that of the previous year's. Somewhat surprising is the fact that commercial quotas for Atlantic king and Gulf Spanish mackerel were not met, with these segments of the fishery remaining open until the fishing year ended (March 31, 1990 for Atlantic king and June 30, 1990 for Gulf Spanish mackerel). In the previous year, these segments of the fishery closed about one to two months before the season ended. Reports have it that fishermen in the Florida Keys prosecuting Gulf Spanish mackerel refused to continue fishing sometime during the second half of the fishing season because of low dockside prices for this stock group. However, fishing resumed until the season ended when price agreements between harvesters and fish houses were concluded.

## METHODOLOGY AND FRAMEWORK FOR ANALYSIS

The alternatives considered are described below, and the allocations are summarized in Table 1. For this Notice Action the choice of TAC cannot exceed the upper ranges of ABC as estimated by the stock assessment panel and summarized in Table 1. There would be no relevance in comparing these alternatives to a hypothetical unregulated fishery since "no regulation" is not an option under Notice Action.

Ideally, the expected net present values of the yield streams associated with the different alternatives would be compared in evaluating impacts. Unfortunately, estimates of the yield streams and their associated probabilities are not available. The approach taken here is to describe short-term costs or benefits in terms of foregone or additional catch as compared to 1989-1990 allocations. The analysis provides for separate evaluation of expected impacts on the commercial and recreational sectors and addresses the likely distribution of these impacts. Long-term economic effects of stock recovery of alternative TAC's are estimated in Amendment Two. Although the data to compare long term effects of various possible TAC levels within ABC are not available, the expected direction and possible magnitude of economic impacts are discussed. Effects of closures related to allocations are evaluated where appropriate. The attempts at analysis revealed the need to have data available in a timely fashion. Some thought needs to be given to situations where preparers of RIR's are asked to evaluate changes from current management before the current fishing year has expired.

## IMPACTS OF PROPOSED AND ALTERNATIVE ACTIONS

### Gulf Group King Mackerel

The stock assessment panel concluded that the U.S. Gulf resource appeared to have continued to respond somewhat toward recovery. An ABC range of 3.2 - 5.4 M has been established. The most likely estimate of ABC is 3.9 M. As provided in Amendment Two, the TAC may not be set higher than the upper range of ABC. Stock recovery is less likely to occur at the upper end of the ABC than at the lower end. Fixed allocations between user groups remain at 32 percent commercial and 68 percent recreational. The commercial allocation is divided 69 percent eastern zone and 31 percent western zone.

1. Preferred Alternative: Set TAC at 4.25 M

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|---|---|
| Commercial allocation | 1.36 M |
| Recreational allocation | 2.89 M = 301,000 fish |
| Bag limit = | 2 fish/person/trip private, 3 fish/person/trip charter (excluding captain and crew) or 2 fish/person/trip (including captain and crew) |

Being within the ABC range and only slightly above the most likely value, this TAC allows a fishing mortality rate that is consistent with the target stock recovery. At the same time, this TAC would enable the different user groups to maintain their current fishing levels, since there are no changes in allowable catch and allocation among different user groups. Moreover, recreational bag limits are identical to those of the previous year's. The short-run economic impacts of this option on the recreational sector are expected to be minimal, considering the fact that only about 71 percent of last year's recreational quota was reportedly taken. To some extent, the amount of underrun could serve as a buffer to accomodate an increasing fishing trips taken by anglers.

In the previous fishing season, commercial quota overruns, particularly in the Western Zone, were registered leading to a de facto reallocation of catch from the recreational sector to its commercial counterpart. This occurred despite an increase in quota for last year over the 1988 fishing season. In addition, the fishing season for the Western Zone was shorter last year compared to that of the 1988 fishing season. Thus, while maintaining the quota would create no significant impacts in principle, the possibility of a shortened season, especially in the Western Zone, could reduce the short-run profitability of the commercial sector.

2. Rejected Alternative: Set TAC at 3.9 M, the most likely estimate of ABC

The only difference between this alternative and the preferred one is the magnitude of TAC. Percent allocation among user groups and recreational bag limits are identical to those of the preferred option. At this TAC level, allocation would be:

| | |
|---|---|
| Commercial allocation | 1.25 M |
| Recreational allocation | 2.65 M |
| Bag limit = | 2 fish/person/trip private, 3 fish/person/trip charter (excluding captain and crew) or 2 fish/person/trip (including captain and crew) |

This alternative provides the highest likelihood that allowed fishing mortality would not significantly prevent the recovery of the stock to the target level. This catch level is about 8 percent lower than current (proposed) allowable catch. If quota underrun in the recreational sector could be expected to be about 8 percent or more for the current year, this option would have no major impacts on the recreational sector. However, the commercial sector which overshot its quota for the previous year would have to absorb some reductions in landings and very likely also in revenues. This loss to the commercial sector would amount to about 110,000 pounds or 115,500 dollars.

Atlantic Group King Mackerel

The stock assessment report states that the abundance of Atlantic king mackerel of spawning ages increased during the early to mid 1980's and may have declined slightly in recent years. There appears to be an adequate spawning biomass present which should continue in the future as long as fishing mortality rates do not increase greatly. There appears to be significant amounts of recruitment coming into the fishery, but again high fishing mortality rates could reduce the size of these year classes. This stock is not currently considered to be overfished because the fishing mortality rate does not presently appear to be exceeding F 0.1, and the spawning stock biomass does not appear to be low enough to affect recruitment. TAC is currently set at 9.0 M in ABC range of 6.9 to 15.4 M. For the 1990-1991 season the assessment panel recommends an ABC range of 6.5 to 15.7 M. The fixed allocation ratio remains at 62.9 percent recreational and 37.1 percent commercial.

1. Preferred Alternative: Set TAC at 8.3 M

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|---|---|
| Commercial allocation | 3.08 M |
| Recreational allocation | 5.22 M = 601,000 fish |
| Bag Limit = | 2 fish per person per trip off Florida; 3 fish per person per trip off Georgia, South Carolina, and North Carolina |

The commercial allocation under the proposed TAC is 0.26 M or about 8 percent lower than that in the 1989-1990 fishing year. This quota reduction could represent a potential short-term loss in exvessel revenues of $273,000 to the commercial fishing vessels fishing on the Atlantic king mackerel stock. However, it may be stressed that the commercial catch has exceeded the proposed quota of 3.08 M in only 3 of the past 10 years. In the 1989-1990 fishing season less than 80 percent of the quota was filled. A quota underrun is partly a function of demand. If commercial demand for king mackerel is not expected to increase significantly in the 1990-1991 fishing season, a quota underrun is likely to occur. If this quota underrun is 8 percent or more, the potential reduction in catch under a reduced quota would not materialize, and this choice of TAC would not have major effects on the commercial fishermen. Expectations about quota underruns may have to be tempered with the prospect that the Mid-Atlantic Council's area of jurisdiction will partake of this quota once Amendment 5 to the Mackerel FMP is approved and implemented.

The recreational allocation of 5.22 M is 0.44 M or about 8 percent lower than the current allocation. At an average weight of 8.69 pounds per fish (1989 data) the 1.26 M quota reduction would potentially result in a reduction of about 25,000 fully successful 2-fish limit trips or 17,000 fully successful 3-fish limit trips. Although the quota for the 1988-1989 season was reached in mid-October of the fishing season at which time the bag limit reverted to zero in the EEZ, no closure occurred in the 1989-1990 fishing season since only about 71 percent of the quota for this year was filled. Apparently the bag limit succeeded in holding catches within the allocation despite the stipulation that bag limits would not revert to zero once the allocation was met. It may be noted that the 2-fish bag limit for federal waters off Florida was set to be consistent with regulations for state waters. If a similar situation can be expected for the 1990-1991 season, the reduction in quota would have no major impacts on the recreational sector. As with the commercial sector, the potential share of the Mid-Atlantic Council's area of jurisdiction in the quota has to be discounted when expecting for quota underruns above the 8 percent level.

2. Rejected Alternative: Set TAC at 9.0 M, the current quota

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|---|---|
| Commercial allocation | 3.34 M |
| Recreational allocation | 5.66 M |

This alternative would maintain current fishing levels. This level is slightly above the most likely ABC value, but it is still within the estimated ABC range for the stock. Although it is intuitively appealing that a higher TAC would slow down the rate of stock recovery to its previous abundance, the magnitude of such a potential slow down is not known. Judging from the performance of the fishery in the preceding year when neither the recreational nor commercial catch quota was reached, it is very likely that the difference between this TAC level and the preferred one is insignificant with respect to promoting stock recovery. Also the potential losses under the preferred alternative are not highly expected to be realized so that it appears that this option and the preferred one would bring about similar effects.

Gulf Group Spanish Mackerel

The stock assessment panel found evidence of some increase in recruitment and spawning stock biomass in the most recent years. The panel felt there was potential for the increased recruitment to continue to contribute to recovery of the spawning biomass. Recommended ABC range is 3.9 to 7.4 M. Allocations remain at 57 percent commercial and 43 percent recreational.

1. <u>Preferred Alternative: Set TAC at 5.25 M</u>

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|---|---|
| Commercial allocation | 2.99 M |
| Recreational allocation | 2.26 M = 1.569 M fish |
| Bag limit = | 3 fish per person per trip off Texas, 3 fish per person per trip off Florida (5 fish by January 1, 1991 when made applicable to Florida state waters), and 10 fish per person per trip off other Gulf states (reverts to zero if the allocation is reached) |

The preferred TAC is the same as that of the 1989-1990 fishing season. This is slightly higher than the most likely ABC value, but it still falls below the median of the estimated ABC range. There is some potential for this TAC to slow down the rate of stock recovery when contrasted with the most likely ABC value. However, both commercial and recreational quotas were not filled in the 1989-1990 fishing year. If this harvest rate continues to occur in the 1990-1991 fishing year, the choice of TAC that maintains current allowable catch would have no major economic impacts on the fishery.

As earlier noted, the commercial quota was not filled as fishing halted for some time due to depressed dockside prices. Fishing resumed when higher prices were negotiated. If this negotiated price is maintained during the 1990-1991 fishing season, an increased fishing activity could be accomodated by this choice of a TAC. Considering the fact that this chosen TAC is within the ABC range, recovery of the stock would not be significantly hindered.

The 1989-1990 recreational allocation was not filled with 4 fish in Florida and 10 fish per person per trip bag limit in other Gulf states. In fact, less than 50 percent of recreational allocation was taken in the 1989-1990 fishing season. There is no information about the number of fishing trips taken by anglers to determine whether its increase or decrease could be a factor in the quota underrun of the preceding season. For the 1990-1991 season, two changes are worth noting. The bag limit in Texas is reduced to 3 from 10 fish per person per trip. On the other hand, the bag limit for Florida will be increased to 5 fish per person per trip once the state law stipulating such bag limit goes into effect by January 1, 1991. These two changes are not necessarily offsetting, considering that recreational catches in Florida are historically higher than those in Texas. Preliminary reports show that recreational catches in Florida are higher than the combined catches for the rest of Gulf, excluding Texas. Recreational catch of Gulf Spanish mackerel in Texas is not yet available. The impact of the increase in Florida bag limit in terms of the number of angler trips taken and number of fish caught is not known. However, it is very likely that, at least for the 1990-1991 fishing season, this increase could not significantly boost the recreational catch beyond the stipulated quota, especially that the effectivity of this increase would occur in the second half of the fishing season.

At any rate, this possible increase in recreational catch could readily be accomodated by the proposed recreational quota.

2. Rejected Alternative: Set TAC at 4.9 M, the most likely ABC

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|---|---|
| Commercial allocation | 2.11 M |
| Recreational allocation | 2.79 M |

This TAC, which is the most likely value of ABC, would mean a potential reduction in commercial catch of 0.2 M or about 7 percent when compared with current allocation. At an average price of 33 cents a pound, this reduction would translate to a loss in exvessel revenues of about 66,000 dollars. The actualization of this loss depends largely on whether the quota will be filled. Experience from the 1989-1990 season when the commercial quota was not filled demonstrated that demand for the species is a major factor that determines the harvest level. With expectations of no significant increase in commercial demand for Spanish mackerel, this option would have similar effects as the preferred one. The only time this option will be more beneficial than the preferred one is when a significant difference exists between the two with respect to enhancing the recovery rate of the stock. But then again this difference would depend on the extent of quota overruns or underruns. If the actual quota underrun for the 1990-1991 is 7 percent or higher, the two options will have no differential impacts on the recovery rate of the stock.

This TAC level would also have a potential negative impact on the recreational sector. Potential reduction in catch is 0.2 M or about 7 percent when compared with current allocation. On the basis of the past two fishing seasons, it is very likely that there will be quota underrun even with this reduction in catch. This is expected even if the increase in Florida bag limit from 4 to 5 fish per person per trip which will be effective only by January 1, 1991. compared to the preferred alternative. This option, however, appears to yield a somewhat higher probability of spawning stock recovery and longer term gain when compared with the proposed option. But if there is a quota underrun of 7 percent or more, the two options would have no differential impacts on the spawning stock, and thus on recreational benefits over the short- and long-run.

**Atlantic Group Spanish Mackerel**

The report of the stock assessment panel notes an historical decline in spawning biomass in the Atlantic but that recruitment may be up for this stock. The ABC range for this group is recommended to be 4.2 to 6.6 M with the most likely value estimated at 5.0 M. The allocation remains at 76 percent commercial and 24 percent recreational.

1. Preferred Alternative: Set TAC at 5.0 M, the most likely ABC

| | |
|---|---|
| Commercial allocation | 3.14 M |
| Recreational allocation | 1.86 M = 1.216 M fish |
| Bag limit = | 4 (5 by January 1, 1991) fish per person per trip off Florida, 10 other states (reverts to zero if allocation is reached) |

The commercial allocation of the proposed TAC is 0.1 M or about 3 percent lower than the 1989-1990 allocation representing a potential loss of 33,000 dollars in exvessel revenues. The 1989-1990 commercial allocation was taken by the 23rd of December, about 8 months after the season opened. Over 80 percent of the commercial fishery occurred in Florida and 72 percent of the landings were taken there within one month of the appearance of the fish. It is apparent from past performance in this sector that this proposed quota reduction would materialize into actual losses in the commercial sector as the probability of quota overruns is relatively high. On a per vessel basis, this loss appears to be quite negligible noting that in the past season around 1,200 commercial permits were issued for this mackerel group. It is, however, possible that losses to current permit holders will be bigger when part of the quota will be taken by fishermen in the Mid-Atlantic's area of jurisdiction upon approval of Amendment 5.

The recreational fishery did not fully fish out its allocation for the 1989-1990 fishing season. Preliminary estimates record the quota underrun at about 50 percent of the allocation with significant reduction in landings off North Carolina. This is in direct contrast to the 1988-1989 fishing year when 290 percent of the quota was taken by the end of December despite the fact that the EEZ bag limit reverted to zero 2 months earlier. Part of the explanation comes from the fact that a huge increase in recreational allocation was made for the 1989-1990 season. Although no data can be presented, it also highly likely that there occurred a reduction in the number of successful recreational trips taken for Spanish mackerel. This is partly borne out by the fact the total recreational catch in the 1989 fishing season is only about 50 percent of that of the 1988 season. Given this scenario, it is possible that the proposed reduction in recreational catch of about 900,000 pounds would have no major impacts on the recreational sector, at least when compared with the 1989-1990 season.

2. Rejected Alternative: Set TAC at 6.0 M, the current quota

| | |
|---|---|
| Commercial allocation | 3.24 M |
| Recreational allocation | 2.76 M |
| Bag limit = | 4 (5 by January 1, 1991) fish per person per trip off Florida, 10 other states (reverts to zero if allocation is reached) |

Since TAC would be set equal to the preceding year's level, there would be no short-term impacts on either the recreational or commercial fisheries. Although this TAC is within the ABC range, the probability of stock recovery within the given time frame would be reduced by some unknown amount. However, there is no assurance that this unknown amount of stock recovery would translate in future net benefits as some discounting factor has to be entered into the computation of net benefits.

Definition of Overfishing

A 40 percent spawning stock biomass per recruit (SSBR) for king mackerel and 35 percent for Spanish mackerel are minimum levels suggested in adopting a definition for overfishing. These levels are deemed to be very conservative in maintaining the stock at greater abundance. Currently only the Atlantic group of king mackerel is considered not "overfished" under this definition. A viable recreational and commercial fisheries can be supported by maintaining this definition. The current TAC levels adopted to rebuild or maintain the stocks at these SSBR levels appear to be reasonable. The relationship of these levels to optimum yield (OY) that accounts for socioeconomic factors are relatively unknown and further research is needed if some quantification of this relationship is desired.

Government Costs of Regulation

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

| | |
|---|---|
| Prepare and implement action | $300,000 |
| Research | None additional required |
| Statistics | None additional required |
| Enforcement | None additional required |

## SUMMARY AND NET EXPECTED IMPACT OF PROPOSED ACTION

The notice action being addressed constitutes changes in management for four distinctive groups of king and Spanish mackerel. In essence, four independent actions are being considered, and there is no justification to attempt a net benefit statement for all four actions considered as a unit. Therefore, this summary proceeds on the basis of the four groups of mackerels being considered as distinct fisheries.

The major emphasis of the summary (actually four summaries) is on the expected economic impact of the preferred alternatives. Net benefits of preferred alternatives are compared to net benefits from their corresponding rejected alternatives. It may be noted that for each fishery the alternatives considered are the status quo and the most likely value of ABC. It may also be added that the preferred alternatives for the Gulf group of king and Spanish mackerel are the status quo while those for the Atlantic groups are the most likely values of ABC.

## Gulf Group King Mackerel

The preferred alternative (set TAC at 4.25 M with no change in bag limits) is the same as that of the previous season. While remaining near a median-level probability of continued stock recovery, it is slightly above the estimated most likely value of ABC (3.9 M). This most likely value is the rejected alternative. The differential impact of these two alternatives on stock recovery is not known. If quota underruns of 8 percent or more materialize, the differential impact of these two alternatives on stock recovery will be negligible. There is a strong possibility for a quota underrun in the recreational sector; such prospect for the commercial sector is not likely. While this latter sector could maintain its financial position under the preferred option, it would incur a loss of about 115,000 dollars under the rejected option. Under this condition, there is some reason to believe that the preferred option would be more beneficial (or less costly) than the rejected option.

## Atlantic Group King Mackerel

The preferred alternative (set TAC at 8.3 M with the same bag limits of two fish per person per trip off Florida, three fish off other states) is 0.70 M or 8 percent below the 1989-1990 TAC (9.0 M). This latter TAC is the rejected alternative. The preferred TAC represents the highest probability of continued stock recovery. However, the differential impact of the preferred and rejected TACs on stock recovery is not known. If quota underruns of 8 percent or more materialize, the differential impact of these two alternatives on stock recovery will be negligible. If the economic conditions prevailing in the 1989-1990 fishing season continue into the next year, quota underruns in both the recreational and commercial sectors can be expected. It may be recalled that more than 20 percent of commercial and recreational quotas were not taken in the 1989-1990 fishing season. Under this condition, the two alternatives cannot be differentiated as to their respective impacts on the biology and economics of the fishery. However, if Amendment 5 is approved, quota underruns in both the recreational and commercial sectors may not occur. In this situation, the proposed alternative could be more costly in the short-run than the rejected one.

## Gulf Group Spanish Mackerel

The recommended TAC is 5.25 M with a limit of four (five by January 1, 1991) fish per person per trip off Florida, three fish per person per trip off Texas, and 10 off other states. This TAC is the same as that of the 1989-1990 season and slightly above the estimated most likely ABC of 4.9 M. This latter is the rejected alternative TAC. The differential impact of these two alternatives on stock recovery is not known. If quota underruns of 8 percent or more materialize, the differential impact of these two alternatives on stock recovery and on users of fish resource will be negligible. There exists a strong possibility for a quota underrun in the recreational sector despite changes in bag limits especially that for Florida by January 1, 1991. A quota underrun in the commercial sector is highly dependent on commercial demand for the species or at least on some agreed prices between fish houses and fishermen. If demand is high, the commercial quota could be fully taken. In this eventuality, the proposed TAC would be more beneficial to this sector than the rejected one. The net effect would depend on the extent of stock recovery under the proposed and rejected options.

### Atlantic Group Spanish Mackerel

The preferred alternative sets TAC at 5.0 M with no change in bag limits, except in Florida which will increase to five fish per person per trip by January 1, 1991. This value is 1.0 M below the 1989-1990 TAC of 6.0 M (rejected alternative), with 90 percent of the reduction absorbed by the recreational sector and the rest by the commercial sector. The preferred TAC represents the highest probability of stock recovery while the rejected alternative is close to the upper bound (6.6 M) of the ABC range. At this magnitude of difference between the preferred and rejected TACs, it appears that stock recovery would be slower under the rejected option. There is some possibility for a quota underrun in the recreational sector if conditions prevailing in the 1989-1990 season do not significantly change for the following year. It is highly likely that the commercial sector will fill its quota for the 1990-1991 as it did in the preceding year. Thus, while the preferred option may have minimal impacts on the recreational sector, it will bring about losses to the commercial sector. Losses in exvessel revenues, however, are expected to be relatively small. To what extent these losses are compensated by future benefit gains due to stock recovery cannot be quantified. The net effect may be positive or negative.

### Government Costs

Government costs for preparing and implementing this action are estimated at $300,000. This is the same amount as the previous year's. There are expected to be no additional costs from data collection, research or law enforcement from this action.

Table 1

**GULF GROUP SPANISH MACKEREL**
**(1989/90) PRELIMINARY COMMERCIAL AND RECREATIONAL LANDINGS, (NMFS/SEFC/MRFSS/FDNR)**
**Whole Weight In Pounds. (SMG89-90;04/24/90)**

89/90 COMMERCIAL (QUOTA 2.99M)

| MONTH | TX | WESTERN ZONE LA | MS | AL | Total | Cum. Total | % of Quota (2.99M) | MONTH | FLORIDA West Coast | Cum. Total | % of Quota (2.99M) | | GULFWIDE Total | Cum. Total | % of Quota (2.99M) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 89 | | 589 | 2,678 | 35 | 3,302 | 3,302 | 0 | July 89 | 11,457 | 11,457 | 0 | | 14,759 | 14,759 | 0 |
| August | | 1,398 | 1,452 | 1,110 | 3,960 | 7,262 | 0 | August | 32,299 | 43,756 | 1 | 1,110 | 36,259 | 51,018 | 2 |
| September | | 6,016 | 873 | 2,930 | 9,819 | 17,081 | 1 | September | 37,696 | 81,452 | 3 | 2,930 | 47,515 | 98,533 | 3 |
| October | | 7,676 | 3,077 | 1,237 | 11,989 | 28,070 | 1 | October | 89,087 | 170,539 | 6 | 1,237 | 101,078 | 199,608 | 7 |
| November | | 7,203 | 420 | 1,938 | 9,561 | 38,631 | 1 | November | 138,066 | 308,594 | 10 | 1,938 | 147,018 | 347,225 | 12 |
| December | | 156 | | 87 | [illegible] | [illegible] | 1 | December | 163,015 | 470,[illegible] | 16 | 87 | 166,[illegible] | 512,783 | 17 |
| January 90 | | | | | 0 | 38,854 | 1 | January 90 | 241,574 | 716,403 | 24 | 0 | 241,574 | 754,337 | 25 |
| February | | | | | 0 | 38,854 | 1 | February | 676,781 | 1,392,284 | 47 | 0 | 676,781 | 1,431,118 | 48 |
| March | | | | | 0 | 38,854 | 1 | March | 189,529 | 1,581,793 | 53 | 0 | 189,528 | 1,620,647 | 54 |
| April | | | | | 0 | 38,854 | 1 | April | 124,275 | 1,706,068 | 57 | 0 | 124,275 | 1,744,922 | 58 |
| May | | | | | 0 | 38,854 | 1 | May | | 1,706,068 | 57 | 0 | 0 | 1,948,428 | 65 |
| June | | | | | 0 | 38,854 | 1 | June | | 1,706,068 | 57 | 0 | 0 | | 0 |
| Total | 0 | 23,037 | 6,608 | 7,317 | 38,854 | | | Total | 1,706,068 | | | | 1,744,922 | | |
| % West | 0.0 | 59.3 | 21.9 | 18.8 | | | | % East | | | | | | | |
| % Gulf | 0.0 | 1.3 | 0.5 | 0.4 | 2.2 | | | % Gulf | 97.8 | | | | | | |
| After Closure Pounds: | ERR | ERR | 0 | 0 | 0 | | | | ERR | | | | ERR | | |

1989/90 RECREATIONAL (QUOTA 2.26M)

| MONTH | TX | WESTERN ZONE LA | MS | AL | Total | Cum. Total | % of Quota (2.26M) | MONTH | FLORIDA West | Cum. Total | % of Quota (2.26M) | Head-Boat | GULFWIDE Total | Cum. Total | % of Quota (2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jul/Aug 89 | | 78,047 | 36,584 | 65,669 | 180,180 | 180,180 | 8 | July 89 | 277,507 | 277,507 | 12 | | 457,687 | 457,687 | 20 |
| Sep/Oct | | 40,694 | 2,519 | 50,509 | 100,748 | 280,928 | 14 | September | 344,391 | 591,898 | 24 | | 385,073 | 842,760 | 37 |
| Nov/Dec | | 59,504 | 1,632 | 28,091 | 88,187 | 399,108 | 18 | December | 90,079 | 621,817 | 28 | | 170,260 | 1,021,026 | 45 |
| Jan/Feb 90 | | | | | 0 | 399,108 | 18 | Jan/Feb 90 | | 621,817 | 28 | | 0 | 1,021,028 | 45 |
| Mar/Apr | | | | | 0 | 399,108 | 18 | Mar/Apr | | 621,817 | 28 | | 0 | 1,021,026 | 45 |
| May/Jun | | | | | 0 | 399,108 | 18 | May/Jun | | 621,817 | 28 | | 0 | 1,021,026 | 45 |
| Total | 0 | 207,285 | 40,715 | 151,129 | 399,108 | | | Total | 621,817 | | | 0 | 1,021,026 | | |
| % West | 0.0 | 51.9 | 10.2 | 37.9 | | | | % East | | | | | | | |
| % Gulf | 0.0 | 20.3 | 4.0 | 14.8 | 39.1 | | | % Gulf | 60.9 | | | | | | |

| | TX | WESTERN ZONE LA | MS | AL | Total | % of TAC (5.26M) | | FLORIDA West | % of TAC (5.25M) | Head-Boat | GULFWIDE Total | % of TAC (5.25M) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COM TOT | 0 | 23,037 | 8,500 | 7,317 | 38,854 | 1 | COM TOT | 1,706,068 | 32 | 0 | 1,744,922 | 33 |
| REC TOT | 0 | 207,285 | 40,715 | 151,129 | 399,108 | 8 | REC TOT | 621,817 | 12 | 0 | 1,021,026 | 19 |
| GRAN TOT | 0 | 230,322 | 49,215 | 158,446 | 437,963 | 8 | GRAN TOT | 2,327,885 | 44 | 0 | 2,765,948 | 53 |
| % West | 0.0 | 52.6 | 11.2 | 36.2 | | | % East | | | | (ABC = 4.9 - 6.5M) | |

# 1989/90 PRELIMINARY COMMERCIAL AND RECREATIONAL LANDINGS, (NMFS/SEFC/NERSS/FDNR).
Whole Weight In Pounds. (KG89-30; 04/24/90)

## 1989/90 COMMERCIAL (QUOTA 1.36M)

| | WESTERN ZONE TX | LA | MS | AL | Total | Cum. Total | % of Quota (0.42M) | MONTH | EASTERN ZONE FLORIDA West | East | Total | Cum. Total | % of Quota (0.94M) | GULFWIDE Total | Cum. Total | % of Quota (1.08M) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 89 | | 79,618 | 905 | 811 | 81,334 | 81,334 | 19 | July 89 | 2,873 | 671 | 3,544 | 3,544 | 0 | 84,878 | 84,878 | 8 |
| August | | 132,377 | 1,123 | | 133,500 | 214,834 | 51 | August | 1,471 | | 1,471 | 5,015 | 1 | 134,971 | 219,849 | 20 |
| September | | 140,434 | 390 | 510 | 141,334 | 356,168 | 85 | September | 5,108 | 31 | 5,140 | 10,155 | 1 | 146,474 | 366,323 | 34 |
| October | | 187,415 | 85 | | 187,400 | 543,648 | 129 | October | 23,405 | | 23,405 | 33,560 | 4 | 210,805 | 577,208 | 53 |
| Closed 10/25/89 | | | | | | | | | | | | | | | | |
| November | | 111,089 | 158 | | 111,247 | 654,895 | 156 | November | 22,971 | 122,500 | 145,471 | 179,031 | 19 | 256,718 | 833,926 | 77 |
| December | | | | | 0 | 654,895 | 156 | December | 111,009 | 182,340 | 293,349 | 472,380 | 50 | 293,349 | 1,127,275 | 104 |
| January 90 | | | | | 0 | 654,895 | 156 | January 90 | 427,613 | 60,314 | 487,927 | 960,307 | 102 | 487,927 | 1,615,202 | 149 |
| | | | | | | | | Closed 01/09/90 | | | | | | | | |
| February | | | | | 0 | 654,895 | 156 | February | 3,623 | 47 | 3,670 | 963,977 | 103 | 3,670 | 1,618,872 | 149 |
| March | | | | | 0 | 654,895 | 156 | March | | | 0 | 963,977 | 103 | 0 | 1,618,872 | 149 |
| April | | | | | 0 | 654,895 | 156 | April | | | 0 | 963,977 | 103 | 0 | 1,618,872 | 149 |
| May | | | | | 0 | 654,895 | 156 | May | | | 0 | 963,977 | 103 | 0 | 1,618,872 | 149 |
| June | | | | | 0 | 654,895 | 156 | June | | | 0 | 963,977 | 103 | 0 | 1,618,872 | 149 |
| Total | 0 | 650,833 | 2,641 | 1,421 | 654,895 | | | Total | 598,174 | 0 | 963,977 | | | 1,618,872 | | |
| % West | 0.0 | 99.4 | 0.4 | 0.2 | | | | % East | 62.1 | 0.0 | | | | | | |
| % Gulf | 0.0 | 40.2 | 0.2 | 0.1 | 40.5 | | | % Gulf | 37.0 | 0.0 | 59.5 | | | | | |
| After Closure Pounds: | ??? | ??? | 0 | 0 | 0 | | | | ??? | ??? | | | | 0 | | |

## 1989/90 RECREATIONAL (QUOTA 2.31M)

| MONTH | WESTERN ZONE TX | LA | MS | AL | Total | Cum. Total | % of Quota (2.89M) | MONTH | EASTERN ZONE FLORIDA West | East | Total | Cum. Total | % of Quota (2.89M) | Head-Boat | GULFWIDE Total | Cum. Total | % of Quota (2.89M) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jul/Aug 89 | | 80,608 | 48,947 | 6,684 | 136,239 | 136,239 | 5 | Jul/Aug 89 | 396,289 | | 396,289 | 396,289 | 14 | | 532,528 | 532,528 | 18 |
| Sep/Oct | | 26,618 | 20,231 | 81,874 | 128,723 | 264,962 | 9 | Sep/Oct | 880,750 | | 880,750 | 1,277,039 | 44 | | 1,009,473 | 1,542,001 | 53 |
| Nov/Dec | | | | 30,006 | 30,006 | 294,968 | 10 | Nov/Dec | 392,046 | 91,458 | 483,504 | 1,760,543 | 61 | | 513,510 | 2,055,511 | 71 |
| Jan/Feb 90 | | | | | 0 | 294,968 | 10 | Jan/Feb 90 | | | 0 | 1,760,543 | 61 | | 0 | 2,055,511 | 71 |
| Mar/Apr | | | | | 0 | 294,968 | 10 | Mar/Apr | | | 0 | 1,760,543 | 61 | | 0 | 2,055,511 | 71 |
| May/Jun | | | | | 0 | 294,968 | 10 | May/Jun | | | 0 | 1,760,543 | 61 | | 0 | 2,055,511 | 71 |
| Total | 0 | 107,124 | 70,178 | 117,666 | 294,968 | | | Total | 1,669,085 | 91,458 | 1,760,543 | | | 0 | 2,055,511 | | |
| % West | 0.0 | 36.3 | 23.8 | 39.9 | | | | % East | 94.8 | 5.2 | | | | | | | |
| % Gulf | 0.0 | 5.2 | 3.4 | 5.7 | 14.4 | | | % Gulf | 81.2 | 4.4 | 85.6 | | | | | | |
| After Closure | ? | | | 0 | 0 | | | | ??? | ??? | ??? | | | | ??? | | |

| | WESTERN ZONE TX | LA | MS | AL | Total | % of TAC (4.26M) | | EASTERN ZONE FLORIDA West | East | Total | % of TAC (4.26M) | Head-Boat | GULFWIDE Total | % of TAC (4.25M) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COM TOT | 0 | 650,833 | 2,641 | 1,421 | 654,895 | 15 | COM TOT | 598,174 | 0 | 963,977 | 23 | 0 | 1,618,872 | 38 |
| REC TOT | 0 | 107,124 | 70,178 | 117,666 | 294,968 | 7 | REC TOT | 1,669,085 | 91,458 | 1,760,543 | 41 | 0 | 2,055,511 | 48 |
| GRAN TOT | 0 | 757,957 | 72,819 | 119,087 | 949,863 | 22 | GRAN TOT | 2,267,259 | 91,458 | 2,724,520 | 64 | 0 | 3,674,383 | 86 |
| % West | 0.0 | 78.8 | 7.7 | 12.5 | | | % East | 83.2 | 3.4 | | | | (ABC = 2.7 - 5.8M) | |
| % Gulf | 0.0 | 20.6 | 2.0 | 3.2 | 25.8 | | % Gulf | 61.7 | 2.5 | 74.1 | | | | |

## ATLANTIC GROUP SPANISH MACKEREL
(1989/90) PRELIMINARY COMMERCIAL AND RECREATIONAL LANDINGS, (NMFS/SEFC/MRFSS/FDNR).
Whole Weight in Pounds. (SMA89-90;04/24/90)

1989/90 Commercial (Quota 3.24M)

| MONTH | NORTHERN AREA NC | SC | GA | Total | Cum. Total | % of Quota (3.24M) | MONTH | FLORIDA East Coast | Cum. Total | % of Quota (3.24M) | South Atlantic Total | Cum. Total | % of Quota (3.24M) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apr 89 | 1,503 | 300 | | 1,803 | 1,803 | 0 | Apr 89 | 61,384 | 61,384 | 2 | 63,187 | 63,187 | 2 |
| May | 34,344 | | | 34,344 | 36,147 | 1 | May | 31,883 | 93,267 | 3 | 66,227 | 129,414 | 4 |
| June | 70,256 | 684 | 50 | 70,990 | 107,137 | 3 | June | 5,674 | 98,941 | 3 | 76,664 | 206,078 | 6 |
| July | 121,473 | 14 | | 121,487 | 228,624 | 7 | July | 9,422 | 108,363 | 3 | 130,909 | 336,987 | 10 |
| August | 33,615 | 3 | | 33,618 | 262,242 | 8 | August | 14,694 | 123,057 | 4 | 48,312 | 385,299 | 12 |
| September | 39,740 | 42 | | 39,782 | 302,024 | 9 | September | 3,151 | 126,208 | 4 | 42,933 | 428,232 | 13 |
| October | 271,323 | 68 | | 271,391 | 573,415 | 18 | October | 71,993 | 198,201 | 6 | 343,384 | 771,616 | 24 |
| November | 17,006 | | | 17,006 | 590,421 | 18 | November | 183,198 | 381,399 | 11 | 200,204 | 971,820 | 29 |
| December | | | | 0 | 590,421 | 18 | December | 2,324,046 | 2,705,445 | 83 | 2,324,046 | 3,295,866 | 101 |
| Closed 12/23/89 | | | | | | | Closed 12/23/89 | | | | | | |
| January 90 | | | | 0 | 590,421 | 18 | January 90 | 39,917 | 2,745,362 | 85 | 39,917 | 3,335,783 | 103 |
| February | | | | 0 | 590,421 | 18 | February | 4,183 | 2,749,545 | 85 | 4,183 | 3,339,966 | 103 |
| March | | | | 0 | 590,421 | 18 | March | | 2,749,545 | 85 | 0 | 3,339,966 | 103 |
| Total | 589,260 | 1,111 | 50 | 590,421 | | | Total | 2,749,545 | | | 3,339,966 | | |
| % North | 99.8 | 0.2 | 0.0 | | | | % North | | | | | | |
| % S. Atl | 17.6 | 0.0 | 0.0 | 17.7 | | | % S.Atl | 82.3 | | | | | |

1989/90 Recreational (Quota 2.76M)

| MONTH | NORTHERN AREA NC | SC | GA | Total | Cum. Total | % of Quota (2.76M) | MONTH | FLORIDA East Coast | Cum. Total | % of Quota (2.76M) | Head-Boat | South Atlantic Total | Cum. Total | % of Quota (2.76M) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apr 89 | 229 | 74 | | 303 | 303 | 0 | Apr 89 | 37,047 | 37,047 | 1 | | 37,350 | 37,350 | 1 |
| May/Jun | 312,541 | 169,419 | 5,216 | 487,172 | 487,475 | 18 | May/Jun | 47,536 | 84,583 | 3 | | 534,708 | 572,058 | 21 |
| Jul/Aug | 385,467 | 85,412 | 300 | 471,179 | 958,654 | 35 | Jul/Aug | | 84,583 | 3 | | 471,179 | 1,043,237 | 38 |
| Sep/Oct | 195,782 | 23,698 | | 219,480 | 1,178,134 | 43 | Sep/Oct | 15,292 | 99,875 | 4 | | 234,772 | 1,278,009 | 46 |
| Nov/Dec | 2,783 | | | 2,783 | 1,180,917 | 43 | Nov/Dec | 97,050 | 196,925 | 7 | | 99,833 | 1,377,842 | 50 |
| Jan/Feb 90 | | | | 0 | 1,180,917 | 43 | Jan/Feb 90 | | 196,925 | 7 | | 0 | 1,377,842 | 50 |
| March | | | | 0 | 1,180,917 | 43 | March | | 196,925 | 7 | | 0 | 1,377,842 | 50 |
| Total | 895,722 | 279,608 | 5,507 | 1,180,917 | | | Total | 196,925 | | | 0 | 1,377,842 | | |
| % North | 75.8 | 23.7 | 0.5 | | | | % North | | | | | | | |
| % S. Atl | 65.0 | 20.3 | 0.4 | 85.7 | | | % S.Atl | 14.3 | | | | | | |

| | WESTERN ZONE LA | MS | AL | Total | % of TAC (6.00M) | | FLORIDA West | % of TAC (6.00M) | Head-Boat | South Atlantic Total | % of TAC (6.00M) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Com Total | 589,260 | 1,111 | 50 | 590,421 | 10 | COM TOT | 2,749,545 | 46 | 0 | 3,339,966 | 56 |
| Rec Total | 895,722 | 279,608 | 5,507 | 1,180,917 | 20 | REC TOT | 196,925 | 3 | 0 | 1,377,842 | 23 |
| Gran Total | 1,484,982 | 280,719 | 5,557 | 1,771,338 | 30 | GRAN TOT | 2,946,470 | 49 | 0 | 4,717,808 | 79 |
| % North | 83.8 | 15.8 | 0.3 | | | % North | | | | (ABC : 4.1 - 7.4M) | |
| % S. Atl | 31.5 | 6.0 | 0.1 | 37.5 | | % S.Atl | 62.5 | | | | |

ATLANTIC GROUP KING MACKEREL
(1989/90) PRELIMINARY COMMERCIAL AND RECREATIONAL LANDINGS, (NMFS/SEFC/MRFSS/FDNR)
Whole Weight In Pounds. (SHA89-90;04/24/90)

Commercial (Quota 3.34M)

| MONTH | NORTHERN AREA NC | SC | GA | Total | Cum. Total | % of Quota (3.34M) | MONTH | FLORIDA East Coast | Cum Total | % of Quota (3.34M) | South Atlantic Total | Cum. Total | % of Quota (3.34M) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pr 89 | 118,486 | 14,436 | 397 | 133,319 | 133,319 | 4 | Apr 89 | 338,223 | 338,223 | 10 | 471,542 | 471,542 | 14 |
| ay | 27,377 | 8,867 | 1,120 | 37,364 | 170,683 | 5 | May | 729,906 | 1,068,129 | 32 | 767,270 | 1,238,812 | 37 |
| une | 10,989 | 13,506 | 1,525 | 26,020 | 196,703 | 6 | June | 135,683 | 1,203,812 | 36 | 161,703 | 1,400,515 | 42 |
| uly | 20,760 | 33,321 | 587 | 54,668 | 251,371 | 8 | July | 168,691 | 1,372,503 | 41 | 223,359 | 1,623,874 | 49 |
| ugust | 18,585 | 42,886 | 757 | 62,228 | 313,599 | 9 | August | 308,485 | 1,680,988 | 50 | 370,713 | 1,994,587 | 60 |
| eptember | 38,111 | 58 | 578 | 38,747 | 352,346 | 11 | September | 44,190 | 1,725,178 | 52 | 82,937 | 2,077,524 | 62 |
| ctober | 147,790 | 67 | 155 | 148,012 | 500,358 | 15 | October | 22,982 | 1,748,160 | 52 | 170,994 | 2,248,518 | 67 |
| ovember | 207,944 | 773 | 333 | 209,050 | 709,408 | 21 | November | 6,073 | 1,754,233 | 53 | 215,123 | 2,463,641 | 74 |
| ecember | 49,067 | 108 | 423 | 49,598 | 759,006 | 23 | December | | 1,754,233 | 53 | 49,598 | 2,513,239 | 75 |
| anuary 90 | | | | 0 | 759,006 | 23 | January 90 | | 1,754,233 | 53 | 0 | 2,513,239 | 75 |
| February | | | | 0 | 759,006 | 23 | February | | 1,754,233 | 53 | 0 | 2,513,239 | 75 |
| March | 100,000 | | | 100,000 | 859,006 | 26 | March | | 1,754,233 | 53 | 100,000 | 2,613,239 | 78 |
| Total | 739,109 | 114,022 | 5,875 | 859,006 | | | Total | 1,754,233 | | | 2,613,239 | | |
| % North | 86.0 | 13.3 | 0.7 | | | | % North | | | | | | |
| % S. Atl | 28.3 | 4.4 | 0.2 | 32.9 | | | % S.Atl | 67.1 | | | | | |

989/90 Recreational (Quota 5.86M)

| MONTH | NORTHERN AREA NC | SC | GA | Total | Cum. Total | % of Quota (5.86M) | MONTH | FLORIDA East Coast | Cum Total | % of Quota (5.86M) | Head-Boat | South Atlantic Total | Cum. Total | % of Quota (5.86M) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 23,793 | 15,794 | | 39,586 | 39,586 | 1 | Apr 89 | 279,467 | 279,467 | 5 | | 319,053 | 319,053 | 6 |
| | 183,503 | 566,117 | 2,842 | 752,462 | 792,048 | 14 | May/Jun | 704,662 | 984,129 | 17 | | 1,457,124 | 1,776,177 | 31 |
| ul/Aug | 338,806 | 259,873 | 14,014 | 612,693 | 1,404,741 | 26 | Jul/Aug | 532,933 | 1,517,062 | 27 | | 1,145,626 | 2,921,803 | 52 |
| ep/Oct | 371,461 | 45,331 | | 416,792 | 1,821,533 | 32 | Sep/Oct | 119,253 | 1,636,315 | 29 | | 536,045 | 3,457,848 | 61 |
| ov/Dec | 541,846 | 5,588 | 17 | 547,451 | 2,368,984 | 42 | Nov/Dec | | 1,636,315 | 29 | | 547,451 | 4,005,299 | 71 |
| an/Feb 90 | | | | 0 | 2,368,984 | 42 | Jan/Feb 90 | | 1,636,315 | 29 | | 0 | 4,005,299 | 71 |
| arch | | | | 0 | 2,368,984 | 42 | March | | 1,636,315 | 29 | | 0 | 4,005,299 | 71 |
| otal | 1,460,209 | 891,903 | 16,873 | 2,368,984 | | | Total | 1,636,315 | | | 0 | 4,005,299 | | |
| North | 61.6 | 37.6 | 0.7 | | | | % North | | | | | | | |
| S. Atl | 36.5 | 22.3 | 0.4 | 59.1 | | | % S.Atl | 40.9 | | | | | | |

| | WESTERN ZONE LA | MS | AL | Total | % of TAC (9.00M) | | FLORIDA West | % of TAC (9.00M) | Head-Boat | South Atlantic Total | % of TAC (9.00M) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Com Total | 739,109 | 114,022 | 5,875 | 859,006 | 10 | COM TOT | 1,754,233 | 19 | 0 | 2,613,239 | 29 |
| Rec Total | 1,460,209 | 891,903 | 16,873 | 2,368,984 | 26 | REC TOT | 1,636,315 | 18 | 0 | 4,005,299 | 45 |
| Gran Total | 2,199,318 | 1,005,925 | 22,748 | 3,227,990 | 36 | GRAN TOT | 3,390,548 | 38 | 0 | 6,618,538 | 74 |
| % North | 68.1 | 31.2 | 0.7 | | | % North | | | | (ABC = 8.9 - 15.4M) | |
| | 33.2 | 15.2 | 0.3 | 48.8 | | % S.Atl | 51.2 | | | | |