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AMENDMENT 14

TO THE

FISHERY MANAGEMENT PLAN

FOR THE

REEF FISH FISHERY OF THE GULF OF MEXICO

(Includes Regulatory Impact Review, Initial Regulatory Flexibility Analysis, and Environmental Assessment)

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GULF OF MEXICO FISHERY MANAGEMENT COUNCIL
LINCOLN CENTER, SUITE 331
5401 WEST KENNEDY BOULEVARD
TAMPA, FLORIDA 33609
(813) 228-2815
FAX (813) 225-7015

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Abbreviations Used in This Document

AP	Advisory Panel
Council	Gulf of Mexico Fishery Management Council
EEZ	Exclusive Economic Zone
E.O.	Executive Order
FMFC	Florida Marine Fisheries Commission
FMP	Fishery Management Plan
GMFMC	Gulf of Mexico Fishery Management Council
IRFA	Initial Regulatory Flexibility Analysis
ITQ	Individual Transferable Quota
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
RD	Regional Director of NMFS
RFA	Regulatory Flexibility Act of 1980
RIR	Regulatory Impact Review
SAFMC	South Atlantic Fishery Management Council
SBA	Small Business Administration
SEFSC	Southeast Fisheries Science Center of NMFS
SEIS	Supplemental Environmental Impact Statement
SEP	Socioeconomic Panel
SMZ	Special Management Zone
SPR	Spawning Potential Ratio
SSBR	Spawning Stock Biomass Per Recruit
SSC	Scientific and Statistical Committee
TAC	Total Allowable Catch

CONTENTS

REEF FISH AMENDMENT 14

1.0 INTRODUCTION

Issues and alternatives in this amendment largely relate to the moratorium on fish trap endorsements and are being considered because the moratorium will expire on February 7, 1997. These and other issues are as follows:

- Fish Trap Endorsement Moratorium Alternatives (section 6.0)
- Fish Trap Area Prohibitions (section 7.0)
- Framework Procedure for Specifying TAC (section 8.0)
- Transferability of Reef Fish Commercial Permits (section 9.0)
- Nassau Grouper Harvest Prohibition (section 10.0)

The sections listed above include discussion of the Environmental Consequences of the alternatives and the RIR economic impacts of the alternatives.

2.0 HISTORY OF MANAGEMENT

Management actions, exclusive of those relating to red snapper TAC, are listed below with trap issues bolded. The Reef Fish Fishery Management Plan was implemented in November 1984. The regulations, designed to rebuild declining reef fish stocks, included: **(1) prohibitions on the use of fish traps,** roller trawls, and powerhead-equipped spear guns **within an inshore stressed area;** (2) a minimum size limit of 13 inches total length for red snapper with the exceptions that for-hire boats were exempted until 1987 and each angler could keep 5 undersize fish; and, (3) data reporting requirements.

The National Marine Fisheries Service (NMFS) has collected commercial landings data since the early 1950's, recreational harvest data since 1979, and in 1984 initiated a dockside interview program to collect more detailed data on commercial harvest. The first red snapper assessment in 1988 indicated that red snapper was significantly overfished and that reductions in fishing mortality rates of as much as 60 to 70 percent were necessary to rebuild red snapper to a recommended 20 percent spawning stock potential ratio (SPR - See Section 5 below). The 1988 assessment also identified shrimp trawl bycatch as a significant source of mortality.

Amendment 1 to the Reef Fish Fishery Management Plan, implemented in 1990, set as a primary objective of the FMP the stabilization of long term population levels of all reef fish species by establishing a survival rate of biomass into the stock of spawning age to achieve at least 20 percent spawning stock biomass per recruit (SSBR), relative to the SSBR that would occur with no fishing. It set a red snapper 7 fish recreational bag limit and 3.1 million pound commercial quota that together were to reduce fishing mortality by 20 percent and begin a rebuilding program for that stock. This amendment also established a 5 fish recreational bag limit and 11.0 million pound commercial quota[1] for groupers, with the commercial quota divided into a 9.2 million pound shallow-water quota and a 1.8 million pound deep-water quota. A framework procedure for specification of TAC was created to allow for annual management changes, and a target date for achieving the 20 percent SSBR goal was set at January 1, 2000. This amendment also established a longline and buoy gear boundary inshore of which the directed harvest of reef fish with longlines

[1] These values have been subsequently modified to correct for revisions adopted in the gutted to whole weight ratio. Historically, the conversion ratio used was 1.18, subsequently, the ratio has been corrected and 1.05 is used. This results in these values being 9.8, 8.2 and 1.6 million pounds respectively, for total, shallow-water and deep-water grouper quotas (e.g., $11.0 \div 1.18 \times 1.05 = 9.8$). There is no impact on the commercial fishery from the revision as fish have always been reported in gutted weight and that data is transformed to whole weight for NMFS records.

and buoy gear was prohibited and the retention of reef fish captured incidentally in other longline operations (e.g. shark) was limited to the recreational bag limit. Subsequent changes to the longline/buoy boundary could be made through the framework procedure for specification of TAC.

Amendment 2, implemented in 1990, prohibited the harvest of jewfish to provide complete protection for this species in federal waters in response to indications that the population abundance throughout its range was greatly depressed. This amendment was initially implemented by emergency rule.

In November, 1990, NMFS announced that anyone entering the commercial reef fish fishery in the Gulf of Mexico and South Atlantic after a control date of November 1, 1989 may not be assured of future access to the reef fish fishery if a management regime is developed and implemented that limits the number of participants in the fishery. The purpose of this announcement was to establish a public awareness of potential eligibility criteria for future access to the reef fish resource, and does not prevent any other date for eligibility or other method for controlling fishing effort from being proposed and implemented.

During 1991 several regulatory amendments were implemented to adjust the TACs and quotas for reef fish:

> A July 1991 regulatory amendment provided a one-time increase in 1991 quota for shallow-water groupers from 9.2 million pounds to 9.9[2] million pounds. This action was taken to provide the commercial fishery an opportunity to harvest 0.7 million pounds that went unharvested in 1990 due to an early closure of the fishery in 1990. NMFS had projected the 9.2 million pound quota to be reached on November 7, 1990, but subsequent data showed that the actual harvest was 8.5 million pounds.
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> A November 1991 regulatory amendment raised the 1992 commercial quota for shallow-water groupers from 8.2 million pounds to 9.8 million pounds, after a red grouper stock assessment indicated that the red grouper SPR was substantially above the Council's minimum target of 20 percent, and the Council concluded that the increased quota would not materially impinge on the long-term viability of at least the red grouper stock.

Amendment 4, implemented in May 1992, established a moratorium on the issuance of new reef fish permits for a maximum period of three years. The moratorium was created to moderate short term future increases in fishing effort and to attempt to stabilize fishing mortality while the Council considers a more comprehensive effort limitation program. It allows the transfer of permits between vessels owned by the permittee or between individuals when the permitted vessel is transferred. Amendment 4 also changed the time of the year that TAC is specified from April to August and included additional species in the reef fish management unit.

Amendment 5, implemented in February 1994, established **restrictions on the use of fish traps** in the Gulf of Mexico EEZ, implemented **a three year moratorium on the use of fish traps** by creating a fish trap endorsement and issuing the endorsement only to fishermen who had submitted

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[2] The corrected 1991 quota, using the revised conversion factor, was 8.8 million pounds. The corrected 1990 actual harvest was 7.6 million pounds.

logbook records of reef fish landings from fish traps between January 1, 1991 and November 19, 1992, created a special management zone (SMZ) with gear restrictions off the Alabama coast, created a framework procedure for establishing future SMZ's, required that all finfish except for oceanic migratory species be landed with head and fins attached, established a schedule to gradually raise the minimum size limit for red snapper to 16 inches over a period of five years, and closed the region of Riley's Hump (near Dry Tortugas, Florida) to all fishing during May and June to protect mutton snapper spawning aggregations.

An Emergency Rule effective December 30, 1992 created a red snapper endorsement to the reef fish permit for the start of the 1993 season. The endorsement was issued to owners or operators of federally permitted reef fish vessels who had annual landings of at least 5,000 pounds of red snapper in two of the three years from 1990 through 1992. For the duration of the emergency rule, while the commercial red snapper fishery is open permitted vessels with red snapper endorsements are allowed a 2,000 pound possession limit of red snapper, and permitted vessels without the endorsement are allowed 200 pounds. This emergency action was initially effective for 90 days, and was extended for an additional 90 days with the concurrence of NMFS and the Council. A related emergency rule delayed the opening of the 1993 commercial red snapper season until February 16 to allow time for NMFS to process and issue the endorsements.

Amendment 6, implemented in June, 1993, extended the provisions of the emergency rule for red snapper endorsements for the remainder of 1993 and 1994, unless replaced sooner by a comprehensive effort limitation program. In addition, it allowed the trip limits for qualifying and non-qualifying permitted vessels to be changed under the framework procedure for specification of TAC.

A withdrawn 1993 Regulatory Amendment would have moved the longline and buoy gear restricted area boundary off central and south-central Florida inshore from the 20 fathom isobath to the 15 fathom isobath for a one-year period beginning January 1, 1994. It was withdrawn at industry's request by the Council in January 1994 amid concerns that it would lead to a quota closure and a concern by the NMFS Southeast Fisheries Science Center that there were inadequate experimental controls to properly evaluate the impact of the action.

Amendment 7, implemented in February 1994, established reef fish dealer permitting and record keeping requirements, **allowed transfer of fish trap permits and endorsements** between immediate family members during the fish trap permit moratorium, and allowed transfer of other reef fish permits or endorsements in the event of the death or disability of the person who was the qualifier for the permit or endorsement. A proposed provision of this amendment that would have required permitted vessels to sell harvested reef fish only to permitted dealers was disapproved by the Secretary of Commerce and was not implemented.

Amendment 8, which established a red snapper Individual Transferable Quota (ITQ) system, was approved by NMFS and final rules were published in the Federal Register on November 29, 1995. This amendment provided for an initial allocation of percentage shares of the commercial red snapper quota to vessel owners and historical operators based on fishermen's historical participation in the fishery during the years 1990-1992, set a for year period for harvest under the ITQ system, during which time the Council and NMFS would monitor and evaluate the program and decide whether to extend, terminate or modify it, and established a special appeals board, created by the Council, to consider requests who contest their initial allocations of shares or determination of historical captains. The appeals board was originally scheduled to meet during January 1996, with the ITQ system itself to become operational in April 1996. However, the federal government

shutdown of December 1995-January 1996 forced an indefinite postponement of the appeals board meetings, and concerns about Congressional funding of the ITQ system made it inadvisable for the ITQ system to become operational at this time.

Amendment 9, implemented in July 1994, provided for collection of red snapper landings and eligibility data from commercial fishermen for the years 1990 through 1992. The purpose of this data collection was to evaluate the initial impacts of the limited access measures being considered under Amendment 8 and to identify fishermen who may qualify for initial participation under a limited access system. This amendment also extended the reef fish permit moratorium and red snapper endorsement system through December 31, 1995, in order to continue the existing interim management regime until longer term measures can be implemented. The Council received the results of the data collection in November 1994, at which time consideration of Amendment 8 resumed.

Withdrawn Amendment 10 **would have extended the validity of additional fish trap endorsements for the duration of the fish trap moratorium that was implemented under Amendment 5.** These additional endorsements were to have been issued under an emergency rule, requested in March 1994, to alleviate economic hardships after the Council heard from fishermen who entered the fish trap fishery after the November 19, 1992 cutoff date and stated that they were unaware of the impending moratorium. The Council rejected the proposed amendment in May 1994 after NMFS stated that it had notified fishermen of the pending moratorium and fish trap endorsement criteria during the time between Council final action and NMFS implementation if they asked about fish trap rules or if they requested application materials and NMFS was aware that it was for purposes of entering the fish trap fishery. The Council also considered arguments that the change in qualifying criteria circumvented the intent of the fish trap moratorium to halt expansion of the fish trap fishery at the November 19, 1992 level. After the Council rejected Amendment 10, NMFS subsequently rejected the emergency request.

Amendment 11 was partially approved by NMFS and implemented in January 1996. Approved provisions (1) limit sale of Gulf reef fish by permitted vessels to permitted reef fish dealers; (2) require that permitted reef fish dealers purchase reef fish caught in Gulf federal waters only from permitted vessels; (3) **allow transfer of** reef fish permits and **fish trap endorsements** in the event of death or disability; (4) implement a new reef fish permit moratorium for no more than 5 years or until December 31, 2000, while the Council considers limited access for the reef fish fishery; (5) allow permit transfers to other persons with vessels by vessel owners (not operators) who qualified for their reef fish permit; and (6) **allow a one time transfer of existing fish trap endorsements** to permitted reef fish vessels whose owners have landed reef fish from fish traps in federal waters, as reported on logbooks received by the Science and Research Director of NMFS from November 20, 1992 through February 6, 1994. A number of additional issues that were originally in Amendment 11 were not addressed by the Council when it approved the amendment. Those issues have been placed in Amendment 12.

Amendment 12, pending approval by NMFS, proposes to modify the recreational bag limit for amberjacks to one fish aggregate including greater and lesser amberjack and banded rudder fish; reduce the red snapper commercial size limit to 14 inches (TL); and provide an aggregate reef fish bag limit of 20 for unregulated species.

Amendment 13, pending approval by NMFS, proposes to extend the commercial red snapper endorsement system through 1997 while the Council considers alternative limited access systems for that fishery.

3.0 PURPOSE AND NEED FOR ACTION

The moratorium on issuance of fish trap endorsements to the commercial reef fish vessel permit will expire on February 7, 1997. If no action is taken then all 1,497 permitted reef fish vessels could obtain endorsements to fish with traps. The Council originally proposed the moratorium to prevent further expansion of the trap fishery until NMFS could conduct an observer study on the ecological impact of fish traps on the fishery resources. Although the study results (see section 6.0) are favorable toward the continued use of traps when fished in a lawful manner, concerns remain about enforceability and lost traps, particularly if the fishery expands west of Florida. An objective of this amendment is to provide for control of the fish trap fishery after termination of the moratorium. This amendment contains proposed alternatives to phase out the use of fish traps, and during the phase out to prevent expansion of their use beyond the current geographical areas of use.

NOAA General Counsel has indicated that the provisions of the framework procedure are currently not specific enough for actions to be taken related to opening and closing fishing seasons that have been prematurely closed due to a projection that an allocation will be reached. It was originally the Council's intent that these types of regulatory actions be taken under the procedure. An objective of this amendment is to provide the flexibility to reopen and subsequently reclose a fishery that has been prematurely closed. The amendment has a proposed alternative to clarify the Regional Director's authority to reopen a prematurely closed fishery.

The current provisions of the FMP, as amended, created problems related to transfer of vessel permits that were not intended by the Council. These relate to transfer ownership of a permit or the authority to operate a vessel under the permit when the operator is the income qualifier and the transfer is between the operator and the vessel owner. Currently, permits where the operator is the income qualifier are nontransferable, and a vessel permit cannot be transferred from a vessel owner to the income qualifying operators if the operator purchases the vessel. In addition, an owner is not authorized to operate a vessel for which he is not the permit income-qualifier. The amendment has proposed alternatives to allow transfers under these conditions.

Nassau grouper which are principally distributed in the Caribbean Sea are classified by NOAA (1995) as overutilized with a depressed stock abundance. The South Atlantic Council, Caribbean Council and state of Florida prohibit harvest of this species. An objective of this amendment is to provide protection for Nassau grouper throughout its range. This amendment has a proposed alternative to prohibit harvest of this species in the Gulf EEZ.

4.0 PROBLEMS REQUIRING A PLAN AMENDMENT

The temporary fish trap endorsement moratorium expires on February 7, 1997. and needs to be replaced by permanent regulations in order to continue management of the use of fish trap gear and to implement a phase out program.

Fish traps can currently be fished anywhere in the Gulf EEZ outside of the stressed area, but the potential for expansion of the fishery beyond its current geographical range (and/or fish trap endorsement transfers after 2 years) is inconsistent with the Council's intent to restrict and phase out the use of this gear over ten years.

The framework procedure for specification of TAC is ambiguous about the authority of the Regional Director to reopen and subsequently reclose a fishery that had been prematurely closed, and that authority needs to be clarified.

The restriction on transfer of a reef fish vessel permit for which the vessel operator is the income qualifier restricts both transfers between the current owner and operator and transfers to a third party, and it is the Council's intent that transfers between the current owner and operator not be restricted.

Nassau grouper is a depressed stock that is protected throughout their U.S. range except in the Gulf EEZ, and protection in Gulf waters is needed to provide protection throughout its range.

5.0 PROPOSED ACTIONS

FISH TRAP ENDORSEMENT MORATORIUM ALTERNATIVES (section 6.0).

The following actions are proposed:

- **(Section 6.4) - The existing endorsement holders (as of February 7, 1997) will be grandfathered into the fishery and the Gulf fish trap fishery will be phased out over a ten-year period. Fish trap endorsements will be fully transferable to qualifying reef fish vessel permit holders for the first two years, with transferability for the remainder of the phase out governed by the provisions in Section 6.5.**

- **(Section 6.5) - After the first two years, allow no transfer except as provided: to an immediate family member, upon death or disability of the endorsement holder, toanother vessel owned by the same entity, and a one-time transfer to any of the 56 individuals who were fishing traps after November 19, 1992 and were excluded by the moratorium.**

- **(Section 6.6) - Place no limitation on ownership of licenses.**

- **(Section 6.8) - Traps must be tended only by a person on the vessel to which the endorsement is issued, except that in the event of a vessel breakdown, the vessel operator or owner must contact the NMFS Office of Enforcement to receive authorization for retrieval by other means. That authorization is valid only for a specified period and for specified individuals and vessel.**

In addition, section 6.7 contains a recommendation to General Counsel that the Council considers certain fish trap violations to be severe violations and should receive maximum penalties.

FISH TRAP AREA PROHIBITIONS (section 7.0)

- **Prohibit the use and possession of fish traps in the Gulf EEZ west of Cape San Blas, Florida (85°30' west longitude), except for experimental purposes as approved by NMFS.**

FRAMEWORK PROCEDURE FOR SPECIFYING TAC (section 8.0)

- **The procedure is modified allowing the Regional Director of NMFS, through notice action, to reopen a commercial or recreational season that had been prematurely closed if needed to insure that an allocation can be reached.**

TRANSFERABILITY OF REEF FISH COMMERCIAL PERMITS (section 9.0)

- **Under the reef fish commercial vessel permit moratorium, the prohibition on transfer of a permit for which the vessel operator is the income qualifier is modified to allow such transfer when the recipient of the permit is the income qualifying operator.**

- **Under the reef fish commercial vessel permit moratorium, allow the owner of a vessel with reef fish vessel permit that is issued based on the income of the operator to become the holder of the permit and have one year to meet the income qualification for the permit.**

NASSAU GROUPER HARVEST PROHIBITION (section 10.0)

- **Prohibit the harvest or possession of Nassau grouper.**

6.0 FISH TRAP ENDORSEMENT MORATORIUM

6.1 Introduction

Amendment 5 established a three-year moratorium on fish trap endorsements to the reef fish vessel permit. Endorsements were granted to owners of permitted vessels who had logbook records of landings of reef fish from traps during 1991 or 1992 as reported to National Marine Fisheries Service on or before November 19, 1992. The moratorium will expire on February 7, 1997. The Council's rationale for the moratorium was to limit the fishery to the current participants until better information on the ecological impacts of the trap fishery was available. That information has been collected (NMFS 1995) and is summarized here. This amendment provides proposals to modify the moratorium prior to or upon its expiration.

6.2 History of Fish Trap Regulation

1980/1981 - 1984

The FMP, which was developed in 1980 and 1981 and implemented in 1984, included an alternative for the prohibition of fish traps in the exclusive economic zone (EEZ). The state of Florida prohibited the use of fish traps in state waters in 1980, except for black sea bass pots north of 27° north latitude. The FMP as implemented, prohibited the use of fish traps and certain other gear inshore of the seaward boundary of the stressed area (Attachment 1). The stressed area was set by panels of experts in the nearshore waters off west Florida, Alabama, Mississippi and off a portion of Texas which were characterized by excessive fishing pressure. The stressed area off west Florida where most traps were used was set at the 10-fathom contour off areas of lower human population density and at the 20-fathom contour off areas of higher human population density, e.g., Ft. Myers to Tarpon Springs, Florida (FMP 8.3.1.1). The FMP also specified the construction requirements for fish traps and limited the number (200) that could be deployed by a vessel.

1989-1990

Amendment 1, which was implemented in 1990, also contained an alternative for the prohibition of fish traps in the EEZ. The amendment as implemented reduced the number of traps that could be deployed to 100 per vessel and extended the stressed area in the EEZ off the coasts of Louisiana and Texas.

1992-1994

Amendment 5, which was developed in 1992 and 1993 and implemented in 1994, proposed prohibiting traps in the draft amendment presented at public hearings. During public hearings, commercial fishermen testified that species composition and method of fishing traps differed between the Gulf of Mexico and South Atlantic, and that information collected on the South Atlantic trap fishery could not be directly applied to the Gulf of Mexico. Consequently, the final amendment established the moratorium on fish trap endorsements for the three-year period (see Introduction). It also required that all traps be returned to shore at the end of each trip and that traps deployed have floating (rather than submerged) buoys. A South Atlantic Fishery Management Council (SAFMC) FMP amendment implemented in January 1992, prohibited fish traps from being deployed or possessed in the EEZ off South Atlantic states.

1993-1994

Amendment 7 provided that fish trap endorsements could be transferred to immediate family members.

Draft Amendment 10 (which was withdrawn by the Council after public hearings) would have expanded the universe of fish trap endorsements to include owners of vessels who reported landing of reef fish from traps between November 19, 1992 and February 7, 1994 (date of implementation of moratorium) and to persons issued a trap endorsement who purchased trap tags and documented to the satisfaction of an appeals board investments for trap fishing but who did not fish between those dates. These measures could have more than doubled the number of participants. The Council rejected the amendment because adequate information on the ecological effects of the trap fishery was not available.

1995-1996

Amendment 11 allows transfer of fish trap endorsements to other persons upon death or disability of the endorsement holder. This amendment also allows a one-time transfer of the fish trap endorsement by the current holders of endorsements to any of the 56 individuals who had entered the trap fishery and had logbook records of landings from fish traps between November 19, 1992 and February 7, 1994 and who were excluded from the fishery by the moratorium.

6.3 Summary of Research on Gulf Fish Trap Fishery

NMFS, at the request of the Council and in cooperation with the industry, carried out a 12-month observer study of the Gulf fish trap fishery, from December 1993 through November 1994. Their report (NMFS 1995) also analyzed logbook report data for the fish trap fishery for the same period. Similar observer data were collected from longline vessels.

OBSERVER STUDY

Methodology and Sampling Protocol

Twelve trips were made aboard 6 fish trap vessels between December 1993 and November 1994. Five hundred-seventeen sets were sampled at the locations shown in Figure 1. A total of 10,654 traps were set at the locations shown in Figure 2, with 36 percent of the traps (3,867) being processed by NMFS observers. The majority of fishing effort occurred in Statistical Area 3. Based on number, 34 percent of the traps were set in summer (June, July and August), with 24 percent in winter (December, January and February), 22 percent in spring (March, April and May) and 20 percent in fall (September, October and November).

Fishery-specific data were obtained from each set. Non-target and undersized target species were processed first, recording length, weight and fate prior to release (alive, dead or unknown). A fish was determined to be alive if it swam, dead if it floated and unknown if the fate could not be determined (i.e., erratic swimming). Air bladders of live fish were punctured in the same manner as demonstrated by the captain and crew. Retained species were processed, recording length and weight. Sightings of sea turtles were documented.

Data were collected during 81 sea days of observations. Trip length ranged from 3 to 12 days with the average being 6.8 days.

The number of traps set at a location varied from 6 to 37, with 20.6 traps the average (±5.5 s.d.). All traps were set individually at depths ranging from 10 to 22.7 fathoms, with 17.1 fathoms the average (± 2.8 s.d.). Average soak time was 10.0 (±8.3 s.d.) hours and ranged from 0.8 to 88.9 hours. Three sets with soak times greater than 76 hours were the result of engine problems. The majority of traps were set, tended and retrieved during daylight hours, between 0732 and 2120 hours.

The majority of sets (87 percent) occurred in 0 to 2 foot seas, with remaining sets occurring in 3 to 5 foot seas. Water clarity ranged from 33 feet to greater than 66 feet, with 29 percent in waters of greater than 66 feet visibility. Bottom type descriptions were obtained from the vessel operator. The majority of sets occurred over shell bottom (47 percent), with rock (19 percent), sponge (16 percent), sand (14 percent), unknown (3 percent) and mud (1 percent) comprised the remaining. A combination of shell and sand commonly occurred, but only the dominant material was recorded.

Species Composition

From the 3,867 fish traps processed from December 1993 through November 1994, a total of 15,148 fish of 63 taxa were sampled (Appendix Table 1). Approximately 55.4 percent of the individuals were released alive, 35.2 percent were kept, 7.4 percent were retained for bait, 1.6 percent were released dead (2.8 percent release mortality[3]) and less than 1 percent were released with an unknown fate. Species composition by fate category are presented in Figure 3.

[3] For comparative purposes, release mortality is based on number released dead divided by number released dead and alive. Fish retained for bait and fish released with unknown fate are not included.

Seven species accounted for 88 percent of the 8,398 fish released alive. Red grouper comprised the largest group with 46 percent. Sand perch (*Diplectrum formosum*), white grunt (*Haemulon plumieri*) and lane snapper (*Lutjanus synagris*) each accounted for 10 percent, followed by tomtate (*H. aurolineatum*) at 7 percent, littlehead porgy (*Calamus proridens*) with 3 percent and knobbed porgy (*C. nodosus*) at 2 percent.

Of those fish kept, although red grouper is the primary target species of the fishery, more lane snapper were caught and accounted for 34 percent of the 5,334 individuals kept. Red grouper comprised 22 percent of the kept category followed by white grunt at 14 percent, black seabass (*Centropristis striata*) at 12 percent, littlehead porgy at 9 percent and knobbed porgy and gray triggerfish (*Balistes capriscus*) each at 2 percent. All other species combined accounted for 5 percent.

Tomtate was used most often as bait and accounted for 30 percent of the 1,119 individuals caught and kept for bait. Other species used for bait included sand perch at 18 percent, lane snapper at 16 percent, knobbed porgy at 10 percent, pinfish (*Lagodon rhomboides*), vermilion snapper (*Rhomboplites aurorubens*) and spottail pinfish (*Diplodus holbrooki*) each at 7 percent.

Red grouper accounted for 45 percent of the 242 individuals released dead. Jackknife-fish (*Equetus lanceolatus*) comprised 14 percent of this category, followed by lane snapper at 10 percent, white grunt with 7 percent, cubby (*E. umbrosus*) at 5 percent, sand perch at 4 percent and orange filefish (*Aluterus schoepfi*) at 2 percent. All other species combined accounted for 13 percent.

The fate of 55 individuals could not be determined. Sixty-two percent were red grouper and 34 percent were lane snapper. Two species, jackknife-fish and gag (*Mycteroperca microlepis*), accounted for 4 percent of the unknown category.

Red Grouper Size Composition

Of the 5,162 red grouper sampled, 23 percent were kept, 74 percent were released alive, 2 percent were released dead (2.6 percent release mortality[3]) and 1 percent were released with an unknown fate.

Five thousand one hundred thirty-three red grouper were measured and ranged from 8 to 38 inches in total length (Figure 4). The 12-inch category had the highest percentage (14 percent) of individuals. About 8 percent were in the 18- and 19-inch categories.

Seventy-six percent of the fish collected were less than 20 inches in total length. Of these, 96 percent were released alive, 3 percent released dead, and less than 1 percent each were kept or released with an unknown fate. Of the 24 percent of red grouper equal to or greater than 20 inches in total length, 95 percent were kept with 5 percent released alive.

By depth, the largest percentage (22 percent) of red grouper were caught in 17 fathoms of water, followed by 18 percent each in depths of 18 and 19 fathoms (Figure 5). In 17 fathoms, 47 percent of the individuals were in the 11- to 14-inch size categories. In 18 and 19 fathoms, 46 percent and 42 percent, were in the 11- to 14-inch size categories, respectively.

Catch-per-Unit Effort (CPUE)

Mean CPUE (number of fish per trap hour) for all species was 0.743 (±1.043 s.d.). For red grouper, mean CPUE was 0.222 (±0.313 s.d.). For all species combined including red grouper, CPUE was highest (2.891 ± 2.227) at 12 fathoms (Figure 6). For red grouper, CPUE was highest (0.647 ±0.814) at 12 fathoms as well. By season (Figure 7), CPUE for all species was highest during spring (0.922 ± 1.534 fish per trap hour). CPUE for red grouper was highest during fall (0.372 ± 0.395 red grouper per trap hour).

COMPARISON TO PREVIOUS OBSERVER STUDIES

Three previous studies of the fish trap fishery provided observer data on the Florida fishery. Sutherland and Harper (1983) surveyed the fishery off Dade and Broward counties during 1979 and 1980. Taylor and McMichael (1983) surveyed the fishery off Monroe County on the Atlantic Ocean side of the Florida Keys and off the Dry Tortugas during 1979 and 1980, and the fishery off Collier County during June 1980. Harper et. al. (1994) surveyed the fishery in upper, middle and lower areas of the Keys and an area west of the Dry Tortugas during the summer of 1990. Comparison of these studies is summarized as follows.

Table 1. Comparison of Observed Catches Between Five Fish Trap Studies.

Study [1]	Number Traps Sampled	Depths (fathoms)	Number Fish Caught	Number Species Caught	Percent Released [2]	
					Alive	Dead
S&H	538	16 - 41	5984	104	83.9	16.1
T&M (Monroe)	1694	5 - 70	10226	111	72.1[3]	27.8[3]
T&M (Collier)	270	8 - 9	3111	28	- -	- -
H et. al.	417	17 - 45		85	93.6[4]	6.4[4]
NMFS	3867	10 - 22	15148	63	97.2	2.8

1. Refers to studies cited above; NMFS is current survey.
2. Computed on basis of numbers released alive and dead; unknown category not used. Alive is based on swimdown rate.
3. Based on observations of 619 fish.
4. Based on observations of 1,580 fish released.

Source: (NMFS 1995)

The NMFS (1995) study is the first study that examines the Gulf trap fishery throughout its range. The other studies principally included parts of the Florida Keys reef tract in the South Atlantic Council jurisdiction. The species composition of those studies differed significantly from the current study, in that many coral reef-associated species were included in catches. Many of the coral reef-associated species are important to the marine aquarium industry which has consistently expressed concerns over catch of these species in traps. The higher number of species caught in the older studies reflects the coral reef-associated species.

There is another major difference between the NMFS (1995) study and the others. This is that regulations were implemented in 1994 (Amendment 5) requiring traps to be returned to shore after each trip, whereas previously they were constantly deployed at sea. This rule changed fishing operations resulting in reduced soak times (average 10 hours). These changes likely resulted in the smaller percentage of fish released dead (2.8 percent) as documented in the NMFS (1995) study.

Areal sampling in the NMFS (1995) study was more representative of the trap fishery and its catch by statistical area (Figure 2), especially for the target species of grouper. (See Appendix Table 3 for catch). The following table illustrates this relationship.

Table 2. Proportion of Grouper in Trap Catch by Statistical Area

	Statistical Area					
	2	3	4	5	6	7
Traps Sampled (3,867)	2%	64%	24%		4%	6%
Grouper Catch (by weight)	4%	31%	1%	4%	44%	16%
Total Catch (by weight)	10%	16%	1%	2%	23%	48%

LOGBOOK DATA ANALYSIS

Methods

For the purposes of this study, species landings in the database which were reported as gutted weights were converted to whole or round weight. Grouper species landings were converted from gutted weight to whole weight using the conversion formula (gutted weight x 1.048) as reported in Goodyear and Schirripa (1993). Other species landings were converted from gutted weight to whole weight using NMFS conversion formulas documented in the General Canvas Landings File Database. Logbook forms reporting no landings were not included in this analysis.

Results and Discussion

Data from the Gulf Reef Fish Logbook Database were examined for the same time period, statistical areas, and gear types as were sampled during observer trips. For Statistical Areas 2 through 7, a total of 1,168 fish trap trips were recorded between December 1993 and November 1994 (Appendix Table 2). In addition, 150 fish trap trips made during the study time period were recorded with no information on area fished. These trips were included in this analysis because state and county codes for catch unloading indicate that Statistical Areas 2-7 had a high probability of being the area fished for these trips.

Reported fish trap landings totaled approximately 2.18 million pounds during the study time period and statistical area coverage. These landings included 79 species or higher taxa and various categories of unclassified organisms (Appendix Table 3). Groupers (12 species)

dominated landings and accounted for 45.7 percent of total fish trap landings. Five species or higher taxa accounted for over 78 percent of total fish trap landings (Figure 8). These were: red grouper (*Ephinephelus morio*) 42.9 percent, black sea bass (*Centropristis striata*) 13.5 percent, unclassified grunts (*Haemulon spp.*) 10.1 percent, white grunt (*Haemulon plumieri*) 8.6 percent, and mutton snapper (*Lutjanus analis*) 3.05 percent. For all reported fish trap trips made during the study time period and area, the mean catch rate was 1,680 pounds per trip (range 5 - 10,444). The frequency distribution of landings/trip was skewed toward the lower end of the range with the peak of reported landings (236 trips) falling within the 2,000 - 2,499 pounds class (Figure 9).

Most fish trap trips (454 or 34.4 percent) were made during the summer (June - August) (Figure 10). Fall (September - November) was the least active season for fish trap trips (263 or 20.0 percent). The average trip duration was 3.7 days (range 1 - 32). The frequency distribution of trip duration was skewed toward the lower end of the range, with one day (414 trips) the most frequently reported trip length (Figure 11).

Red grouper clearly dominated reported landings from fish traps in the eastern U.S. Gulf of Mexico during the study period. Further examination of logbook data indicates that Statistical Area 6 accounted for the majority (40.9 percent) of the reported 0.94 million pounds of red grouper landed by fish trap gear, followed by Statistical Area 3 (28.4 percent), with the remaining areas contributing less than 15 percent each (Figure 12). However, for bottom longline gear, Statistical Area 5 accounted for 44.9 percent of the reported 2.29 million pounds of red grouper landed, followed by Statistical Area 4 (16.6 percent), with the remaining areas contributing less than 15 percent each (Figure 13).

6.4 Alternatives - Longevity of the Fish Trap Fishery

Proposed Alternative: The existing endorsement holders (as of February 7, 1997) will be grandfathered into the fishery and the Gulf fish trap fishery will be phased out over a ten-year period. Fish trap endorsements will be fully transferable to qualifying reef fish vessel permit holders for the first two years, with transferability for the remainder of the phase out governed by the provisions in Section 6.5.

Rejected Alternative 1: Create a license limitation system for fish trap endorsements with the universe of persons included as the current holders of endorsement as of the date of implementation of this amendment, or

Rejected Alternative 2: Create a license limitation system for fish trap endorsements with a universe of persons included as:

a. The current holders of endorsement plus the 56 individuals who qualify for the one-time transfer under Amendment 11, provided they still hold a reef fish vessel permit, or,

b. Persons included in (b) above plus persons who were issued fish trap endorsements by NMFS between November 19, 1992 and February 7, 1994 and who ordered fish trap tags but did not fish (i.e., did not turn in logbook records of landings) provided they still hold a reef fish vessel permit.

Rejected Alternative 3: Extend the fish trap endorsement moratorium to run concurrently with the reef fish vessel permit moratorium.

Rejected Alternative 4: The Council will consider prohibition of fish traps in the EEZ of the Gulf of Mexico no later than two years after the implementation date of this amendment with primary emphasis on assessing enforcement during that period.

Rejected Alternative 5: Status Quo - Allow endorsement moratorium to expire on February 7, 1997.

Rationale: Many of the Council members were concerned over the apparent lack of compliance with fish trap rules and felt, considering the available complement of enforcement agents, that enforcement would never be adequate to assure compliance. They were concerned over the impacts of incidental catch of nontarget species, intensified unreported effort and nonselectivity from illegal fishing, and long term ghost fishing from abandoned or lost traps with nonfunctioning escape panels. Since fish traps are completely submerged and can fish without the fisherman present, they are difficult for enforcement officers to locate, and if being fished illegally without surface buoys, are virtually invisible. Regulations pertaining to construction specifications, escape panels, prohibited areas and tag requirements can only be enforced if the fisherman is intercepted during the relatively short periods of deployment or retrieval. The majority of fishermen in the fish trap fishery are only partially dependent on the fishery and can switch to other fisheries or fishing methods in which they are already participating. Both the Law Enforcement and Reef Fish APs recommended that the use of traps be banned in the Gulf of Mexico.

Discussion: The phase out period begins on implementation of this amendment with three stages. In the first stage, an initial two year period with full transferability will give fishermen the flexibility to either exit the fishery and receive economic compensation by selling their endorsement, or to remain in the fishery and continue to earn income from the fish trap fishery for the duration of the phase out. During the second stage, which begins after the initial two years, endorsements will be nontransferable except under limited conditions (see Section 6.5). This nontransferability is intended to encourage attrition through fishermen leaving the fishery. However, it does not prohibit leasing of endorsements, nor does it prohibit an owner from designating another fisherman to continue operating his fish trap vessel after he switches to another fishery. Some Council members felt that this would reduce the impact of the phase out on attrition, but other Council members felt that as the remaining time in the phase out becomes shorter, it will become increasingly difficult for an owner to find an operator willing to enter the fishery. The final stage occurs at the completion of the ten year phase out, when all fish traps will be prohibited from the Gulf EEZ.

The ten-year phase out period would reduce the adverse economic impact on the existing participants. It would also provide them with planning horizon for participation in the fishery (see section 6.2) and for diversification to other gear or fisheries. At the end of the ten-year period they would not be prohibited from fishing, but only prohibited from using fish traps.

Although many of the Council members were concerned over lack enforceability of existing fish trap rules, other members felt that most fishermen are and have been in compliance and such an action would principally impact them, whereas illegal fishing may continue by

persons without fish trap endorsements. They felt the potential for adverse impacts to the resource was exaggerated.

During public testimony, many speakers expressed concern about enforceability of existing fish trap regulations and continued ghost fishing by lost or abandoned traps. Consequently, fish trap fishermen who testified, although disputing the severity of enforcement problems or lost traps or the need for any management action at this time, agreed to a phase out of the fish trap fishery as the most acceptable action alternative provided the phase out period was long enough to minimize the negative economic impacts.

Both NMFS and the Law Enforcement AP have stated that the Reef Fish FMP contains a significant loophole in fish trap regulations by allowing harvest of reef fish taken as incidental catch in other trap fisheries from reef fish permitted vessels. This can reduce the impact of both current and proposed regulations. Regardless of whether the Proposed Alternative in this amendment is adopted, this issue may need to be addressed in a subsequent amendment by establishing provisions controlling harvest of reef fish in nonconforming traps, or by continued development of the Generic Trap Amendment.

Rejected Alternatives 1 and 2 would create a permanent fish trap license limitation system, and differ only in the number of individuals who would be initially included. Amendment 11 extended the moratorium on reef fish vessel permits, essentially creating a license limitation with transferable permits for a five-year period. Rejected Alternatives 1 and 2 would create a similar limited access system by gear type within the broader reef fish system. The concept of this license limitation system was suggested by persons in the trap fishery, likely because it would reduce competition within this gear group. Rejected Alternative 1 would limit participants to the current holders of endorsements (approximately 95); Rejected Alternative 2 would limit the universe to (a) 122 (i.e., 30 more) persons because only 24 of the 56 persons currently hold a permit and 6 permits are pending renewal. Sub-alternative (b) may add up to an additional 130 persons, but many of these no longer hold vessel permits. The entire universe under (b) includes all persons who took any action related entering the trap fishery but were excluded by the moratorium. The universe under (a) includes only those who actually fished and were excluded.

Rejected Alternatives 1 and 2 preclude fishermen on vessels using other gear from shifting to fish traps except through the marketplace, i.e., purchasing an endorsement. From the perspective of release mortality rate the traps appear to have less ecological impact than the other gear. However, the differences in release mortality documented in the studies may be partially attributable to differences in depth of the study samples. Average depths of study samples were 17.7, 26.4, and 47.8 fathoms for traps, bandit rigs and longlines, respectively.

These alternatives were rejected because they would allow continued use of fish traps in federal waters indefinitely (i.e., past a reasonable planning period of ten years). The Council felt that a phase out of fish traps was warranted because of the potential problems with illegally fished traps and the unenforceability of fish trap regulations.

Rejected Alternative 3 would extend the moratorium for approximately four years, i.e., until December 31, 2000. The existing vessels with fish trap endorsement to their reef fish

vessel permit (95)[4] would be allowed to continue to fish with traps during this period. It was the Council's intent that only the current rules of the FMP related to transfer of fish trap endorsement would apply during this period, i.e., transfer within the family and transfer due to death or disability. Likely the number of participants would decline through attrition (generally non-renewal of permits) over the extended moratorium period, as was the case under the existing moratorium.

The extension of the moratorium on reef fish vessel permits was implemented to allow the Council time to consider the applicability of various limited access systems to the entire reef fish complex. This alternative would allow the Council to consider whether to and how to integrate the fish trap fishery within this overall system.

This alternative was rejected because it did not resolve the question of whether to allow, limit, or prohibit fish traps, but simply delayed the decision for another four years.

Rejected Alternative 4 was listed under Section 7 during public hearings, but was moved to this section because it was considered to be appropriate as part of the range of moratorium alternatives. Rejected Alternative 4 was a compromise to including an alternative for an outright ban on the use of fish traps in the Gulf EEZ. The major thrust of opposition to continued use of traps was concern over the apparent lack of compliance with fish traps in some areas and the difficulties of enforcement of these rules. In addition both the Law Enforcement and Reef Fish APs recommended banning traps. As an example of enforceability difficulties, if traps are fished on trawls (submerged line between traps) that are not buoyed then that illegal fishing activity can be detected only when the traps are being pulled. Trap fishermen responded that enforcement personnel were not patrolling during the times and areas where violations occurred. In addition, some trap fishermen testified they would be willing to work with enforcement officials to stop illegal trapping activities. Rejected Alternative 4 would result in a critical assessment of enforcement and compliance over a two-year period after which the Council would reconsider the issue of allowing continuation of the trap fishery.

As with the Rejected Alternative 3, this alternative was rejected because it did not resolve the question of whether to allow, limit, or prohibit fish traps, but simply delayed the decision.

Rejected Alternative 5, status quo, would upon expiration of the moratorium allow any person holding a reef fish vessel permit to obtain an endorsement allowing the use of traps on board the permitted vessel. The resulting increase in number of traps would likely complicate an already difficult enforcement of construction specifications and area prohibition. However, the increased availability of trap permits from NMFS would decrease the incentive to illegally fish unpermitted traps or to fish traps under the pretense of crustacean fishing, and could result in improved accuracy of fish trap catch reporting. The number of persons who would avail themselves of this fishing opportunity is unknown, but is expected to be at least as high as the number who may have been allowed to participate under Draft Amendment 10 (i.e., 56 to 204) since these persons had either entered the fishery prior to the moratorium or ordered trap tags without fishing and made expenditures for the fishery. However, the number issued could be much larger if persons check the fish trap blank on the permit application. For example, prior to implementation of the Amendment 5 moratorium, 524 vessels had the trap endorsement, but only 136 vessels had

[4] The number of vessels permitted changes frequently as persons may renew permits within one year after expiration.

records of landings and actually fished traps. This is likely to happen again and persons fishing traps would have to be determined from logbook records rather than permit records.

The NMFS (1995) observer study for the trap fishery indicated the release mortality[5] for all finfish was 2.8 percent and for red grouper (the primary target species) was 2.6 percent. The release mortality for red grouper was lowest in this fishery as compared to the bandit rig fishery (10.6 percent) and the longline fishery (12.2 percent). Similarly the release mortality for all finfish (2.8 percent) in the trap fishery was lower than in the longline fishery (13.7 percent). Therefore, it could be concluded that the trap fishery had less of an ecological impact on the fishery stocks as compared to other gear used in the fishery. A smaller number of species (63 taxa) were caught in traps as compared to on longlines (85 taxa), but a greater percentage of fish caught were kept (55.9) in the longline fishery than in the trap fishery (35.2). In both fisheries most of the fish caught and most of the fish kept were target species of grouper and snapper, i.e., 81.9 percent caught and 87.7 percent kept in the longline fishery versus 59.7 percent caught and 69.5 percent kept for the trap fishery. This indicates in both fisheries, fishermen can successfully target the higher valued species without major bycatch of non-targeted species. Many of the non-targeted species are retained for sale and some utilized for bait.

Although the NMFS observer study indicated that lawfully fished traps compared favorably to other fishing methods, the primary concern of the Council was on enforcement and continued ghost fishing of lost traps. Since fish traps can continue to fish while untended, and they are underwater and virtually invisible while fishing, these issues were of greater concern for fish traps than for other types of gear. For this reason, the Council rejected this alternative, which would have allowed a potential expansion of the fish trap fishery up to the number of permitted reef fish vessels.

Magnuson Act Considerations for Limited Access

The Magnuson Fishery Conservation and Management Act, 16 U.S.C. 1853, Section 303 provides that the Council may establish a system for limiting access to the fishery in order to achieve optimum yield if, in developing such system, the Council takes into account:

(A) present participation in the fishery,
(B) historical fishing practices in, and dependence on, the fishery,
(C) the economics of the fishery,
(D) the capability of fishing vessels used in the fishery to engage in other fisheries,
(E) the cultural and social framework relevant to the fishery, and
(F) any other relevant considerations.

The Proposed Alternative is ultimately a gear regulation to ban the use of a particular gear type, rather than a limited entry system. However, during the phase out period, the number of participants in the fish trap fishery will be limited, and no additional endorsements will be issued by NMFS. New participants will be able to enter the fishery through limited the limited transfer provisions, through leasing, or through designation of additional operators by the owner of an owner-qualified permit and endorsement. In this respect, the phase out

[5] For comparative purposes, release mortality is based on number released dead divided by number released dead and alive. Fish retained for bait and fish released with unknown fate are not included.

period may be considered to be a temporary limited entry system and subject to the Magnuson Act considerations. Therefore, these provisions are reviewed below.

The Proposed Alternative takes into account the present participation in the fishery by including all current holders (as of February 7, 1997) of fish trap endorsements. Through attrition (e.g. failure to renew endorsements) the number of endorsements has declined from 136 to 95.[6] Amendment 11 (see section 6.5) provided an opportunity for persons who entered the fishery after the moratorium's November 19, 1992 cutoff date but before the February 7, 1994 implementation an opportunity to obtain an endorsement by transfer from any of the current endorsement holders. The Proposed Alternative provides an additional opportunity for any reef fish permit holder to enter the fishery through transfer during the first two years. Present participants will have a choice of either leaving the fishery by transferring their endorsement and receiving whatever compensation they arrange with the transferee, or of retaining their endorsements and continuing to fish with fish traps for up to ten years.

The historical fishing practices in, and dependence on the fishery were taken into account by grandfathering in, through Amendment 5, all fisherman landing fish with traps for 1991 through November 19, 1992 and providing an opportunity, through Amendment 11, for reef fish vessel permit holders fishing with traps between November 19, 1992 and February 7, 1994 to enter the trap fishery. Dependence on the fishery has been taken into account in the Proposed Alternative by providing an extended phase out period (ten years, with a ban on unrestricted transfer of endorsement after 2 years) for fishermen in the fishery to continue using their current gear while preparing to switch to other fishing methods. Most of the fishermen in the fishery are only partially dependent on fish traps and are already participating in other fisheries. One fisherman testified that, out of 82 fishermen in the fish trap fishery (some with multiple trap endorsements), 75 were part time fish trap fishermen and only 7 were completely dependent upon the fishery. Of those fishermen who testified at public hearings as to the percent of their fishing that is with fish traps, 63 percent (5 out of 8) testified that it comprises just 30 percent or less of their fishing.

The phase out proposed in this amendment does not create negative impacts on the economics of the fishery that will exist at the time of its implementation. The two year window of full transferability may produce short-term positive economic impacts to current endorsement holders who sell out of the fishery, and positive impacts to fishermen who buy into the fishery and are either not planning to fish commercially for more than ten years or are able to switch to another fishing method at the completion of the ten years.

The capability of fishing vessels used in the fishery to engage in other fisheries was taken into account in implementing the moratorium and the proposed phase out. The vessels in the fishery include many vessels that are configured for trap fishing but participate in a variety of trap fisheries, including stone crab, spiny lobster or blue crab. Other vessels participate in other fisheries such as mackerels and other finfish fisheries. In many of these fisheries other gear is required. Vessels can freely depart the fish trap fishery to other fisheries when most advantageous to the owner.

The cultural and social framework relevant to the fishery was taken into account by grandfathering in all current participants at the completion of the temporary fish trap

[6] The number of vessels permitted changes frequently as persons may renew permits within one year after expiration.

endorsement moratorium. No fisherman will be suddenly forced to change his fishing methods or level of effort. Allowing ten years for the phase out will permit fishermen to make a gradual adjustment to other fisheries without the disruption that would occur if there were an immediate termination of the fishery with its associated displacement of fishermen. Maintaining the moratorium, as a license limitation system, would adversely impact the existing cultural and social structure of the fishery through continued user conflicts.

Economic Impact

The fish trap fishery is part of the reef fish fishery and is mainly located in the Florida area. It may be recalled that there currently exists a ban on the use of fish traps in Florida state waters (except for sea bass pots north of 27° north latitude) and in EEZ waters under the jurisdiction of the South Atlantic Fishery Management Council (except for sea bass pots north of 28°35.1' north latitude). Fish traps in the EEZ may be used under the jurisdiction of the Gulf of Mexico Fishery Management Council or the Caribbean Council. We may also recall that in the Gulf EEZ, fish traps are also banned in designated stressed areas throughout the Gulf.

Table 3. Number of reef fish permits, by most important species and gear type, as of June 30, 1995.

Species → / Gear	Reef Fish	King Mack	Shark	Sp. Mack	Swdfish/ Tuna	Stn. Crab	Spny Lobs	Shmp	Others	Total
Shrimp Trawls	15	1			1		2	77	2	98
Fish Traps	58	1		1		28	3		2	93
Gillnets	3	1		4		5	3		4	20
Bandit Reels	315	6			2	17		2	12	354
Hand/Troll Lines	58	18			1	4	2	1	2	87
Rods and Reels	375	12	3	3	3	18	3	5	22	444
Surface Longlines	7	1	1		13				1	22
Bottom Longlines	119		19	1	4	1		1	10	155
Lobster Traps	1				2	8	96			108
Diving Gear	14					2	4		4	24
Other Gears	15					26			59	100
Total	980	40	23	10	26	109	113	86	118	1505

The table above, based on information from the reef fish permit file, shows the various gear types used and species caught by reef fish permitted vessels. While it is expected that most reef fish permit holders would consider reef fish as their most important species caught, many others consider such species as mackerels, stone crabs, and spiny lobster as most important in terms of ex-vessel value. Of those that listed reef fish as most important species, about 6 percent (58 out of 980) indicated fish trap as most important gear. Rod and reels, bandit reels, and bottom longlines are the dominant gear in the reef fishery. Several of those that considered fish traps as their most important gear also fish for other species, especially stone crabs and spiny lobsters.

While the fish trap fishery is a small segment of the reef fish fishery, it is not inconsequential as partly indicated by the previous table on number of permitted vessels. The following table illustrates the importance of the fish trap fishery in term of catches. Landings information is based on logbook reports for catches of all species from statistical grids 1 through 10, including unspecified catch area. These areas correspond to the waters off Florida. It needs to be clarified here that only since 1993 have logbooks been required of all permitted reef fish vessels from Florida while such logbooks have been mandatory for those fishing with traps since the inception of the reef fish permitting program. At any rate, it is interesting to note in the table that, with the exception of 1992, fish trap landings in Florida comprise at about 12 to 14 percent of landings from all gear types.

Table 4. Logbook reported landings from statistical grids 1-10, including unknown area, by gear types.

	1991		1992		1993		1994		1995	
	Pounds	Pcnt	Pounds	Pcnt	Pounds	Pcnt	Pounds	Pcnt	Pounds	Pcnt
Buoy/ Longline	3787176	38.75	2293198	31.93	6768803	38.61	6364820	35.68	5274277	35.52
Hook and Line	4581619	46.88	3105048	43.23	7739107	44.15	8621076	48.33	7275103	49.00
Others	60593	0.62	121676	1.69	575797	3.28	610622	3.42	538223	3.63
Traps	1344140	13.75	1662247	23.14	2445359	13.95	2242937	12.57	1759878	11.85

The following table extends the information of the previous table to include statistical grids 11 through 21, including unspecified catch area. Expectedly, the relative importance of fish traps falls when landings from the entire Gulf are considered. Excluding 1992, fish traps now account for 10 to 12 percent of total landings of all species.

Table 5. Logbook reported landings from statistical grids 1-21, including unknown area, by gear types.

	1991		1992		1993		1994		1995	
	Pounds	Pcnt	Pounds	Pcnt	Pounds	Pcnt	Pounds	Pcnt	Pounds	Pcnt
Buoy/ Longline	4063869	37.28	2705393	25.32	7307663	32.08	6979430	30.38	5724670	31.64
Hook and Line	5423569	49.75	6151645	57.57	12157293	53.37	12746544	55.48	9940473	54.94
Others	63467	0.58	163958	1.53	833384	3.66	994769	4.33	665712	3.68
Traps	1351212	12.39	1664448	15.58	2479729	10.89	2254205	9.81	1762383	9.74

Before the fish trap endorsement and moratorium on issuance of new endorsements were established under Amendment 5, there were a total of 524 vessels that had been issued fish trap tags and could have legally participated in the fishery if they had wished to exercise that privilege. Fish trap endorsements were issued only to vessels that landed fish using traps for the period January 1, 1991 through November 19, 1992 as demonstrated through logbook records. Since the inception of logbook recording for reef fish, all permitted reef fish commercial vessels using fish traps were required to submit logbooks whether or not they fish traps. Permit holders for a total of 136 vessels were determined to have qualified for the endorsement. Only 104 qualifying vessels initially applied for and received endorsements, but eventually the number dropped to 92 endorsements, then rebounded to 95 endorsements as a result of renewals occurring within one year of expiring. Permit holders for the remaining 44 did not exercise their option to receive endorsements.

In addition to those that received endorsement, about 182 vessels ordered fish trap tags between November 19, 1992 and February 7, 1994 but only 56 vessels actually fished traps during this period. Since implementation of the endorsement moratorium, practically all these vessels have been excluded from the fish trap fishery. Approximately 30 of the 56 vessels that fished traps but were disqualified from receiving endorsements remain active in the reef fish fishery. As of July 31, 1996 there were 95 active endorsements.

Given the above information , we may expect the number of participating vessels to be limited to about 95 under the Proposed Alternative, with gradual attrition occurring from non-renewals during the ten-year period. Under the rejected alternatives, the number of participating vessels would have ranged from 95 under the most restrictive license limitation alternative (Rejected Alternative 1) to 524 under the alternative that allows the endorsement moratorium to expire (Status Quo). If the moratorium were allowed to expire, the number of vessels that would actively participate in the fishery might be fewer than 524 as was the case before the moratorium. An examination of logbook records revealed that there were significantly fewer than 524 vessels catching fish with traps before (and during) the moratorium. These vessels numbered 66 in 1990, 86 in 1991, 116 in 1992, 163 in 1993, 124 in 1994, and 95 in 1995. The number of vessels using traps in 1994 exceeded the number of endorsement issued, possibly for three reasons. First, the moratorium started only in February 1994; second, endorsements were transferred between vessels of the same owner; and third, several non-endorsed vessels were able to lease endorsements. While the past account reveals a relatively small number of vessels fishing traps, there is a possibility that vessels displaced by the Florida net ban may enter the trap fishery if allowed to do so. In this event, however, they will have to secure reef fish permits and fish trap endorsements before they can fish traps. Currently there is a moratorium for issuance of new commercial reef fish permits and trap endorsements. New entrants would have to obtain the permit and endorsement through a transfer or lease arrangement, thus, there can be no increase in the number of participants.

While the number of vessels could give us a general idea of the potential effort in the fishery, there are other contributing factors to effort in the fish trap fishery. The following table displays some of these factors.

Table 6. Effort indicators per vessel per trip.

	1991	1992	1993	1994	1995
Number of traps	48.5	46.9	47.2	51.7	53.0
Length of fishing trips (days)	5.4	4.7	3.6	3.9	4.28
Soak time (hours)	28.4	24.6	17.5	11.5	13.0
Crew size, excl. capt.	1	1	1.4	2.2	2.2

Since 1990, vessels have been restricted to possess no more than 100 traps, but on average vessels have carried less than 100 traps per trip. The average, however, appears to have increased slightly over the years. The length of trips appears to have been dropping down from 1991 to 1993, but has since increased. Soak time has substantially dropped from its high level in 1991. The requirement to bring traps back to shore after each trip must have contributed to the reduction in soak time. This requirement was instituted in 1994 together with the imposition of the moratorium on fish trap endorsement. There appears to be a slight increase in the number of crew, from an average of about 1 before 1994 to 2 thereafter. From what can be gleaned from the table, it appears that there is an overall reduction of effort in the fish trap fishery since the establishment of the endorsement moratorium in 1994.

The NMFS (1995) observer study concluded that fish traps have less ecological effects than some other gear used in the reef fishery. On this account, the various alternatives may be viewed as having marginal effects on the ecological impacts of the fish trap fishery. However, concerns continue to exist about the enforceability of fish trap regulations, e.g. the fishing of untended traps or traps without escape panels. Enforceability is a problem because traps, while fishing, are completely submerged and are therefore invisible to enforcement agents except during deployment or retrieval. Such unlawfully fished traps can result in increased bycatch and mortality of fish that die in untended traps, eventually resulting in economic losses as well as negative ecological impacts. The extent of these impacts would depend on how widespread illegal fish trapping is and not on the level of general perception that such activities are widespread. Unfortunately, there is no information to support one way or another. It may only be mentioned that illegal fish trapping may not be prevented by the proposed measure.

Among the general types of controlled access systems, the ITQ system has been generally deemed superior to others in generating economic benefits to the industry and the nation. In the present case, an ITQ system does not appear appropriate since, in addition to Congressional contraints on the use of ITQ, no species quota for fish traps is involved. Some species caught in fish traps have quotas, but they are overall quotas and not specific to gear types. A license limitation system, however, may work out in this particular fishery.

Limiting the number of participants in the trap fishery through license limitation or gradual phase out would likely benefit those initially included in the program. Participants would face less competition in the harvest of certain species in certain areas at certain times. Under this condition, included vessels would generate relatively higher revenues and potentially profits also. They have more flexibility in deciding their level of participation in the trap and other fisheries throughout the year. And they can lease or sell their licenses or endorsements very likely above the cost of obtaining those permits. Whether or not such benefits translate to benefits for the nation is not clear. But it is clear that a license limitation alternative would generate more benefits to the industry and likely to the nation than the phase out alternative.

A major characteristic of the trap fishery is the absence of a derby-like situation resulting from the presence of more than enough capital to harvest the resource. One reason for this is that there is no species quota for fish trap. Another is that fish trap catch a variety of species, and even in the case of grouper which is the predominant species caught in traps, the quota has not been exceeded for the last several years. Still another reason is that many of the species that are caught in traps can be harvested by other gear types, particularly hook and line, including longline. One other reason is that many fish trap fishermen participate in other fisheries, such as lobster and stone crab, and use other gear types. In relation to these last two reasons, it is interesting to note that those that were disqualified from the fish trap endorsement system have managed to remain as fishermen, albeit with probably lower revenues. This whole situation appears to imply that a license limitation or a phase out may be able to reduce the number of vessels in the fishery, but there is no assurance that resource rent will be generated. To the extent that capitalization in the fish trap fishery is reduced, benefits will accrue to the nation. But if those displaced vessels are employed to harvest the same species only this time using different gear, the overall cost to the industry would be higher than without the license limitation or the phase out. In this regard, the potential benefits to the participants in the fish trap fishery will be reduced by the increase in cost to those displaced from the trap fishery. Whether or not the resulting number under a license limitation is a net benefit cannot be ascertained. But there is a good chance that resulting net economic effect for a phase out would be negative.

Since the phase out period is relatively long, participants will have enough time to switch to other economic activities, including another fishery. In this way, the adverse economic impact of the phase out is spread out over a number of years. The relatively free transferability condition over the first two years could tone down further the adverse economic impacts on the initial participants. Nevertheless, this two-year provision for endorsement transfer would still severely limit the mobility of resources in and out of the fishery. It may be noted that those entering the fishery would have already recognized the limited period allowed for using fish traps and estimated their profitability gains over the remaining period. In the same vein, those staying in the fishery would have also calculated their gains over the remaining period. Gains to both parties could not be enhanced when relatively free transferability is absent in the remaining eight years of the phase out period.

With respect to revenues, it appears likely that a decrease in the number of trap fishermen would redistribute catches and revenues among users of various gear types. The NMFS (1995) study and logbook records indicate that groupers are the dominant species caught in fish traps. Five species, namely, red grouper, black sea bass, unclassified grunts, white grunt, and mutton snapper comprise over 70 percent of total fish trap landings. None of these species is considered overfished and only one (red grouper) is subject to a quota, and

in fact it is only part of an aggregate shallow water grouper quota. In this case, there is a good likelihood that fishery revenues would remain stable under a license limitation or phase out. What happens to overall profitability is uncertain under a license limitation, but may be expected to be negative under the phase out. The rationale here is that those that have participated in the fishery have determined fish trap to be their most economically efficient gear type. Switching to other gear types would mean a decrease in efficiency and increase in cost. Thus, while overall industry revenue from harvest of species also caught in fish traps remain about the same but simply redistributed to other gear type users, the cost side increases and brings overall profitability down.

Environmental Consequences

Physical Environment: The alternatives in this section are anticipated to have little to no impact on the physical environment. Fish trap fishing is already prohibited in the coral reef complexes (i.e., within the stressed area - see Attachments 1 and 2). Fish traps are relatively light in weight, especially when compared to stone crab and spiny lobster traps which are weighed with concrete. (See Amendment 5 SEIS).

Human Environment: The Proposed Alternative extends the moratorium but with a definite termination period after which trap will be prohibited It will not immediately affect current participants, but will require them to change gear by the end of the phase out period. The majority of fishermen using fish traps are part-time participants who are already participating in other fisheries. Rejected Alternatives 1, 3 and 4 simply extend the current moratorium with the existing number of participants and should have no impact on the current participants. Rejected Alternative 2 would expand the moratorium and to include additional participants. Under the first two years of the Proposed Alternative and under Rejected Alternatives 1 and 2, persons not in the fishery could enter only by purchasing an endorsement. The level of participants in the fish trap fishery would not increase from the level at implementation, and could decrease due to attrition from non-renewal of endorsements. However, to the extent that vessel owners lease their endorsements, or designate other fishermen to operate their fish trap vessel while they switch to another fishery, any of the alternatives other than status quo could result in expansion of commercial fishing in general.

Fishery Resources: Fish that are caught in the directed fish trap fishery can be caught by other means, and fish trap caught reef fish accounts for just 12 to 14 percent of reef fish landings reported in Florida. The Proposed Alternative will have little or no impact on the directed fishery resources other than to redistribute that 12 to 14 percent harvest to other gear types. Under the rejected alternatives there may also be little or no immediate impact, however, a majority of the endorsement holders are currently only part-time participants in the fish trap fishery. The potential therefore exists for fishermen to increase their level of participation in the fish trap fishery and increase fishing pressure on the resource even while keeping the number of participants stable. Rejected Alternative 5 under which all the reef fish permit holders could use traps could have an adverse impact, if traps were fished along with other gear deployed in deeper waters or if fished near coral reefs where incidental catch of non-target species is typically higher.

Impact on Other Fisheries: The Proposed Alternative will result in fish trap fishermen increasing their effort in other fisheries. Since most fishermen who testified indicated that they only spend a minor part of their fishing on fish traps, this redirection should be

marginal. Representatives of the ornamental fish industry argued that bycatch of spawning size ornamental fish in fish traps has a deleterious impact on those stocks. Scientific evidence does not exist to either conclusively support or refute that claim. However, since wire sided traps can be used in the blue crab and spiny lobster trap fisheries, any impacts on ornamental from reductions the fish trap fishery may be at least partially offset by increases in other wire sided trap fisheries. Law enforcement officials have testified that a trap ban is the most enforceable trap restriction possible. Thus, the Proposed Alternative should, over time, result in greater enforcement and elimination of illegally fished traps along with the attendant bycatch and ghost fishing mortality.

Effect on Wetlands: The alternatives have no effect on wetlands.

6.5 Alternatives - Transfer of Endorsements

The following section governs transferability of trap endorsements after the initial two year full transferability phase of the ten year phase out proposed in Section 6.4.

Proposed Alternative: Status Quo: Allow no transfer except as provided below:

Transfers allowed to an immediate family member upon death or disability of the endorsement holder, to another vessel owned by the same entity, and a one-time transfer to any of the 56 individuals who were fishing traps after November 19, 1992 and were excluded by the moratorium.

Rejected Alternative 1: Provide that fish trap endorsements be transferable between persons during the license limitation system by allowing transfer of the endorsement exclusive of the vessel permit.

Rejected Alternative 2: Provide for such transfer by allowing:

a. transfer of the endorsement with the vessel permit, or

b. limit such transfer for the first year to the 56 fishermen identified as eligible for a one-time transfer under Amendment 11.

All transfers must be registered with NMFS and are subject to an administrative fee for the transfer.

Rationale: Council members wanted to assure that a reduction in fish trapping effort would occur during the phase out. If unrestricted transfer were allowed, a fisherman leaving the fishery could transfer his permit throughout the ten year period to a fisherman who could benefit from even a short term use of the gear, and attrition would occur at a very low rate if at all. By restricting transfer, increased attrition should occur through non-renewal of endorsements.

Discussion: The Proposed Alternative allows transfer of endorsements, during its effective period, only under those provisions that are currently in effect. Currently the endorsements are transferable to an immediate family member. Amendment 11 allows endorsement transfers upon death or disability of the endorsement holder and a one-time transfer to any of the 56 individuals who were fishing traps and were excluded by the moratorium.

The prohibition on transfer of endorsements, except under the conditions listed, is expected to result in attrition during the last eight years of the phase out. Endorsements which expire and are not renewed will not be replaced. However, an endorsement holder who exits the fishery can continue to keep his endorsement active by leasing it to another fisherman or by designating another fisherman to operate his fish trap vessel, provided he can continue to meet the 50 percent income requirement for renewal of his reef fish permit. As a result, attrition will occur at a lower rate than if these allowances did not exist. Regardless of the rate of attrition, all endorsements will become invalid at the end of the ten year phase out.

The rejected alternatives would allow transfer of fish trap endorsements, differing only in that Rejected Alternative 1 would allow transfer exclusive of the reef fish vessel permit, while Rejected Alternative 2 would allow transfer only in conjunction with transfer of the vessel permit. Rejected Alternative 2 also contained a sub-option to limit such transfers only to the 56 fishermen who are currently eligible for the one time transfer under Amendment 11. The Council rejected these alternatives because it felt that the two year period of unlimited transferability provided for in the Proposed Alternative of Section 6.4 provided sufficient opportunity for fishermen to adjust to the phase out, and any further transferability, other than what is already allowed, would allow new entrants to the fishery and would be contrary to the Council's intent to phase out the fishery.

Economic Impact

For the proposed license limitation system to have some chance in achieving the economic efficiency objective, transferability of licenses is necessary. Even if licenses are initially distributed to the most efficient producers, over time some other producers without licenses may prove to be more efficient than those with licenses. The transferability condition then would give some assurance that efficiency in the industry is maintained or enhanced, or at least the pathway to efficiency is open. The situation would naturally be better if those exiting the fishery are marginal producers and are thereby likely to be replaced by more efficient producers.

In order to provide a higher likelihood for the exit of less efficient and entry of more efficient producers, there is a need to impose fewer restrictions of transfer of licenses. With fewer restrictions, the market for licenses would develop more rapidly. Among the alternatives, the Rejected Alternative 1 may be deemed the best under the criterion of less restrictive transfer. It may be recalled that relatively free transferability of endorsements is allowed for the first two years of the phase out period, and thus would have similar effects as Rejected Alternative 1 over these two years. But the two-year provision would surely constrain the move toward a more efficient fishery. Block transfer, such as the case with transferring an endorsement with the vessel permit, would impose unnecessary cost on those possessing reef fish permits. Even those without reef fish permit and need to secure one before purchasing a fish trap endorsement would tend to incur higher cost since they would be precluded from purchasing those permits from other reef fish fishermen.

While it does not address economic efficiency, the Proposed Alternative does provide for social considerations in the transfer of endorsements after the first two years of the phase out period. Such provision tends to provide continuation of the business activity under certain circumstances.

Environmental Consequences

Physical Environment: The alternatives in this section will have no impact on the physical environment.

Human Environment: Most of the endorsement holders participate in other fisheries, and under the Proposed Alternative, could reallocate their fish trapping effort to the other fishing activities. For a small number of full-time trap fishermen (estimated by one trap fisherman to be seven individuals in the Florida Keys), the phase out would force a major change in fishing methods, but would provide a long time period over which to make the transition. Holders of owner-qualified permits who choose to leave the fishery could continue to lease their endorsements or designate operators for their vessels, provided they could continue to meet the permit's 50 percent income from fishing requirement. This would allow new entrants into the trap fishery as current participants leave, and limit the rate of attrition. While the Proposed Alternative would not put a stop to new entrants, it would limit the nature of the business relationship between the current and new participants. The Proposed Alternative eliminates the outright sale of an endorsement (except under limited circumstances), and forces the incoming and outgoing participants to maintain a business relationship, either employee-employer or lessee-lessor. As the end of the phase out approaches, the benefits of entering or remaining in the fishery will decrease, and the attrition rate will likely increase.

Fishery Resources: Except as discussed under Section 6.4, the alternatives will have no impact on fishery resources.

Impact on Other Fisheries: Except as discussed under Section 6.4, the alternatives will have no impact on other fisheries.

Effect on Wetlands: The alternatives will have no impact on wetlands.

6.6 Alternatives - Number of Endorsements that can be owned by One Entity

Proposed Alternative: Status Quo - Place no limitation on ownership.

Rejected Alternative: Limit the percentage of endorsements owned by a single entity to 5 (or some other) percent.

Rationale: Under the phase out and eventual ban on fish traps, any long term benefits to an individual from monopolizing the fishery are limited, and there appears to be little incentive to establish such a monopoly. In addition, the Council concluded that a limitation, if implemented, would not be effective or enforceable since ownership would likely be in corporate names with no effective way to trace actual ownership. It is currently a common practice for an owner to create a separate corporation for each vessel in an effort to shield himself and his assets from personal injury and other liability claims. The Law Enforcement AP, however, indicated it is possible to trace corporate ownership and determine the individuals who are in control.

Discussion: Currently one partnership holds 5.3 percent of the 95 current trap endorsements. Endorsements would be fully transferable only during the first two years of the phase out. A limit on ownership would prevent an entity from monopolizing the fish

trap fishery, but given the limited ten year time period before trap endorsements become invalid, there would not be any long term benefits from establishing a monopoly. However, there could be an incentive for current endorsement holders to sell while the opportunity exists. The limited window of opportunity to sell could create a glut on the market and depress prices, which could create a buyers market for endorsements. If, as a result, some individuals purchase multiple endorsements, the number of persons owning vessels, but not necessarily the number of vessels, will be reduced.

Economic Impact

The most efficient level of operation by any one entity changes from time to time as harvesting conditions change. Those undertaking the actual operation are in the best position to determine such level of operation. In general, this is best achieved by placing no limitation on the size of one entity's operation, including the number of licenses necessary to achieve such efficient level of operation. Forcing an entity to some maximum level of ownership would hamper the achievement of an efficient operation size and eventually the achievement of industry efficiency.

While there is always the possibility that without a cap on ownership of endorsement a single entity may own all endorsements, the likelihood of its occurrence is very small. The monopoly of fish traps does not carry the same economic incentive as that for harvest rights of a species, primarily because harvest can still be undertaken through the use of other gear types. Another way of looking at this situation is that a monopoly on fish traps may be mainly seen as a gear prohibition while that for a species as a closure. Since substitute gears exist, monopoly power over fish traps cannot be protected, and thus the economic incentive will easily erode.

Environmental Consequences

Physical Environment: The alternatives in this section will have no impact on the physical environment.

Human Environment: The Proposed Alternative would provide more flexibility for those that decide to expand their operation to the most profitable levels within the time frame allowed. In this way, better business planning can be made. Since accumulation of endorsements can effectively occur only within the first two years of the phase out period, the likelihood that monopolization of endorsement and consequent loss of a network of fish trap fishermen is relatively low.

Fishery Resources: The alternatives will have no impact on fishery resources.

Impact on Other Fisheries: The alternatives will have no impact on other fisheries.

Effect on Wetlands: The alternatives will have no impact on wetlands.

Note: The Public Hearing Draft Amendment's Sections 6.7 (Persons to Whom Endorsements are Issued) and 6.8 (Duration of License Limitation System) have been removed from the final draft of this amendment because those issues are now incorporated into the Proposed Alternative of Section 6.4. The following Sections 6.7 and 6.8 were Sections 6.9 and 6.10 in the public hearing draft.

6.7 Recommendation to General Counsel

(This section was previously titled, "Condition of Endorsements".)

The Council feels strongly that setting traps in closed areas, non-tending of traps, returning to shore without retrieving traps and use of traps without buoys and functional escape panels are serious violations, and recommends that they be dealt with in a most severe manner, including sanctions against the trap endorsement and associated reef fish vessel permit and against permits for other fisheries. This sanction schedule should be set up in a progressive manner (e.g., revoking permits for three months, for six months and forfeiture of permits).

Discussion: The Council identified these violations as those of most concern in regard to regulation of traps. Noncompliance with these provisions can result in increased loss or abandonment of traps, disruption of reef fish spawning activities and continued ghost fishing. This results in negative biological impacts on the resource, and the loss or degradation of the resource results in unrealized economic losses to fishermen who use lawful means to harvest the resource. The Council, by this action, is notifying both NOAA General Counsel, who prosecutes violations, and the public that maximum penalties should be applied to these violations and that sanctions against the endorsement and permits should be used in addition to the penalties assessed for these and all other violations.

6.8 Alternatives - Tending of Traps

Proposed Alternative: Traps must be tended only by a person on the vessel to which the endorsement has been issued. In the event that a vessel breakdown prevents the retrieval of traps by the vessel to which the endorsement has been issued, the vessel owner or operator of the vessel to which the endorsement has been issued must immediately notify the nearest National Marine Fisheries Service Office of Enforcement and must obtain from that office an authorization to retrieve and land traps by other means. The authorization must specify an effective period, the individuals and vessel to whom the authorization applies and point of landing.

Rejected Alternative: Status Quo - current rule.

Rationale: This Proposed Alternative corrects an unintended effect of the current regulations which allows a person on another vessel to retrieve traps provided he/she had written permission from the owner or operator of the original vessel. Reportedly, this allowance was being abused and some operators of vessels without endorsements were routinely tending traps with the use of open ended written authorizations written before the vessels even left the dock. That was not the Council's intent. Tending of traps involves taking traps to sea on the vessel, fishing and returning traps to shore on each trip. The council intended to provide a means of complying with the portion of the tending requirement obliging fishermen to return traps to shore when a vessel breakdown would otherwise prevent such compliance. The Proposed Alternative cures the unenforceability of the current regulation because it does not leave the authorization open ended ant it only allows authorization to be given at the time that a disabling incident occurs. Additionally, enforcement boarding personnel can check with the National Marine Fisheries Service Office of Enforcement to verify the terms of authorization. NMFS enforcement has provided assurances that it will be possible to contact a person at the Office of Enforcement

around the clock, although at certain times of the day, it may involve leaving a message to be forwarded via beeper and returned.

The telephone number for NMFS Office of Enforcement in St. Petersburg, Florida is 813-570-5344. NMFS Enforcement field office numbers are listed in the Gulf Council's regulations pamphlets. However, some of these numbers may not be available 24 hours per day.

Discussion: The tending requirement that was implemented in Amendment 5 is vital to reducing trap loss and controlling effort. During Amendment 5 public hearings, some fishermen testified that they had a low rate of trap loss in the Gulf because, unlike other areas, they retrieved their traps at the end of each trip. In addition, many fishermen have testified that having to return traps after each trip reduces the number of traps they can fish by limiting them to the number they can fit on their boat, often less than the maximum of 100 (see economic impact discussion in Section 6.4). The existing rule only allows a vessel breakdown (not inclement weather) as a valid reason for non-retrieval of traps, and under this condition, the alternate person with written consent is authorized only to remove the traps from the EEZ, not to continue fishing them. During the Reef Fish AP meeting of May 3, 1996, a Florida FMP officer testified that FMP officers were accepting rough weather as an excuse not to retrieve traps, were not asking to see written authorization for another fisherman to tend the traps, and were not checking inbound trap vessels. Nonenforcement of the existing law cancels any benefits that may have been achieved by the rule.

Economic Impacts

As noted earlier, one component of effort, i.e., soak time, has dropped since 1994 when the requirement to bring traps to shore after each trip was introduced. The Proposed Alternative may be expected to reduce further the time traps are left under water. This has the potential to reduce revenues unless other effort components are increased. For example, the number of traps used in harvesting may be increased although it may be recalled that since 1990 trap possession by any one vessel has been limited to 100. Despite this limit, there is still more room to increase trap usage, since the average traps used per trip per vessel is only about 53 in 1995. Regardless of the revenue situation, costs are bound to increase under this alternative. But this cost increase mainly affects those that try to circumvent present rules governing trap fishing.

In a sense, the Proposed Alternative lends credence to the expectation that limiting effort through restriction of one or more of its components may not be effective as other components may be increased. Nonetheless, one major issue addressed by this alternative is to eliminate one way that non-endorsed vessels may fish for traps or that endorsed vessels may leave their traps at sea to the point that the likelihood of lost traps may increase.

Environmental Consequences:

Physical Environment: The alternatives have no impact on the physical environment.

Human Environment: Under the Proposed Alternative, a fisherman will no longer be able to pre-designate another fishermen or vessel to tend his traps, but will need to make any such arrangement at the time that his vessel becomes disabled. At the same time, the

fisherman will need to contact the NMFS office of enforcement and tend to the condition of his disabled vessel. This may increase the difficulty of arranging for alternate tending of the traps. Under both the Proposed Alternative and status quo, only a vessel breakdown (not inclement weather) is recognized as a valid reason for non-retrieval of traps. In addition, both alternatives require, for effective enforcement, a follow-up to assure that the designated alternate has returned the traps to shore. Unless it is effectively enforced, neither alternative is likely to have any impact on the human environment.

Fishery Resources: The Proposed Alternative is expected to improve enforceability of the requirement that fish traps be returned to shore after each fishing trip, and should reduce capture if fish in the directed fishery from untended traps.

Impact on Other Fisheries: The Proposed Alternative is expected to improve enforceability of the requirement that fish traps be returned to shore after each fishing trip. This should reduce the average time that fish traps are in the water which should reduce the likelihood of unintended bycatch.

Effect on Wetlands: The alternatives have no impact on the wetlands.

7.0 FISH TRAP AREA PROHIBITIONS

Section 1.2 discusses the history of regulation of fish traps under the FMP. Areal prohibitions on use of traps were first addressed in 1984 by delineation of a Gulf-wide stressed area (Attachment 1) in the nearshore waters of the EEZ in which traps and certain other gear were prohibited. The stressed area in the Gulf EEZ off southwest Florida was designed to prohibit the use of traps in the Florida Keys reef tract (see Coral FMP. GMFMC. 1982). The prohibition of traps in the SAFMC EEZ instituted in 1992 removed trap fishing from the Florida Keys reef tract on the Atlantic Ocean side of the Keys. The use of traps within the reef tract was of concern to persons in the Marine Life Industry[7] since the traps caught many of the same tropical reef fish that were captured and marketed alive by this industry (Draft Reef Fish Amendment 5. GMFMC. 1992). In relation to the Florida Keys reef tract the use of traps was allowed only north of 24.48° north latitude and west of 83° west longitude (i.e., west and south of the Dry Tortugas - see Attachment 2).

Proposed Alternative: Prohibit the use of fish traps in the Gulf EEZ west of Cape San Blas, Florida (85°30' west longitude), except for experimental purposes as approved by NMFS.

Rejected Alternative 1: Prohibit the use of fish traps in the Gulf EEZ off Florida south of 24°54' north latitude. This prohibition will take effect on July 1 or January 1, whichever comes first, 12 months after the final rule for this amendment is published.

Rejected Alternative 2: Prohibit the use of fish traps on Riley's Hump.[8]

Rejected Alternative 3: Prohibit all fishing on Riley's Hump year around.

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[7] The marine Life Industry of Monroe County Florida harvests tropical reef fish for sale in the aquarium trade. During the period 1990-1994 the annual number of participants ranged between 145 to 154 who landed between 830 thousand and 1.2 million fish annually valued at between 3.7 and 4.7 million dollars exvessel value annually (M. Norris, FDEP, pers. comm. 1996).

[8] For purposes of this measure, Riley's Hump is defined as the area inside the following coordinates: Point A (24° 32.2' N., 83° 8.7' W.), Point B (24° 32.2 N., 83° 5.2' W.), Point C (24° 28.7' N, 83° 8.7' W.) and Point D (24° 28.7' N, 83° 5.2' W).

Rejected Alternative 4: Status Quo - no additional prohibition on use of traps by area.

Rationale: Expansion of the fish trap fishery beyond its current geographical scope is inconsistent with the intent of the phase out, which is to limit, reduce and ultimately eliminate the use of fish traps. The Proposed Alternative prevents any such expansion, and had virtually unanimous support from all persons who testified on this section. All of the rejected alternatives, other than status quo, would have eliminated fish traps from some areas where they are currently being used. This would have differentially impacted trap fishermen who are based in the Keys. These fishermen indicated in public testimony that under the rejected alternatives they would continue to fish their traps in areas where they remained legal, but at greater cost because of the longer travel distances involved. As a result, the rejected alternatives would have reduced economic efficiency but would not have resulted in any decrease in trap fishing effort. While user conflicts may have been reduced in areas where traps were prohibited, they would likely have increased in those areas to which the traps would be relocated.

Discussion (Area West of Cape San Blas): The Proposed Alternative limits the geographical scope for the trap fishery to that area where the fishery currently occurs. At the May 1996 Council meeting, after reviewing comments on a preliminary draft of this amendment by the SSC, APs, SEP and from fish trap workshops, a motion was made and failed to include an alternative to ban the use of fish traps in the Gulf EEZ (see minutes). Both the Law Enforcement and Reef Fish APs recommended banning traps. The major thrust of opposition to continued use of traps and extension of that fishery were concerns over the apparent lack of compliance with fish traps in some areas and the difficulties of enforcement of these rules. For example, if traps are fished on trawls (submerged line between traps) that are not buoyed then that illegal fishing activity can be detected only when the traps are being pulled. This alternative limits potential enforceability problems by limiting the areas where traps can be used.

The experimental fishing west of Cape San Blas is intended to allow fishermen to apply to NMFS for use of traps to do exploratory fishing for deep-water or other species which may be captured effectively only by traps. These activities would be permitted and monitored by NMFS. The procedures for obtaining authorization for experimental fishing and the restrictions on the conduct of such fishing are specified at 50 CFR 600.745(b). To date, only one endorsement holder resides west of Cape San Blas.

Discussion (Dry Tortugas Area): Rejected Alternative 1 was originally a proposed alternative in the public hearing draft, but was ultimately rejected by the Council because of concern that it would simply result in a redistribution of trap fishing effort northward at additional expense to fishermen based in the Keys, and because there was not conclusive scientific evidence to support claims that trap fishing in this area was creating negative impacts on the marine life resources. It was suggested by Council members who had concerns that the western edge of Statistical Area 2, south of 24°54' (Attachment 2), was an area where catches of tropical reef fish important to the marine life industry would be a significant component of catches by traps. They also had concerns over illegal fishing with traps during the area closed season on Riley's Hump, which has been designated as one of the few remaining spawning aggregation sites for mutton snapper (also see rationale section). Reef Fish Amendment 5 (GMFMC. 1993) closed Riley's Hump to all fishing during the peak spawning months, May and June, for mutton snapper. Rejected Alternative 2 would have closed Riley's Hump to all trap fishing, and Rejected Alternative 3 would prohibit all fishing on Riley's Hump year around, essentially making it a marine sanctuary. It has been described as a unique ecosystem with a much greater diversity of fishes than surrounding areas and is the most important spawning

aggregation site for mutton snapper in the Gulf (Amendment 5). The extent of other fishing in this area is unknown. Thirteen of the 95 fish trap endorsements (14 percent) are currently held by persons who reside in the Florida Keys. Two reside in the middle Keys and likely travel north to fish Statistical Area 3 (Figure 1). The other 11 (12 percent) reside in the Key West area and likely usually fish in Statistical Area 2, west of the Dry Tortugas. Landings from Statistical Area 2 by fish traps in the period, December 1993 through November 1994, were about 9 percent of total landings by weight for fish traps (Appendix Table 3).

Council members were divided in support of the alternatives to restrict trap fishing in the area off south Florida. Proponents were concerned over continuing reports by fishermen and others of violations of the trap rules in the area, the higher probability of lost traps, and higher catches of non-target species, such as tropical fish important to Marine Life Industry. They indicated the trap fishery was an obscure fishery if the traps are deployed without buoys making noncompliance most difficult to detect by enforcement agents and such deployed traps fished continuously if not returned to shore. Taylor and McMichael (1983) had reported annual trap loss at 63 percent; however, that was prior to the requirement that traps be returned to shore on each trip. Proponents felt enforcement of the rules would likely be possible only by the proposed prohibition for the area. They felt fishermen in other areas were generally complying with the rules.

Opponents of restrictions in the south Florida area felt that persons in the Marine Life Industry just did not want the traps in that area and were the principal source of allegations of noncompliance. They felt rather than prohibiting the gear that the enforcement agencies should put a higher priority on enforcement, including pulling of traps to assure compliance. They felt that if the alleged violators are known then it should be easy to monitor their activities. They also pointed out if violations are occurring the violations may be by persons without fish trap endorsements and action to prohibit the gear would unfairly punish the legitimate fishermen who were complying with the rules. They pointed out that with the requirement for biodegradable panels the lost traps would become habitat rather than ghost traps.

Available Information on Impacts of Fish Traps on the Marine Life Industry

The observer data from NMFS (1995) study are not very useful for assessing the bycatch of tropical reef fish of importance to the Marine Life Industry. Part of the difficulty is that the samples were taken in the northeast quadrant of Statistical Area 2 off Cape Sable (Figure 1) and are; therefore, more reflective of the fauna of Statistical Area 3. The other is those data are aggregated with all other data for the NMFS study area. The same problem of aggregated data applies to the Taylor and McMichael (1983) study, which sampled the Dry Tortugas area. The results of the Taylor and McMichael (1983) study, which principally sampled the Florida reef tract in the SAFMC jurisdiction, was probably of major concern to the Marine Life Industry in that angelfish and butterfly fish made up 11.2 percent of all fish observed (22.6 percent of all non-target fish) and accounted for 48 percent of all injured fish. This study was completed prior to the Amendment 5 requirements that traps deployed be returned to shore on each trip (effective February, 1994).

In the absence of current observer data for Statistical Area 2 from the NMFS (1995) study, Appendix Table 4 was prepared which summarizes for each species or taxa retained for landing from Statistical Area 2 the relative percentage of the total landings from the study area (Statistical Areas 2 through 7). These data do show some major differences in species landed from Statistical Area 2 as compared to total study area landings. Although Statistical Area 2 accounted for only 3.4 percent of grouper, landings of black and snowy groupers and of scamp accounted for more than 30 to 40 percent, respectively. The only Nassau grouper (19 pounds) came from this area. Statistical Area 2 accounted for more than 60 percent of snappers landed from the study area. Predominant species included gray, mutton, silk and yellowtail. The area landings accounted for 1.4 percent of the grunts and 6.8 percent of other finfish.

Appendix Table 5 provides a listing of species of importance to the Marine Life Industry ranked by their relative dollar value. It is not all inclusive of species sold nor is it ranked in terms of dominant species sold by the industry. It represents a wholesale listing of fish ranked by individual value from a major firm located in the Middle Keys. Since it represents a wholesale listing for intermediate brokers who supply retail establishments it is thought to represent fishes abundant enough to be supplied in wholesale quantities.

Species of importance to the Marine Life Industry reported in the NMFS (1995) observer study (Appendix Table 1) included spotfin butterfly fish, blue angelfish, gray (black) angelfish, reef butterfly fish, red hogfish and cowfish. The percentage, by number, that each made of the total observed catch and percentage kept and released alive are listed below. In addition the table lists other marine life species as defined by the state of Florida (Chapter 46-42 Florida Administrative Code).

Table 7. Percent Composition of Marine Life Species Caught in Fish Traps in NMFS (1995) Study.

Species	Percent by Number		
	of total catch	kept	released alive
spotfin butterfly fish*	0.15	0.0	86.4
blue angelfish*	0.13	0.0	78.9
gray (black) angelfish*	0.03	0.0	75.0
reef butterfly fish*	0.02	0.0	100.0
red hogfish*	0.01	0.0	50.0
cowfish*	0.01	0.0	100.0
planehead filefish	0.64	3.1	94.9
jackknife fish	0.56	0.0	58.8
fringed filefish	0.22	0.0	100.0
orange filefish	0.11	0.0	78.9
spotted moray	0.11	5.8	100.0
cubbyu	0.09	0.0	21.4
ocean triggerfish	0.03	0.0	100.0
leopard toadfish	0.02	0.0	100.0
backtooth parrotfish	0.02	0.0	100.0
Gulf toadfish	0.01	0.0	100.0
ocellated frogfish	0.01	0.0	100.0

*More important species (see Appendix Table 5).

These data differ substantially from that collected in the Florida reef tract (Taylor and McMichael 1983) where 11.2 percent of the observed catch were angelfish and butterflyfish.

Harper, et al. (1994), as part of their study conducted observations of catch for 114 traps fished west of the Dry Tortugas in water ranging from 19 to 45 fathoms.

A total of 1,303 fish representing 44 species were brought aboard the vessel during fishing operations. Of these, 1,035 fish (79.4 percent) of 21 species were kept (Appendix Table 6); and 268 fish (20.6 percent) of 37 species were released (Appendix Table 7). Appendix Table 6 lists the

species, number and fork lengths for the fish which were landed. Appendix Table 7 lists the species, numbers, fork lengths and swimmers (numbers and percentage by species) for those fish which were released. A fish was classified as a swimmer if it was able to submerge and disappear below the surface of the water within one minute after release. A total of 218 of 268 fish (80.9 percent) of the fish released were classified as swimmers. The authors noted it is not known whether the swimmers survive or succumb to predation or some type of injury associated with the effects of depressurization during ascent from the ocean. Conversely, it is not known whether these fish not classified as swimmers, revive and are able to swim down to the ocean floor after a long time period.

Species of importance to the Marine Life Industry (see Appendix Table 5) from this observer study and other marine life species as defined in Chapter 46-42 Florida Administrative Code are listed below by number as percentage to total catch, percentage kept, percentage released and percentage of released fish dead or alive:

Table 8. Percent Composition of Marine Life Species Observed in Harper et al. (1994)

SPECIES	PERCENT BY NUMBER				
	OF TOTAL CATCH	KEPT	RELEASED	RELEASED: DEAD	RELEASED: ALIVE
blue angelfish*	0.61	62.5	37.5	33.3	66.7
gray (black) angelfish*	0.54	57.1	42.9	0.0	100.0
french angelfish*	0.07	100.0	0.0		
spotfin butterflyfish*	0.15	0.0	100.0	33.3	66.7
reef butterflyfish*	1.00	0.0	100.0	46.2	53.8
spotted moray*	0.15	0.0	100.0	0.0	100.0
Gulf toadfish	0.31	25.0	75.0	33.3	66.7
scrawled filefish	0.23	0.0	100.0	0.0	100.0
ocellated frogfish	0.31	0.0	100.0	25.0	75.0
orange spotted filefish	0.15	0.0	100.0	50.0	50.0
balloon fish	0.23	0.0	100.0	33.3	66.7
jacknife fish	0.31	0.0	100.0	100.0	0.0
scrawled cowfish	0.23	0.0	100.0	0.0	100.0
smooth trunkfish	0.23	0.0	100.0	0.0	100.0
slender filefish	0.07	0.0	100.0	100.0	0.0
redtail parrotfish	0.07	0.0	100.0	0.0	100.0

*Most important species (see Appendix Table 5).

NMFS personnel processed the fish from an additional 50 trap hauls during this study. Of the 562 fish released, 548 (97.5 percent) were released alive.

Economic Impact

The major issues surrounding the proposed fish trap prohibition are: 1) concern over fishing with traps in Riley's Hump, 2) incidental harvest of ornamental fish, 3) ghost fishing of lost traps, and 4) complication in the enforcement of fish trap rules.

Fish traps have been generally regarded as highly efficient relative to other gear types. Technically traps are efficient, or have higher marginal product, in the sense that they are relatively easy to use; require little skill to fish; capture a wide range of species that are not caught by other gear types; can be fished over a wide range of depths, bottom types, and conditions; and require less labor time to fish. In part, however, the vaunted efficiency of fish traps is attributable to the skill of fishermen and the areas fished by traps. Thus, such technical efficiency may hold only in certain fishing areas and when a fisherman has acquired the necessary skills to effectively use the subject fishing gear. This technical efficiency of traps can pose as a factor leading to localized overfishing of certain reef fishes in areas where traps are deployed, for example in Riley's Hump, which is a known spawning aggregation site for mutton snapper. The extent of overall overfishing, however, depends largely on the importance of the amount of fish caught in traps relative to the those caught by other gear types in the same or different areas. Such is the case partly because overfishing in general is defined relative to the entire species, say, in the Gulf and not relative to that species population in certain areas in the Gulf.

Fish traps are also regarded as non-selective. They catch both food fish, such as groupers and snappers, and ornamental fish, such as angelfish and parrotfish. Claiming this feature of fish traps, fishermen collecting ornamental fish for aquarium have raised the issue of unfair or wasteful competition from fish trap fishermen. It is interesting to note, however, that the recent NMFS (1995) study appears to indicate that traps can be more selective than other gear types such as bottom longlines and hook and lines.

There have been concerns raised about traps relative to ghost fishing. Lost traps have been found to continue fishing from few days to several years depending on whether or not degradable fasteners are used. This has been perceived as problematic especially that many traps are lost each year, although this incidence may have been alleviated by the current requirement that traps deployed be returned to shore on each trip (and would further be reduced by the Proposed Alternative under Section 6.8).

Enforcement of fish trap regulations has also been considered difficult for a number of reasons. For one, federal rules in the Gulf EEZ allowing traps to be fished (subject to certain conditions) are incompatible with the ban on fish traps in Florida state waters and in the South Atlantic EEZ. More importantly, there are reported activities by (non-endorsed) trap fishermen fishing in closed areas and/or with illegally constructed traps. Enforcement officers are reported to have extreme difficulty catching violators due to the very nature of fish trap fishing; that is, traps are left underwater for sometime and are not attached to vessels unlike other gear types. In the case of violations, determining trap ownership becomes almost impossible.

Three alternatives, namely, Rejected Alternative 1, Rejected Alternative 2, and Rejected Alternative 3, would address the issue on possible localized overfishing of mutton snapper in Riley's Hump. Whether the prohibition of fish traps in this area results in net benefit depends on the extent of protection granted to mutton snapper. Currently, Riley's Hump is closed to all types of fishing during mutton snappers' peak spawning months of May and June. If indeed fish traps catch a substantial number of this species in the open months, the proposed prohibition would add more protection to the species. There is, however, the likelihood that if fish traps are banned in this area, other gear types may be deployed, thus offsetting the benefits gained from the prohibition. On this account, the two alternatives (i.e., Rejected Alternative 1 and Rejected Alternative 2) that would ban fish traps only in this area would contribute minimally to long-term economic benefits. Rejected Alternative 3, which would ban all fishing in Riley's Hump, offers a better chance of protecting mutton snapper. This alternative, of course, presents another issue, and that is whether the non-use

value from non-harvest of mutton snapper and other species exceeds the value forgone from the ban on harvest of these species in Riley's Hump. This issue will remain unresolved without collection of appropriate information.

Fish traps, being non-selective in some fishing grounds, catch fish that have relatively high value as food fish and fish that have high value as ornamental fish. When all these catches are sold as food fish, ornamental fish generally command a much lower price than when sold live as ornamental fish. In addition, ornamental fish that are discarded when not sold as food fish would lose their entire market value. In both ways, incidental catches of ornamental fish lead to a reduction in economic value of the fish. It may also be noted that there are non-consumptive values of ornamental fish when left unharvested for divers to see. However, reduction of non-consumptive value may not be totally attributable to fish traps since tropical fish collectors using other gear types also harvest these fish. The benefit from banning traps in the particular case of eliminating incidental take of ornamental fish cannot be quantified.

Banning fish traps can significantly reduce ghost fishing, but the extent of economic benefit from such a ban depends on the extent of the number of traps lost. Previous reports had it that numbers of lost traps are relatively high in the Dry Tortugas areas. Such occurrence had been mainly attributed to the previous practice of leaving traps submerged for long periods of time. The current requirement that deployed traps have to be brought back to shore after each trip may have substantially reduced the occurrence of lost traps. In addition, there are reported to be about 11 to 13 vessels that generally fish in these areas. An examination of logbook data reveals that the number of vessels indicating they fished in Statistical Grid 2 has declined in recent years. Vessels fishing in this area numbered 20 in 1992, 24 in 1993, 12 in 1994, and 7 in 1995. It may be noted, however, that many vessels did not designate specific areas where they fished and some of these could be fishing in the subject area. At any rate, we may expect that the number of traps deployed in the subject area may not be substantial. Thus, the Proposed Alternative may be expected to have minimal economic effects with respect to the problem associated with ghost fishing.

Banning fish traps in certain areas of the Gulf EEZ would render compatible the federal rules in those areas with those of the state waters of Florida and South Atlantic EEZ. Enforcement will thus be simplified. If the incidence of violations in the proposed area for banning traps is significant, the proposed ban may turn out to result in net economic benefits. Along this line some benefits may accrue to adoption of the Rejected Alternative 1, Rejected Alternative 2 and Rejected Alternative 3. The effect of the Proposed Alternative is minimal considering the few occurrences of fish trap fishing in areas west of Cape San Blas, Florida. But it does prevent the expansion of the fishery in that area as well as the expansion of the concomitant enforcement problem. It may be noted, however, that the cost of such violations is implicit in the sense that resources producing goods and services elsewhere in the economy are directed to the fishery, and this cost has no net offsetting benefits (Anderson, 1987). Such activities also lead to less than full realization of the benefits from the management program. Thus, the mentioned economic benefits due to effective enforcement are spelled more in terms of reduction in cost rather than enhancement of benefits.

There are several cost items accompanying the ban on fish traps in the proposed area in the Gulf EEZ. Major costs include loss of value of traps, loss of income to trap makers, loss of income to vessel owners, operators and crews, loss of efficiency in the reef fish harvest sector, loss in profitability to fish dealers, and loss in consumer surplus. Rejected Alternative 1, Rejected Alternative 2, and Rejected Alternative 3 would directly affect about 11 to 13 fishing operations.

The Proposed Alternative may affect one endorsement holder who resides in Louisiana but probably fishes in waters off Florida. These costs cannot be quantified at the present time.

As discussed above, the various rejected alternatives would have varying effects in addressing the various concerns raised regarding fish traps fishing in certain areas. The direction of net economic effects, however, is not definite. The Proposed Alternative is deemed to have minimal economic effects noting that there is virtually no commercial fish trap fishing in areas west of Cape San Blas, Florida.

Environmental Consequences

Physical Environment: The alternatives in this section are anticipated to have little or no impact on the physical environment. (See section 6.4).

Human Environment: The Proposed Alternative would not affect the current participants because their fishing activity is generally east of the area that would be closed to fishing by the alternative. Rejected Alternative 1, Rejected Alternative 2, and Rejected Alternative 3 would adversely affect at least 11 fishermen (12 percent of total) and potentially 13 (14 percent). These fishermen would either have to move their base of operation to another locality or sell their endorsements and gear on the market place. If not already a participant in the spiny lobster or stone crab fisheries they would be prohibited from diversifying into the stone crab fishery because of the current moratorium on stone crab permits. They would have to purchase spiny lobster trap certificates to enter that fishery. Likely all the vessels of these fishermen are rigged to pull traps and could more easily be used in these fisheries. However, these fisheries are very seasonal in duration (most landings occur in the first four months) and they do not provide a full-time fishing alternative. Likely many of the affected fishermen already participate in at least one of these fisheries, seasonally. All of the fishermen currently possess reef fish vessel permits and could remain in that fishery using other gear, since the license limitation system makes the fish trap endorsement marketable without transfer of the reef fish vessel permit. However, the other gear may not be as efficient as traps. Rejected Alternative 2 would simply prohibit use of traps on Riley's Hump which is already closed to all fishing in May and June. The current relative percentage of effort applied to and landings from Riley's Hump by fish traps is unknown. Most likely this area prohibition would not significantly impact the affected fishermen. Rejected Alternative 3 would prohibit all fishing on Riley's Hump. Data are not available to assess that impact.

Fishery Resources: The Proposed Alternative has no effect on fishery resources since the trap fishery does not occur in the area that would be affected.

Impact on Other Fisheries: The Proposed Alternative has no change in existing impacts on other fishery resources since it results in no change from current areas of fish trap use. Representatives of the Marine Life industry have suggested that continuation of fish trap fishing off of the south Florida has a negative impact on the spawning population of ornamental marine fishes. The rejected alternatives that restrict trap fishing in this area would reduce to some degree incidental catch of tropical reef fish targeted in the Marine Life Fishery. However, the NMFS bycatch characterization study found a very low release mortality of fish released from traps. Florida's marine life rules set maximum size limits on several species to protect the adult spawners, but allow unlimited commercial harvest of juveniles of these species. If these populations are depressed, this unlimited directed harvest, the limited number of fish trap endorsements, and the low release mortality from fish traps suggest that the directed fishery on juveniles is likely to be the major contributing cause.

Effect on Wetlands: The alternatives will have no impact on wetlands.

8.0 FRAMEWORK PROCEDURE FOR SPECIFYING TOTAL ALLOWABLE CATCH (TAC)

NOAA General Counsel has suggested the framework procedure should have a provision whereby the Council and Regional Director of NMFS (RD) can make an inseason adjustment to reopen a fishery to allow an unharvested portion of a sector's allocation to be harvested. This would occur if in the process of monitoring harvest of the commercial quota NMFS makes projections of the closure date that prematurely closes the fishery before the quota is all taken. Although NMFS does not currently make recreational sector inseason projections and harvest closures, this form of management could be used in the future if technically feasible and if recreational harvest fails to stay within its allocation using existing management methods. The final version of the Proposed Alternative was therefore modified from its original wording to apply to both the commercial and recreational sectors rather than only the commercial sector.

Proposed Alternative: The procedure is modified allowing the Regional Director of NMFS, through notice action, to reopen a commercial or recreational season that had been prematurely closed if needed to insure that an allocation can be reached.

Rejected Alternative 1: Modify Step 7 of the procedure, which reads as follow, by adding a new subsection (d) to read as follows:

7. **Appropriate regulatory changes that may be implemented by proposed rule in the Federal Register include:**

d. **Reopening of a commercial fishery for a time period the RD estimates is sufficient for the affected industry to harvest that portion of a commercial quota that was not harvested due to premature closure of the fishery resulting from projection of the closure date by NMFS. Such action will be taken only upon recommendation by the Council.**

Rejected Alternative 2: Status Quo - no change

Rationale: The principal rationale is in the introductory statement for this section. In the past the Council had assumed this type of inseason adjustment was allowed under the framework procedures and on one occasion the RD took such action by notice in the Federal Register, NOAA General Counsel has suggested revision of the framework procedure to set forth this authority. After informal review of the options paper for this amendment NMFS recommended the language of the Proposed Alternative over that of Rejected Alternative 1, drafted by Council staff. The Council concurred with this change.

Discussion: The Proposed Alternative and Rejected Alternative 1 both allow reopening of a prematurely closed season. Rejected Alternative 1 would require a recommendation and regulatory amendment by the Council before a season could be reopened. If the unharvested portion of an allocation is deemed substantial by the Council it may recommend to the RD the fishery be reopened for a period estimated to result in harvest of that amount. The Council may also elect not to make such an inseason adjustment but rather to add the unharvested amount to the next year's allocation through the framework or to take no action if over-runs have occurred in the previous years. The Proposed Alternative does not specify that Council recommendation is needed to reopen a season and allows a faster response by the Regional Director.

There have been two occurrences of premature quota closures to date. In 1990 the shallow water grouper fishery was closed with 0.7 million pounds of unharvested quota. The unharvested grouper quota was added to the following year's quota through a regulatory amendment. In 1995, the red snapper fishery was closed with about 220,000 pounds of unharvested quota. At the Council's request, the Regional Director reopened the red snapper fishery in November for a 36-hour mini-season. However, that action generated the concerns by NOAA General Counsel that are being addressed in this section. There have been no further grouper quota closures. There have been red snapper quota closures in every year since 1991. Since then the red snapper commercial fishery has exceeded it's quota by various amounts in every year except 1995, and the recreational sector has exceeded its allocation every year, taking nearly double its allowed harvest in some years.

Economic Impacts

Once the TAC, respective allocations, opening dates and other regulations are set, the more automatic is the closing and re-opening of the fishery (in the event of premature closing) the higher will be the economic benefits, or equivalently the smaller will be the forgone benefits. A delay, for example, in the reopening of the fishery may prove unprofitable for some operations that already committed to other economic activities. Such operations include both harvesters and dealers. In the case of the former, they could have refitted their vessels for other fishing activities, and returning to previous condition may only be too costly for such entity. In the case of latter, they may have already sought other sources of fish supply and may have already committed to these other sources. If these other sources quote their fish at higher price, these entities would suffer profit losses. If lower prices are instead quoted, dealers may pressure fishermen to accept lower prices for their products. Under the conditions described, the Proposed Alternative is deemed superior to other alternatives.

Environmental Consequences:

Physical Environment: The alternative will have no impact on the physical environment.

Human Environment: The Proposed Alternative will correct a deficiency in the framework procedure for specifying TAC. That will have a beneficial impact on persons affected by that management process. Rejected Alternative 1 does not provide for timely implementation of opening or closing seasons (i.e. a regulatory amendment is required). Status quo would adversely affect the affected persons.

Fishery Resources: The alternatives would not affect the fishery resources as the amount of a quota not harvested would likely be added to the next years quota. However, allowing additional harvest in years when there is a underharvest due to a premature closure without a corresponding measure to reduce subsequent harvest in years when there is overharvest due to an overdue closure increases the likelihood that TAC will be exceeded over the long term.

Impacts on Other Fisheries: The alternatives will not have an impact on other fisheries.

Effect on Wetlands: The alternatives will not have an impact on wetlands.

9.0 TRANSFERABILITY OF REEF FISH COMMERCIAL PERMITS

Proposed Alternative 1: Under the reef fish commercial vessel permit moratorium, the prohibition on transfer of a permit for which the vessel operator is the income qualifier is modified to allow such transfer when the recipient of the permit is the income qualifying operator.

Proposed Alternative 2: Allow the owner of a vessel with reef fish vessel permit that is issued based on the income of the operator to become the holder of the permit and have one year to meet the income qualification for the permit.

Rejected Alternative: Status Quo - no change.

Rationale: The current transfer regulations allow transfer of a permit between individuals only in cases where the owner of the vessel is also the income qualifier, and it prevents the transfer of operator-qualified permits. Although this prevents speculative entry into the fishery by non-fishermen, it also prevents operators who are the income-qualifiers from purchasing the vessels that they operate. This creates an inequity since operators of vessels with owner-qualified permits can purchase the vessel, have the permit transferred to them, and have a one year grace period to meet the income requirement. Proposed Alternative 1 corrects this inequity by allowing the operator of a vessel with an operator-qualified permit the same opportunity to purchase the vessel and permit that he controls as the operator of a vessel with an owner-qualified permit.

Owners of vessels with operator-qualified permits who wish to begin fishing their own vessels must currently meet the permit income qualification prior to becoming the operator of the vessel. By contrast, a non-owner who enters the fishery and becomes an owner through purchase of a vessel can immediately operate the vessel and have one year to meet the income requirement. Proposed Alternative 2 provides a current owner who wishes to take over operation of a vessel but cannot meet the income qualification the same one year grace period as a new owner.

Discussion: Proposed Alternative 1is intended to increase the flexibility of transfer of vessel permits between the owner and income-qualifying operator of a vessel. As of May 2, 1996, 75 out of 1,486 reef fish vessel permits had the operator as the income-qualifier (source: NMFS Permits and Regulations Branch). Under the reef fish permit moratorium, permit transfers are not allowed when the vessel operator is the income qualifier for the permit. Proposed Alternative 1 allows the owner to transfer his permit to the income-qualifying operator in the specific case of when it is the operator who is purchasing the vessel. Proposed Alternative 2 allows an owner who cannot meet the income qualification to take over operation of his vessel from the income-qualifying operator, and allows the owner one year to meet the income qualification (i.e., 50 percent of earned income from commercial or charter fishing). This alternative is intended to provide an existing owner with the same grace period as a new owner. These two alternatives allow consolidation of the two economically important aspects of a vessel permit (vessel ownership and right to operate), when these properties are split between two individuals. Proposed Alternative 1 allows a transfer to the operator by mutual consent of the owner and operator. Proposed Alternative 2 allows a transfer to the owner without the operator's consent and without compensation to the operator. Thus, while Proposed Alternative 1 increases flexibility for both the owner and operator, Proposed Alternative 2 increases flexibility for the owner in the sense that he can continue to fish in the event that the income-qualifying operator is no longer available.

Economic Impacts

The proposed alternatives are designed to correct an unintended inequity in the transfer of reef fish permits by expanding the permit transferability condition. Proposed Alternative 1 would allow transfer of reef fish commercial vessel permit from the owner to the income-qualifying operator. This provision would place this operator on equal footing with any permit buyer, although he has slight advantage in that only he can buy the subject permit so long as he remains the income qualifier for the permit. At the same time, this alternative would provide the owner a means of transferring the permit for a fee. Proposed Alternative 2 would allow a non-income qualifying owner the same privilege that new owners of permits have, which is that of being able to meet the income qualification within a year after the purchase of a permit. This alternative would allow continuation of fishing operation by the owner in the event that the qualifying operator leaves or is fired. A certain level of security in the operation of the business is thereby afforded to the vessel owner.

The proposed alternatives may then be deemed as providing more flexibility in the transfer of permits and ultimately in fishing operation. To the extent that permit transfer is rendered less restrictive, the proposed measures may be expected to affect economic efficiency in the commercial reef fishery. That is, the possibility that a productive fishing operation continues or is transferred to a more efficient fishing entity is enhanced.

Environmental Consequences:

Physical Environment: The alternatives will have no impact on the physical environment.

Human Environment: Proposed Alternative 1 rectifies an unintended effect on permit transfers which could benefit both the owners and operators of vessels affected in cases where the transfer occurs by sale or other means. This measure helps to ensure that income-qualifying operators can continue the same business operation even if the owner decides to leave the fishery. At the same time, this measure provides an added opportunity to the owner to exit the fishery without losing the full value of the endorsement. Proposed Alternative 2 places non-income qualifying owner on equal footing with new owners with respect to the opportunity to qualify for the minimum income requirement. This measure allows non-income qualifying owner to operate the fishing entity in the event that the operator is no longer available. It may be noted though that the owner can still hire another operator that would qualify for the income requirement. To some extent then, both measures provide opportunities for fishing entities to continue operation with relatively less disruption due to transfer restrictions.

Fisheries Resources: Proposed Alternative 1 will have no impact on other fisheries. Proposed Alternative 2 provides for transfer of the authority to operate a vessel from an experienced income qualifying operator to an inexperienced owner. This could result in lower rates of directed catch for that vessel until the owner learns to target for the desired species.

Impact on Other Fisheries: Proposed Alternative 1 will have no impact on other fisheries. Proposed Alternative 2 provides for transfer of the authority to operate a vessel from an experienced income qualifying operator to an inexperienced owner. This could result in higher rates of bycatch for that vessel until the owner learns to target for the desired species.

Effect on Wetlands: The alternatives will have no impact on wetlands.

10.0 NASSAU GROUPER HARVEST PROHIBITION

Harvest of Nassau grouper was prohibited in the Caribbean EEZ in 1990, in the south Atlantic EEZ in 1991, and in Florida state waters in 1993. Florida has requested that the Council adopt the prohibition to enhance the enforceability of their rules in the Gulf.

Proposed Alternative: Prohibit the harvest or possession of Nassau grouper.

Rejected Alternative 1: Status Quo - no change.

Rationale: Harvest and possession of Nassau grouper is prohibited in Florida state waters, the south Atlantic EEZ and the Caribbean EEZ. A closure in the Gulf of Mexico would provide consistency of regulations throughout the Nassau grouper's area of occurrence. Nassau grouper are on the candidate list of species for consideration as threatened or endangered in U.S. waters. They are classified by NMFS as overutilized with a current potential yield of zero. From 1991 to 1993, the average annual landings have been 59,400 pounds for recreational and commercial harvest combined (NOAA 1995). During these same years the average annual total shallow water grouper harvest has been 12.7 million pounds. Thus, Nassau grouper have comprised just one half of one percent of shallow water grouper harvest in recent years.

Discussion:

Biological Synopsis

Nassau grouper, *Epinephelus striatus*, is found in Bermuda, Florida and the Caribbean, but they are rare in the Gulf, possibly restricted only to the extreme southeastern reefs (Hoese and Moore 1977, Shipp 1986). They take 4 to 7 years to attain sexual maturity. The maximum size is about 47 inches and 55 pounds. They have been aged to a maximum of 27 years, but may live as long as three or four decades (Eklund 1994). Estimated ages of Nassau grouper collected from spawning aggregations ranged up to between 15 and 20 years (Olsen and LaPlace 1978). Olsen and LaPlace reported that Nassau grouper become fully recruited to the breeding population in their fifth year at a size of 23 inches standard length (26 inches total length). It is not yet known whether sex change occurs, as with other groupers, but at least some males develop directly from the juvenile stage (Eklund 1994). They are known to form large tight schools when they spawn, which may have contributed to the decline of the stock (FMFC 1994).

Recent Harvests

In the Gulf of Mexico, Nassau grouper are a relatively rare occurrence in the commercial landings (zero pounds in some years). These landings are almost entirely from the Florida area and, as shown in Attachment 3, commercial landings averaged 9,133 pounds annually for the 1986-1991 period. Commercial landings for all shallow water grouper during this period averaged 9.9 million pounds. Thus, Nassau grouper comprised just one tenth of one percent of commercial shallow water grouper landings.

For the recreational fishery, average annual landings for the 1986-1991 period were 140,111 pounds. Average recreational landings for all shallow water grouper were 6.4 million pounds for the same period. Thus, Nassau grouper comprised 2.2 percent of recreational shallow water grouper landings.

The combined recreational and commercial harvest of Nassau grouper during 1986-1991 represented just 0.9 percent of total shallow water grouper harvest. In the most recent years, this percentage has dropped even further. NMFS (1996) reported that the recent average yield for Nassau grouper from Gulf of Mexico waters during 1991-1993 was 59,400 pounds. During the same period, the average total shallow water grouper harvest was 12.7 million pounds (GMFMC 1995). Thus, the proportion of Nassau grouper in the combined commercial and recreational shallow water grouper fishery has dropped to 0.5 percent. Part of this decrease can likely be explained by a prohibition on harvest or possession of Nassau grouper in Florida state waters that took effect on January 1, 1993.

Eklund (1994) reported that Nassau grouper are apparently absent from the Gulf of Mexico, except for an occasional record as a rare or transient species. Much of the reported commercial and recreational catch from the Gulf are from fish caught from the southwest Florida Keys (Attachments 4-7).

Status of Stocks

The most recent review on the status of Nassau grouper stocks was completed by NMFS in December 1994 (Eklund 1994), and the following information is taken from that report. Catches from aggregations were apparently maintained at low levels of fishing intensity for many decades but rapidly declined following motorization of vessels and the introduction of the fish trap and the speargun. Over the last two decades, as fishing pressure intensified, the mean size of individuals declined rapidly and the adult sex ratio became somewhat biased toward females. Nearly 20 percent of known aggregations have been lost. Only about 50 such sites have been identified for this species.

Natural mortality rate has been estimated to range from M=0.17 to 0.30. In the 1950's, Nassau grouper in south Florida catches were about equally abundant to black grouper catches, but by the period 1986-1989, the ratio of Nassau to black grouper had dropped from 0.885 to 0.02.

There is not sufficient data for a complete stock assessment or SPR estimate, but landings data show a progressive trend from abundance to rarity (attachment 8). There have been some indications that populations are increasing in areas where they have been closed to harvest, but such increases are minimal and it will be several years before the fishery closures will have an effect on stock size.

Economic Impacts

The adverse impact of the Proposed Alternative would be small relative to the entire reef fish commercial sector, considering that the sector's landings averaged at below 10,000 pounds for 1986-91. While this reduction in harvest may affect the sector's profitability, such impact may be deemed relatively inconsequential for the entire industry. It is, however, unknown as to how many fishermen would be affected by the proposed actions. The negative effect on the recreational sector would be relatively larger, since the sector harvested at an average of slightly above 140,000 pounds for 1986-91. However, recreational catches of Nassau grouper pales in comparison with those of other grouper species. In addition, Nassau grouper is not among those that recreational anglers target highly. Thus, the overall reduction in economic benefits to the recreational sector may be deemed small.

While the short-run effect of the proposed action is negative, the long-term effect is unknown. It is not known whether the ban on harvest and possession would bring about a dramatic increase in stock size as to be able to support an economically viable commercial and recreational fishery. If

an increase in stock size is not forthcoming, a negative net economic effect would ensue unless the non-use value of Nassau grouper exceeds the losses forgone due to the proposed prohibition. Undoubtedly, estimates of non-use values are difficult to come by, and this is even more true for Nassau grouper. In this case, the long-term net effect of perpetual prohibition in the harvest of this species is unknown.

Environmental Consequences:

Physical Environment: The alternative will have no impact on the physical environment.

Human Environment: Because of the minimal harvest of Nassau grouper, a prohibition on harvest will have minimal impact on recreational fishing opportunities or income from commercial shallow water grouper fishing.

Fishery Resources: A prohibition on harvest of Nassau grouper in the Gulf EEZ combined with the existing south Atlantic and Florida state closures will completely close the U.S. stock of Nassau grouper to legal fishing, and may reduce illegal harvest of Nassau grouper that are caught in currently protected waters but landed in Gulf ports. Based on anecdotal information and declining catches from historical levels, Nassau grouper are believed to be in a state of decline, and a Gulf EEZ closure will aid in the recovery of the stock.

Impacts on Other Fisheries: An increase in harvest of other shallow water grouper may occur, particularly red grouper. Red grouper were recently classified as not overfished, and current harvests at less than total allowable catch. Thus, a small shift in effort from Nassau to red grouper is not expected to have an adverse impact on the stock.

Effect on Wetlands: The alternatives will not have an impact on wetlands.

11.0 REGULATORY IMPACT REVIEW

11.1 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 business entities" in compliance with the Regulatory Flexibility Act of 1980 (RFA).

This RIR analyzes the probable impacts on fishery participants of the proposed plan amendment to the Fishery Management Plan for Reef Fish Resources of the Gulf of Mexico (FMP).

11.2 Problems and Objectives

The general problems and objectives are found in the FMP, as amended. The purpose and need for the present plan amendment are found in Sections 3.0 of this document. The current plan amendment addresses the following issues: 1) the fish trap endorsement moratorium, 2) fish trap area prohibition, 3) modifying the TAC procedure, 4) transferability of reef fish commercial permits, and 5) Nassau grouper prohibition.

11.3 Methodology and Framework for Analysis

The basic approach adopted in this RIR is an assessment of management measures from the standpoint of determining the resulting changes in costs and benefits to society. To the extent practicable, the net effects are stated in terms of producer surplus to the harvest sector, net profits to the intermediate sector, and consumer surplus to the final users of the resource.

In addition to changes in the surpluses mentioned above, there are public and private costs associated with the process of changing and enforcing regulations on the reef fish fishery.

Ideally, all these changes in costs and benefits need to be accounted for in assessing the net economic benefit from management of reef fish. The RIR attempts to determine these changes to the extent possible.

11.4 Impacts of Proposed Alternatives

The economic impacts of the individual alternatives are discussed in the main section (Sections 6.0-10.0) of this amendment under each of the alternatives. The subsection "Economic Impacts" comprises the major part of this RIR and is included herein by reference. The following summarizes the economic impacts of the various proposed actions.

The proposed rule to prohibit fish traps immediately in areas west of Cape San Blas, Florida has minimal impacts on fishery participants considering that fish traps are not used on a commercial basis in these areas. On the other hand, the phase out period for use of fish traps in Florida will result in negative economic impacts certainly on fish trap participants and very likely also on the reef fish industry mainly through the loss of an efficient fishing operation. The relatively free transfer of endorsement during the first two years of the phase out period coupled with no limitation on ownership of endorsement provides a means whereby fishing operations can be undertaken by the more efficient producers at their more efficient level of operation. But it is doubtful that the two-year time frame would be enough window for efficiency to be achieved. Thus, reverting to status quo regarding transfer of endorsements after two years into the phase out period would tend to abruptly halt the movement toward more efficient harvesting operation although it would allow continuation of an operation in hardship cases. Cost is expected to increase due to the proposed tending requirement, although the increase would be relatively small and limited to few vessels fishing traps. Under the proposed change in the framework adjustment process, a more timely re-opening of a fishery may be effected. In a way, this would limit the potential losses in benefits to the commercial and/or recreational sectors due to premature closing of the fishery. The two proposed actions regarding transfer of reef fish commercial permits

attempt to redress unintended equity effects of the current provisions regarding permit transfer. While equity is of prime consideration here, there is also some effects on efficiency. By relaxing the condition for transfer of permits, the possibility that fishing operations continue or are transferred to more productive entities is enhanced. Mainly because of the fishery's small size, prohibiting the harvest of Nassau grouper would unlikely make a dent on the economic performance of the reef fish commercial and recreational sectors. If the prohibition continues for a long time, such action may bring about a negative net impacts on the commercial and recreational fisheries.

11.5 Private and Public Costs of Regulation

The preparation, implementation, enforcement and monitoring of this or any federal action involves the expenditure of public and private resources which can be expressed as costs associated with the regulations. Costs associated with this amendment include:

Council costs of document preparation, meetings, public hearings, and information dissemination	$ 15,000
NMFS administrative costs of document preparation, meetings and review	17,000
Law enforcement costs	100,000
Public burden associated with permits	4,200
NMFS costs associated with permits	4,200
TOTAL	$140,400

11.6 Determination of a Significant Regulatory Action

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

The entire Gulf reef fish commercial harvest sector has an ex-vessel value of $45 million. Considering this size of the fishery and the fact that the measures considered in this amendment do not significantly affect the total revenues generated by the reef fish commercial sector, a $100 million annual impact due to this amendment is not likely to happen. Prices of reef fish to consumers are not expected to increase as a result of this amendment. Cost increases to the fish trap industry are expected to be insignificant, at least at the start of a license limitation program. License prices may eventually increase, but such increase is still deemed not be significant. Costs to the local and federal governments are estimated to be relatively small. The proposed license limitation on fish trap endorsement may be expected to have some adverse effects on employment, competition, and investment; on the other hand, the same measure may bring about a more rationale approach to investment, competition, and employment to the extent that some level of

economic efficiency is achieved. The prohibition of fish traps in some areas would adversely affect employment, although relative to the entire fishery such effects may not be considered major. Lastly, none of the measures considered in this amendment will affect the competitive position of domestic producers relative to that of foreign-based enterprises.

Based on the foregoing, it is concluded that this regulation if enacted would not constitute a "significant regulatory action."

11.7 Initial Regulatory Flexibility Analysis

The Regulatory Flexibility Act requires a determination as to whether or not a proposed rule has a significant impact on a substantial number of small entities. If the rule does have this impact then an Initial Regulatory Flexibility Analysis (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.

This proposed rule, if promulgated, will prohibit the use of fish traps in the Gulf of Mexico after ten years, and immediately prohibit the use of traps west of Cape San Blas, Florida. It will also allow the Regional Administrator of NMFS to reopen the commercial or recreational fishery if it was prematurely closed before the TAC was taken, will slightly alter the provisions governing reef fish permit transfers and will prohibit the take or possession of Nassau grouper.

All of the reef fish harvesting entities affected by the rule will qualify as small business entities because their gross revenues are less than $3 million annually. Hence, it is clear that the criterion of a substantial number of the small business entities comprising the reef fish harvesting industry being affected by the proposed rule will be met. The outcome of "significant impact" is less clear but can be triggered by any of the five conditions or criteria discussed below.

The regulations are likely to result in a change in annual gross revenues by more than 5 percent. The major economic effects will be on the 92 entities that will no longer be able to use their preferred gear. While it is unclear how much their revenues will be decreased, the fact that they will have to use a less preferred gear indicates a substantial reduction in income for the 92 harvesters directly affected. Revenue effects on the other participants are likewise not directly measurable, but are likely to be relatively small.

Annual compliance costs (annualized capital, operating, reporting, etc.) increase total costs of production for small entities by more than 5 percent. The proposed rule will mean that the 92 current trappers will have to change gears and thus incur substantial increases in costs to acquire and operate the alternative gear. In addition, the traps currently used will not be salable, so all the investment in trap gear will be lost. According to data currently available, the average fish trapper fished 53 traps and the total average number of traps owned is unknown but obviously greater than 53. Given an estimated cost of $48.50 per trap (adjusted for depreciation), the minimum cost to the average trapper is $2,570.50. If this loss can be considered to be taken in one year, and considering that the annual cost of fish trapping is $20,214.38 exclusive of fixed costs which do not change with gear type, then the annual cost for the last year will increase by 12.7%.

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. General information available as to the ability of small business fishing firms to finance items such as a switch to new gear indicate that this would be a problem for at least some of the firms. The evidence is that the banking community is becoming increasingly reluctant to finance changes of this type, especially if the firm has a history of cash flow problems. While some of the 92 firms most heavily impacted by the proposed action will be impacted significantly under this criterion, there is not enough information available to estimate the number of small business entities that would be affected in this fashion.

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. The accompanying RIR indicates that the action to prohibit the use of fish traps will eventually result in forcing from 11 to 13 fish trap harvesters out of business. This number represents from 12 to 14 percent of the 92 trappers currently in operation.

Considering all the criteria discussed above, the conclusion is that small businesses will be significantly affected by the proposed rule. Hence, the determination is made that the proposed rule will have a significant economic impact on a substantial number of small business entities and an Initial Regulatory Flexibility Analysis (IRFA) is required.

The full details of the economic analyses conducted for the proposed rule are contained in the RIR and some of the relevant results are summarized for the purposes of the IRFA.

Description of the reasons why action by the agency is being considered: On February 7, 1997 a moratorium on the issuance of new permits for fish trapping will expire. The moratorium was put into place to prevent further expansion of the fish trap fishery until NMFS could conduct an observer study on the ecological impact of fish traps on the fishery resources.

Statement of the objectives of, and legal basis for, the proposed rule: The following objectives are a part of this action: (1) provide for control of the fish trap fishery after termination of the moratorium, (2) provide the flexibility to reopen and subsequently reclose a fishery that has been prematurely closed, (3) provide some flexibility in transfer of fish trap endorsements during the phase out period and, (4) provide protection for Nassau grouper throughout its range. The Magnuson Fishery Conservation and Management Act of 1976 provides the legal basis for the rule.

Description and estimate of the number of small entities to which the proposed rule will apply: The proposed rule will apply to all of the 1,532 commercial reef fish harvesting firms that currently hold permits to fish in the Gulf of Mexico. According to a recent survey (Waters, 1996), on average these small firms typically operate fishing vessels that have a length of 38 feet, have a current estimated resale value of $52,817, provide $52,000 in gross sales of reef fish and other species, and produce a net income of $12,000.

Description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for the preparation of the report or records: The proposed rule will allow full transfer of fish trap permits for two years, and the existing status quo situation of limited transfers would be in effect for the next eight years at which time the gear is prohibited and the permits expire. There would be a transfer fee and a reporting requirement for all transfers including the new two year period of unlimited transfers. This would apply to any and all of the small business entities involved in such transactions. The professional skills necessary to meet these requirements will not change relative to the level that all the fishermen are familiar with and have previously used.

Identification of all relevant Federal rules which may duplicate, overlap or conflict with the proposed rule: No duplicative, overlapping or conflicting Federal rules have been identified.

Description of significant alternatives to the proposed rule and discussion of how the alternatives attempt to minimize economic impacts on small entities: Significant alternatives to the proposed action to eliminate the use of fish trap gear in ten years were considered. Three related alternatives would have created a permanent fish trap license limitation system and differed in the number of participants allowed to obtain licenses. Another alternative would have extended the current system until December 31, 2000. Yet another would delay making any decisions for two years. Finally, the status quo was considered. Under the status quo, the moratorium on the issuance of permits for fish trapping would expire on February 7, 1997 and anyone possessing a reef fish permit would have the ability to utilize fish trap gear. Relative to the proposed alternative, all the alternatives would minimize economic impacts on small entities because all the rejected alternatives would allow more flexibility in using a type of gear preferred by the fishermen. The status quo alternative would provide the greatest degree of flexibility while providing increased benefits relative to the other rejected alternatives as well as the proposed alternative.

Following a two year period during which trap permits could be transferred according to the current rules, there is a proposed alternative to limit the transfer of permits to the transfer rules currently in place. Three rejected alternatives would generally have provided for more liberal transfer rules and the rejected alternatives would have minimized the negative economic effects on existing trap fishermen by allowing them the opportunity to sell their trap endorsement before the gear became illegal after ten years.

There were two alternatives proposed for the change to allow the Regional Administrator to reopen a commercial or recreational fishery after it has been discovered that the fishery was originally closed in error. The alternatives would not have given the Regional Administrator the desired level of flexibility and would thus have increased the potential negative impacts associated with the premature closure of a fishery.

The only alternative to allowing no harvest or possession of Nassau grouper is the status quo. While the status quo would have allowed a continuation of a small existing recreational and commercial harvest, such harvests may prevent the recovery of Nassau grouper in its main range (which is currently outside the Gulf of Mexico) and will tend to limit the possibility that Nassau grouper stocks in the southernmost portion of the Gulf of Mexico could ever recover to fishable levels that are sustainable.

12.0 ENVIRONMENTAL ASSESSMENT

The purpose and need for action for this amendment are contained in Section 3, with additional discussion in Section 4. The list of proposed actions is contained in Section 5. The full list of alternatives considered, including rejected alternatives, is listed for each issue in the appropriate issue section (Sections 6.0 to 10.0).

The description of the affected environment and environmental effects of the fishery were discussed in the SEIS for Amendment 5 and are incorporated in this amendment by reference.

12.1 Effects on Physical, Human, Fishery and Wetlands Environments

Discussion of the environmental consequences of the alternatives accompanies the sections containing the alternatives (sections 6.0 to 10.0) and constitutes the bulk of the environmental assessment with respect to the specific alternatives. Additional information concerning human impacts is contained in the RIR, and in the Economic Impacts subsection under each of the sets of alternatives.

12.2 Effect on Endangered Species and Marine Mammals

A Section 7 consultation will be requested from NMFS regarding the impact of proposed Amendment 14. It is not anticipated that populations of threatened/endangered species would be adversely affected by the proposed actions.

12.3 Conclusion

Mitigation measures related to the proposed action and fishery: No significant environmental impacts are expected; therefore, no mitigating actions are proposed. Unavoidable adverse effects with implementation of the proposed actions and any negative net economic benefits are discussed in the Regulatory Impact Review. Irreversible and irretrievable commitment of resources involved with government costs are those related to permitting alternatives for which NMFS is permitted to charge its administrative costs.

12.4 Finding of No Significant Environmental Impact

In view of the analysis presented in this document, I have determined that the fishery and the proposed action in this amendment to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico would not significantly affect the quality of the human environment with specific reference to the criteria contained in NDM 02-10 implementing the National Environmental Policy Act. Accordingly, the preparation of a Supplemental Environmental Impact Statement for this proposed action is not necessary.

Approved: _____ _____

Assistant Administrator for Fisheries Date

13.0 OTHER APPLICABLE LAW

13.1 Habitat Concerns

Reef fish habitats and related concerns were described in the FMP and updated in Amendments 1 and 5. The actions in this amendment do not affect the habitat.

13.2 Vessel Safety Considerations

A determination of vessel safety with regard to compliance with 50 CFR 605.15(b)(3) will be requested from the U.S. Coast Guard. Actions in this amendment are not expected to affect vessel safety.

13.3 Coastal Zone Consistency

Section 307(c)(1) of the Federal Coastal Zone Management Act of 1972 requires that all federal activities which directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. The proposed changes in federal regulations governing reef fish in the EEZ of the Gulf of Mexico will make no changes in federal regulations that are inconsistent with either existing or proposed state regulations.

While it is the goal of the Council to have complementary management measures with those of the states, federal and state administrative procedures vary, and regulatory changes are unlikely to be fully instituted at the same time.

Florida notified the Council that a preliminary draft of this amendment, in which the proposed alternative for Section 6.4 was a fish trap license limitation system, was inconsistent with Florida's Coastal Zone Management program because Florida prohibits the use of fish traps other than sea bass traps for harvest of snapper and grouper. The state urged the Council and NMFS to resolve the inconsistency by rejecting the use of fish traps. The proposed alternative in this final draft is the only alternative that phases out and prohibits the use of fish traps in the Gulf EEZ, and therefore resolves that inconsistency.

This amendment is consistent with the Coastal Zone Management programs of the states of Alabama, Florida, Louisiana, and Mississippi to the maximum extent possible; Texas does not have an approved Coastal Zone Management program. This determination will be submitted to the responsible state agencies under Section 307 of the Coastal Zone Management Act administering approved Coastal Zone Management programs in the states of Alabama, Florida, Mississippi, and Louisiana.

13.4 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act is to control paperwork requirements imposed on the public by the Federal Government. The authority to manage information collection and record keeping requirements is vested with the Director of the Office of Management and record keeping requirements is vested with the Director of the Office of Management and Budget. This authority encompasses establishment of guidelines and policies, approval of information collection requests, and reduction of paperwork burdens and duplications.

The Council does not propose, through this amendment, to establish additional permits but only to modify existing permit criteria. On this account, there are no additional public reporting burdens associated with this plan amendment.

13.5 Federalism

No federalism issues have been identified relative to the actions proposed in this amendment. Therefore, preparation of a federalism assessment under Executive Order 12612 is not necessary.

14.0 LIST OF AGENCIES AND PERSONS CONSULTED

The following agencies have been consulted on the provisions of this amendment:

Gulf of Mexico Fishery Management Council:	Standing and Special Reef Fish Scientific and Statistical Committees Socioeconomic Assessment Panel Reef Fish Advisory Panel Law Enforcement Advisory Panel
Coastal Zone Management Programs:	Louisiana Mississippi Alabama Florida
National Marine Fisheries Service:	Southeast Regional Office Southeast Fisheries Science Center

15.0 PUBLIC HEARING LOCATIONS AND DATES

Public hearings for public hearing draft Amendment 14 were scheduled at the following dates and locations during 7:00 p.m. to 10:00 p.m.:

Monday, June 17, 1996
Holiday Inn Beachside
3841 North Roosevelt Boulevard
Key West, Florida 33040

Tuesday, June 18, 1996
Naples Depot Civic-Cultural Center
1051 Fifth Avenue South
Naples, Florida 33940

Wednesday, June 19, 1996
Plantation Inn and Golf Resort
West Fort Island Trail (CR 44W)
Crystal River, Florida 34423

Thursday, June 20, 1996
Steinhatchee Elementary School
First Avenue South
Steinhatchee, Florida 32359

Friday, June 21, 1996
Crawfordville Board of County Commissioners
Conference Room
Old Aaron Road (behind the Courthouse)
Crawfordville, Florida 32326

16.0 LIST OF PREPARERS

Gulf of Mexico Fishery Management Council
- Antonio Lamberte, Economist
- Wayne Swingle, Biologist
- Steven Atran, Population Dynamics Statistician

National Marine Fisheries Service
- Richard Raulerson

17.0 REFERENCES

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Table 1. Number and fate of fish sampled in fish traps from December 1993 through November 1994.

COMMON NAME	GENUS SPECIES	TOTAL	KEPT	ALIVE	DEAD	BAIT	UNKNOWN
Red Grouper	*Epinephelus morio*	5162	1173	3845	110		34
Lane Snapper	*Lutjanus synagris*	2847	1811	817	25	175	19
White Grunt	*Haemulon plumieri*	1597	736	823	16	22	
Sand Perch	*Diplectrum formosum*	1092	2	876	9	205	
Tomtate	*Haemulon aurolineatum*	969	8	629	1	331	
Black Seabass	*Centropristis striata*	770	666	104			
Littlehead Porgy	*Calamus proridens*	729	463	252		14	
Knobbed Porgy	*Calamus nodosus*	389	122	155		112	
Gray Triggerfish	*Balistes capriscus*	260	118	139	3		
Pinfish	*Lagodon rhomboides*	199		117	1	81	
Vermilion Snapper	*Rhomboplites aurorubens*	145	31	33		81	
Southern Puffer	*Sphoeroides nephelus*	134	32	97		5	
Red Porgy	*Pagrus pagrus*	113	113				
Spottail Pinfish	*Diplodus holbrooki*	100		20	4	76	
Planehead Filefish	*Monacanthus hispidus*	98	3	93	2		
Jackknife-fish	*Equetus lanceolatus*	85		50	34		1
Whitebone Porgy	*Calamus leucosteus*	45	12	33			
Gray Snapper	*Lutjanus griseus*	45	11	33	1		
Pigfish	*Orthopristis chrysoptera*	41		28	2	11	
Gag	*Mycteroperca microlepis*	35	3	30	1		1
Fringed Filefish	*Monacanthus ciliatus*	34		34			
Bandtail Puffer	*Sphoeroides spengleri*	26	11	11	4		
Spotfin Butterflyfish	*Chaetodon ocellatus*	22		19	3		
Yellowtail Snapper	*Ocyurus chrysurus*	21	10	10	1		
Blue Angelfish	*Holacanthus bermudensis*	19		15	4		
Orange Filefish	*Aluterus schoepfi*	17		11	6		
Bank Seabass	*Centropristis ocyurus*	17	2	9	1	5	
Spotted Moray	*Gymnothorax moringa*	17	1	16			
Cubbyu	*Equetus umbrosus*	14		3	11		
Nurse Shark	*Ginglymostoma cirratum*	14		14			
Margate	*Haemulon album*	14		14			
Sand Diver	*Synodus intermedius*	10		9	1		
Black Grouper	*Mycteroperca bonaci*	6	1	5			
Sharksucker	*Echeneis naucrates*	6		6			
Triggerfish/Filefish	*Balistidae*	4		4			
Ocean Triggerfish	*Canthidermis sufflamen*	4		4			
Gray Angelfish	*Pomacanthus arcuatus*	4		3	1		
Reef Butterflyfish	*Chaetodon sedentarius*	3		3			
Leopard Toadfish	*Opsanus pardus*	3		3			
Remora	*Remora remora*	3		3			
Bucktooth Parrotfish	*Sparisoma radians*	3		3			
Least Puffer	*Sphoeroides parvus*	3		3			
Hardhead Catfish	*Arius felis*	2		2			
Blue Runner	*Caranx crysos*	2		1		1	
Red Hogfish	*Decodon puellaris*	2		1	1		
Scamp	*Mycteroperca phenax*	2	2				
Gulf Toadfish	*Opsanus beta*	2		2			
Short Bigeye	*Pristigenys alta*	2	2				
Greater Amberjack	*Seriola dumerili*	2		2			
Inshore Lizardfish	*Synodus foetens*	2		2			
Whitefin Sharksucker	*Echeneis neucratoides*	1		1			
Ocellated Frogfish	*Antennarius ocellatus*	1		1			
Grass Porgy	*Calamus arctifrons*	1		1			
Jolthead Porgy	*Calamus bajonado*	1		1			
Sheepshead Porgy	*Calamus penna*	1		1			
Atlantic Spadefish	*Chaetodipterus faber*	1		1			
Tiger Shark	*Galeocerdo cuvier*	1		1			
Cottonwick	*Haemulon melanurum*	1		1			
Scrawled Cowfish	*Lactophrys quadricornis*	1		1			
Mutton Snapper	*Lutjanus analis*	1	1				
Red Goatfish	*Mullus auratus*	1		1			
Southern Flounder	*Paralichthys lethostigma*	1		1			
Lesser Amberjack	*Seriola fasciata*	1		1			
	TOTALS	15148	5334	8398	242	1119	55
	PERCENTAGES	100%	35.2%	55.4%	1.6%	7.4%	0.4%

Table 2 Number of trips reported in Gulf Reef Fish Logbook Database for the statistical areas 2 - 7 and using fish trap or bottom longline fishing gears. Fish Trap information is summarized for the time period December 1993 through November 1994. Bottom longline information is summarized for the time period March 1994 through February 1995.

FISH TRAP TRIPS (N=1,318) December 1993 - November 1994

	SEASON				
STATISTICAL AREA	Winter	Spring	Summer	Fall	**TOTAL**
2	38	22	27	21	**108**
3	31	39	69	32	**171**
4	3	1	7	3	**14**
5	8	6	12	4	**30**
6	18	52	110	62	**242**
7	146	159	187	111	**603**
not avail.	46	32	42	30	**150**
TOTAL	**290**	**311**	**454**	**263**	**1,318**

Table 3. Reported landings (whole weight pounds) by fish traps for Statistical Areas 2-7 during the time period December 1993 through November 1994. Data are from Gulf Reef Fish Logbook Database.

Species or Higher Taxa	STATISTICAL AREA 2	3	4	5	6	7	not avail.	Total
GROUPER,BLACK	12,662	623		375	2,009	10,220	10,488	36,378
GROUPER,GAG	2,335	1,656	10		1,311	6,051	2,264	13,628
GROUPER,MISTY					943		4	947
GROUPER,NASSAU	19							19
GROUPER,RED	15,826	266,928	7,064	38,437	384,628	124,324	104,317	941,525
GROUPER,SNOWY	184						368	552
GROUPER,YELLOWEDGE	17	684						702
GROUPER,YELLOWFIN	44						19	62
HIND,RED	131					2,392	977	3,500
HIND,ROCK	604						26	630
HIND,SPECKLED	150	33					371	554
SCAMP	2,268				1,688	21	894	4,871
TOTAL GROUPER =	**34,239**	**269,925**	**7,074**	**38,813**	**390,580**	**143,008**	**119,729**	**1,003,368**
SNAPPER,BLACKFIN							8	8
SNAPPER,GRAY	9,936	3,210	15	132	866	1,121	1,736	17,016
SNAPPER,LANE	3,477	29,306	1,009	11	1,357	1,176	3,680	40,015
SNAPPER,MAHOGONY		2						2
SNAPPER,MUTTON	54,685	381				46	10,541	65,653
SNAPPER,RED	300	112			50	888	890	2,240
SNAPPER,SILK	10,332				23	275	2,254	12,883
SNAPPER,VERMILION	150	118	60	104	3,071	2,094	3,119	8,716
SNAPPER,YELLOWTAIL	45,109	1,413	1		22	38	5,781	52,365
UNCL. SNAPPERS	438	240			130	2,818	2,468	6,095
TOTAL SNAPPERS =	**124,426**	**34,783**	**1,085**	**248**	**5,519**	**8,457**	**30,478**	**204,994**
GRUNT,BLUESTRIPED	1,392	41	97		3,261	36,112	561	41,464
GRUNT,FRENCH	187				79	58	541	865
GRUNT,WHITE	809	485	6	164	3,156	171,061	10,443	186,124
MARGATE	3,114	67		187	7,108	28,617	6,833	45,925
MARGATE,BLACK	138		1		90	9,457	606	10,292
UNCL. GRUNTS	1,618	6,547		72	4,641	196,325	11,229	220,431
TOTAL GRUNTS =	**7,258**	**7,140**	**104**	**423**	**18,335**	**441,630**	**30,213**	**505,102**
ALMACO JACK					61	1	21	82
ANGELFISHES						116	6	122
BANDED RUDDERFISH			4					4
BLUE RUNNER	1,434	473			505	524	255	3,191
BLUEFISH						1		1

Table 3 (cont.). Reported landings (whole weight pounds) by fish traps for statistical areas 2-7 during the time period December 1993 through November 1994. Data are from Gulf Reef Fish Logbook Database.

Species or Higher Taxa	STATISTICAL AREA 2	3	4	5	6	7	not avail.	Total
BONITO,ATLANTIC						15		15
COBIA		85	37		139	54	40	356
CREVALLE	347					8	8	364
CUSK						9		9
DOLPHINFISH							6	6
FINFISHES,UNC FOR FOOD	15	652	3,534	11	645	7,259	1,841	13,956
FINFISHES,UNC					12	57	477	546
FLOUNDER,ATLANTIC & GULF				1	24	593	11	629
GREATER AMBERJACK	519				45	1,365	646	2,575
HAKE,ATLANTIC,WHITE,UNC					371	36		407
HOGFISH	8,227	311				3,009	2,305	13,852
KING MACKEREL and CERO	1,410	392	452	21		29	1,180	3,485
KING WHITING						3	5	8
LESSER AMBERJACK	56					76	3	135
MULLETS						1		1
PIGFISH						673	60	733
PORGY,JOLTHEAD	3,062	1,528	7	92	626	1,442	1,572	8,328
PORGY,KNOBBED	1,391	387	27		24	1,531		3,361
PORGY,RED,LARGE		172	40					212
PORGY,RED,UNC	1,712	650		768	16,049	3,132	3,166	25,476
PORGY,WHITEBONE	3,437	904			2,938	14,442	1,543	23,263
PUFFERS					124	10,552	846	11,522
RAYS,UNC						132		132
SAND PERCH					59			59
SCUPS OR PORGIES,UNC	832	793			149	642	278	2,694
SEA BASSE,ATLANTIC,BLACK				30	8,253	262,090	19,742	290,115
SEA CATFISH		46						46
SEA TROUT,GRAY,UNC						513		513
SEA TROUT,WHITE					7	1	154	162
SHARK,BLACKTIP							11	11
SHARK,DOGFISH,UNC						28		28
SHARK,LONGFIN MAKO				6	10			17
SHARK,UNC					8	67		75
SHEEPSHEAD,ATLANTIC						9		9
SHEEPSHEAD,FW						33		33
SPADEFISH						671		671
SPANISH MACKEREL	12			8		4	136	161
SQUIRRELFISHES					10	404	45	459
TILEFISH,BLUELINE	867				16		2,133	3,016
TILEFISH,GOLDEN	416					125	13	554
TRIGGERFISHES	516	60		124	749	1,734	663	3,846
TRIGGERFISH,GRAY	4,795	1,296	11	229	3,985	12,408	3,650	26,375
TRIGGERFISH,OCEAN	1,178					88	10	1,276
TRIGGERFISH,QUEEN	5				252	6		263
TUNA,UNC						12		12

Table 3 (cont.). Reported landings (whole weight pounds) by fish traps for statistical areas 2-7 during the time period December 1993 through November 1994. Data are from Gulf Reef Fish Logbook Database.

Species or Higher Taxa	STATISTICAL AREA							
	2	3	4	5	6	7	not avail.	Total
WAHOO							16	16
WRECKFISH					69	41		110
TOTAL OTHER FISHES =	**30,232**	**7,750**	**4,113**	**1,289**	**35,131**	**323,938**	**40,845**	**443,297**
CRAB,STONE (CLAWS)				827		308	511	1,705
CRAB,UNC						16		16
LOBSTER,SPINY	151	2					4,355	4,848
OCTOPUS		22			2,272	14,033	1,042	18,298
OYSTER,EASTERN							8	8
TOTAL INVEREBRTATES =	**151**	**24**		**827**	**2,272**	**14,356**	**5,916**	**24,874**
OVERALL TOTAL =	**196,305**	**319,621**	**12,376**	**41,599**	**451,836**	**931,389**	**227,181**	**2,181,635**

TABLE 4.

Reported Landings by Pounds and Percentage from Fish Trap Logbooks for period, December 1993 through November 1994, for Statistical Area 2:

SPECIES OR TAXA	POUNDS	PERCENTAGE[1]
Groupers:		
Black	12,662	34.8
Gag	2,335	17.1
Nassau	19	100.0
Red	15,826	1.7
Snowy	184	33.3
Yellowedge	17	2.4
Yellowfin	44	71.0
Red Hind	131	3.7
Rock Hind	604	95.8
Speckled Hind	150	27.1
Scamp	2,268	46.6
TOTAL	**34,240**	**3.4**
Snappers:		
Gray	9,936	58.4
Lane	3,477	8.7
Mutton	54,685	83.3
Red	300	13.4
Silk	10,332	80.2
Vermilion	150	1.7
Yellowtail	45,109	86.1
Unclassified	438	7.2
TOTAL	**124,427**	**60.7**
Grunts:		
Blue striped	1,392	3.4
French	187	21.6
White	809	0.4
Margate	3,114	6.8
Black Margate	138	1.3
Unclassified	1,618	0.7
TOTAL	**7,258**	**1.4**

[1] Percentage of landings for that species or taxa from fish traps for the sample period.

SPECIES OR TAXA	POUNDS	PERCENTAGE[1]
Other Fish:		
Blue Runner	1,434	44.9
Crevalle	347	95.3
Unclassified (food)	15	0.1
Greater Amberjack	519	20.2
Hogfish	8,227	59.4
King Mackerel/Cero	1,410	40.5
Lesser Amberjack	56	41.5
Jolthead Porgy	3,062	36.8
Knobbed Porgy	1,391	41.4
Red Porgy	1,712	6.7
Whitebone Porgy	3,437	14.8
Scups, Unc.	832	30.1
Spanish Mackerel	12	7.4
Blueline Tilefish	867	28.7
Golden Tilefish	416	75.1
Triggerfish, Unc.	516	13.4
Gray Triggerfish	4,795	18.2
Ocean Triggerfish	1,176	92.2
Queen Triggerfish	5	1.9
TOTAL	**30,229**	**6.8**
Invertebrates:		
Spiny Lobster	151	3.1
TOTAL	**151**	**0.6**
OVERALL TOTAL	**196,305**	**9.0**

[1] Percentage of landings for that species or taxa from fish traps for the sample period.

Table 5. Finfish [1] of Importance to Marine Life Industry Listed in Order of Value

Lemon Shark
Nurse Shark
Queen Angelfish*
Black Angelfish*
Blue Angelfish*
French Angelfish*
Rock Beauty
Cuban Hogfish
Goldentail Moray
Porcupinefish*
Indigo Hamlet*
Shy Hamlet*
Sting Ray
Painted Parrotfish*
Spotted Moray*
Red Spotted Hawkfish
Seahorse
Spanish Hogfish
Banded Butterflyfish*
Foureye Butterflyfish*
Painted Butterflyfish*
Spotfin Butterflyfish*
Jewel Damselfish*
Pork Grunt*
Yellowhead Jawfish*
Blue Tang
Puddingwife Wrasse
Tobacco Bass*
Blue Hamlet*
Yellow Tang*
Green Razor Wasse*
Chalk Bass**
Lantern Bass**
Smallmouth Grunt**
Dusky Jawfish**
Cowfish
High Hat Croaker*
Spiny Boxfish*
Surgeon Tang*
Bluehead Wasse*
Creole Wasse**
Barred Hamlet**
Blue Reef Damselfish**
Butter Hamlet**
Flame Cardinalfish**
Lavender Damselfish*
Neon Goby*
Orange Damselfish*

Neon Wasse*
Clown Wasse**
Blue Damselfish**
Rock Blenny *
Sargeant Major*
French Grunt*
Sharpnose Puffer*
Beau Gregory**
Scarletback Damselfish**

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[1] Some are listed by trade name rather than AFS common name.

*, ** means same relative value as those listed immediately before or following, e,g. painted parrotfish and spotted moray have same wholesale price.

Table 6. Observed catch landed from 114 fish traps hauled May 23-24, 1990 west of Dry Tortugas. Fish sizes (fork lengths) were measured to the nearest centimeter as traps were being pulled.

		FORK LENGTH (cm)		
COMMON NAME	NO. LANDED	MEAN	MIN.	MAX.
Bearded brotula	3	31.3	28	34
Jolthead porgy	11	31.1	30	40
Sheepshead porgy	4	25.0	25	25
Littlehead porgy	3	25.0	25	25
Red grouper	7	48.3	36	65
Squirrelfish	7	33.0	33	33
Blue angelfish	5	37.6	32	45
Hogfish	4	42.8	33	57
Mutton snapper	29	47.6	36	72
Blackfin snapper	19	22.4	17	27
Red snapper	1	43.0	43	43
Lane snapper	47	32.7	26	37
Silk snapper	329	33.1	20	42
Black grouper	6	91.8	75	110
Gag	1	73.0	73	73
Scamp	22	48.4	34	69
Gulf toadfish	1	33.0	33	33
Red porgy	21	28.5	20	38
Gray angelfish	4	39.3	35	42
French angelfish	1	38.0	38	38
Vermilion snapper	510	22.0	12	36
TOTAL	**1,035**			

Source: Harper et.al. (1994)

Table 7. Observed bycatch (releases) from 114 fish traps hauled May 23-24, 1990 west of the Dry Tortugas. Fish were observed for approximately one (1) minute to determine the ability of the fish to swim downward upon release. The fish was classified as a swimmer, if it disappeared below the surface within the one (1) minute period.

		FORK LENGTH (cm)				
	NUMBER				NUMBER	
COMMON NAME	RELEASED	MEAN	MIN.	MAX.	SWIM	% SWIM
Scrawled filefish	3	30.0	40	50	3	100.0
Ocellated frogfish	4	24.0	24	24	3	75.0
Gray triggerfish	4	23.8	21	28	4	100.0
Peacock flounder	1	24.0	24	24	1	100.0
Bearded brotula	3	27.3	22	35	2	66.7
Sheepshead porgy	9	22.0	15	28	8	88.9
Littlehead porgy	10	17.4	12	24	10	100.0
Orangespotted filefish	2	35.0	34	36	1	50.0
Spotfin butterflyfish	3	8.7	8	10	2	66.7
Reef butterflyfish	13	7.5	7	8	7	53.8
Ballonfish	3	14.0	14	14	2	66.7
Rock hind	1	34.0	34	34	1	100.0
Speckled hind	1	28.0	28	28	1	100.0
Red grouper	6	33.7	29	40	4	66.7
Snowy grouper	5	27.4	18	34	4	80.0
Jacknife-fish	4	13.8	9	20	0	0.0
Spotted moray	2	55.0	50	60	2	100.0
Tomtate	5	9.2	8	11	5	100.0
Squirrelfish	12	30.6	23	34	8	66.7
Blue angelfish	3	35.3	33	38	2	66.7
Scrawled cowfish	3	35.0	29	38	3	100.0
Smooth trunkfish	3	17.7	15	23	3	100.0
Pinfish	1	16.0	16	16	1	100.0
Red snapper	12	25.1	11	38	11	91.7
Lane snapper	2	17.5	16	19	1	50.0
Silk snapper	27	24.4	17	27	20	74.1
Sand tilefish	1	30.0	30	30	1	100.0
Slender filefish	1	6.0	6	6	0	0.0
Black grouper	1	32.0	32	32	1	100.0
Gag	2	28.0	26	30	2	100.0
Scamp	7	27.4	18	36	5	71.4
Gulf toadfish	3	29.3	26	33	2	66.7
Gray angelfish	3	34.0	33	35	3	100.0
Bigeye	1	26.0	26	26	1	100.0
Vermilion snapper	89	15.4	8	27	84	94.4
Scorpion fish	8	24.1	15	30	8	100.0
Redtail parrotfish	1	30.0	30	30	1	100.0
Dead fish	9	–	–	–	0	0
TOTAL	**268**				**217**	**81.0**

reef\table7

Source: Harper et.al. (1994)

Figure 1. Location of fish trap sets from December 1993 through November 1994.

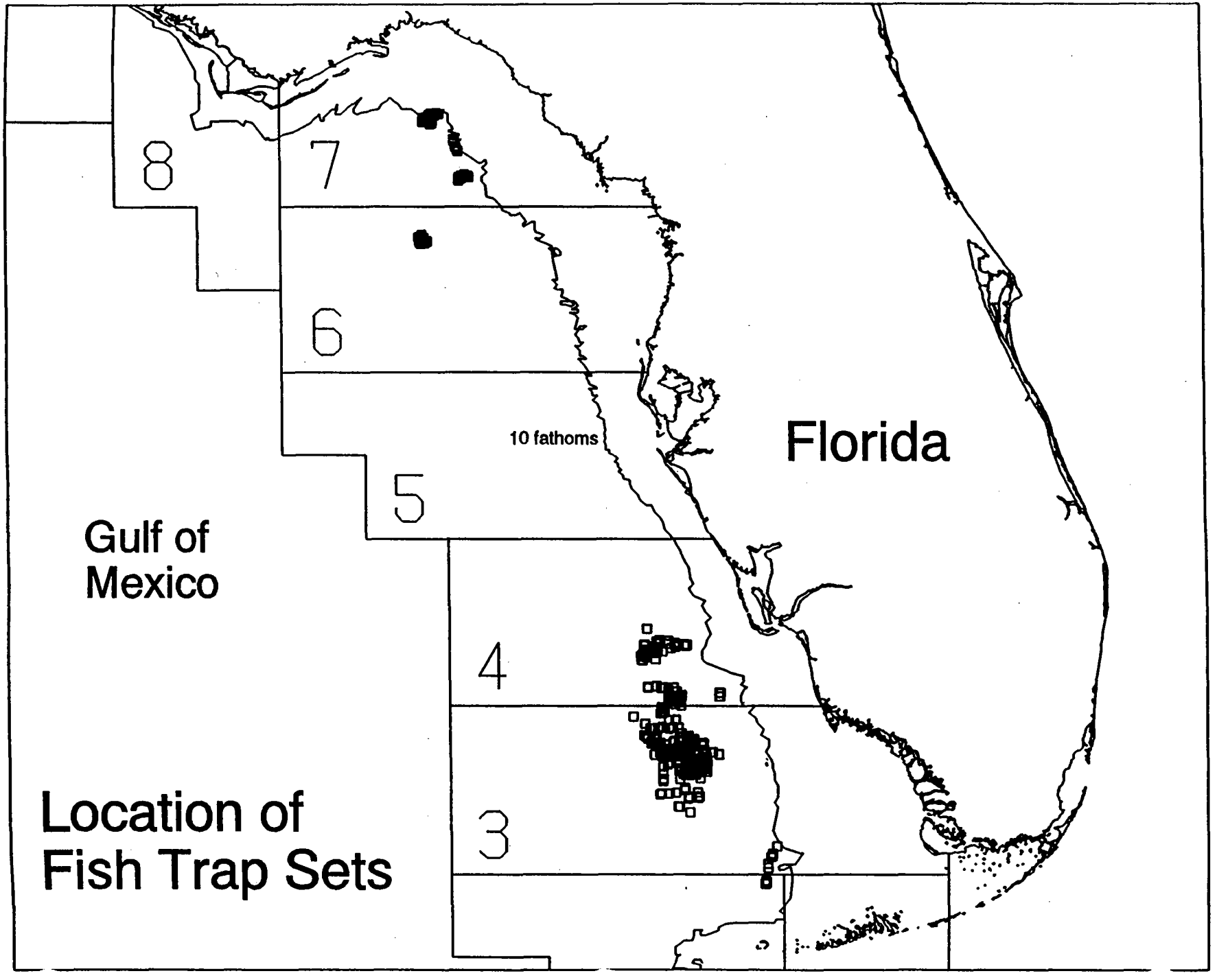


Figure 2. Location of fish traps set by statistical area from December 1993 through November 1994.

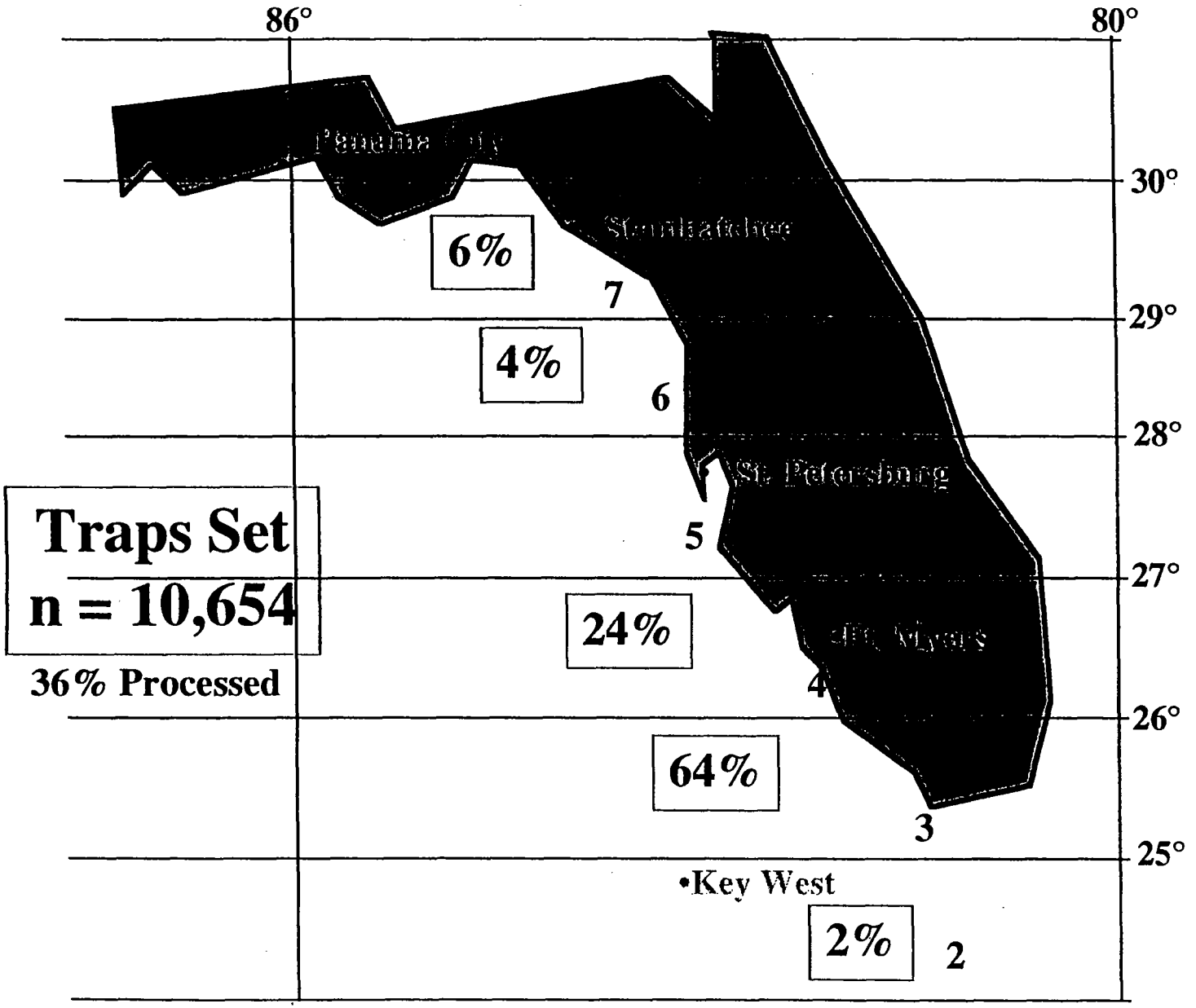
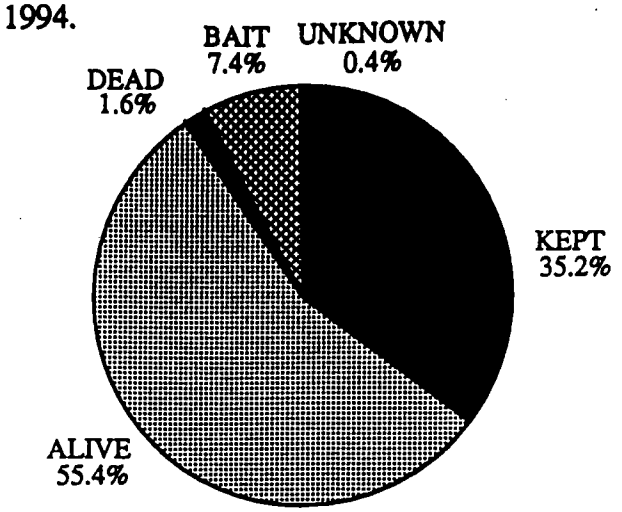
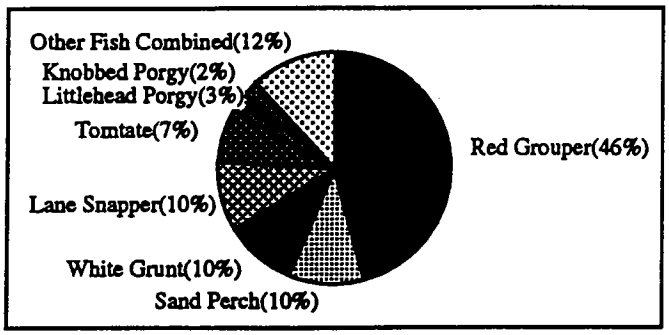
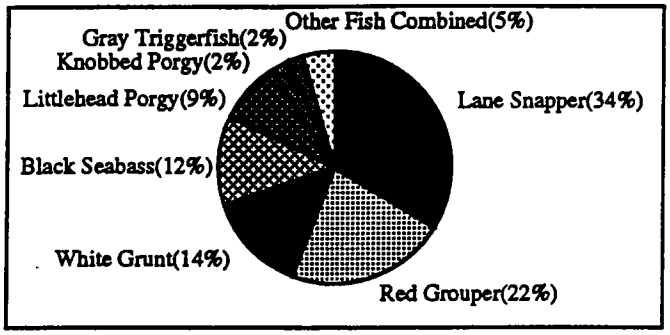


Figure 3. Fate and species composition of fish caught in fish traps from December 1993 through November 1994.

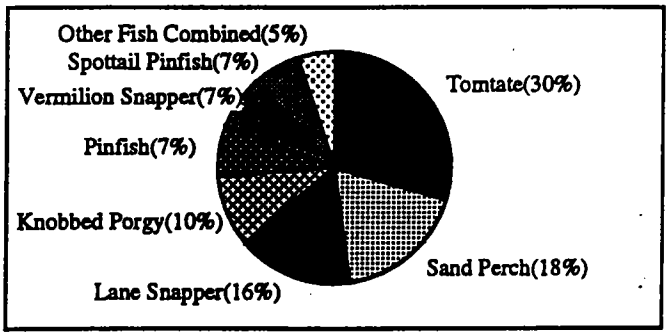




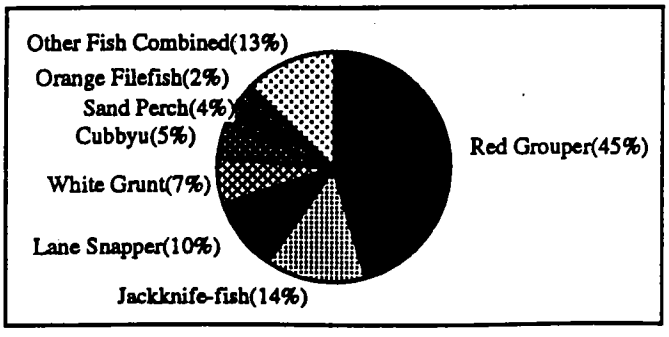
ALIVE
55.4%
n = 8398



KEPT
35.2%
n = 5334



BAIT
7.4%
n = 1119



DEAD
1.6%
n = 242

Figure 7. Catch-per-unit-effort (fish per trap hour) by season (December 1993 - November 1994) for all species combined and red grouper.

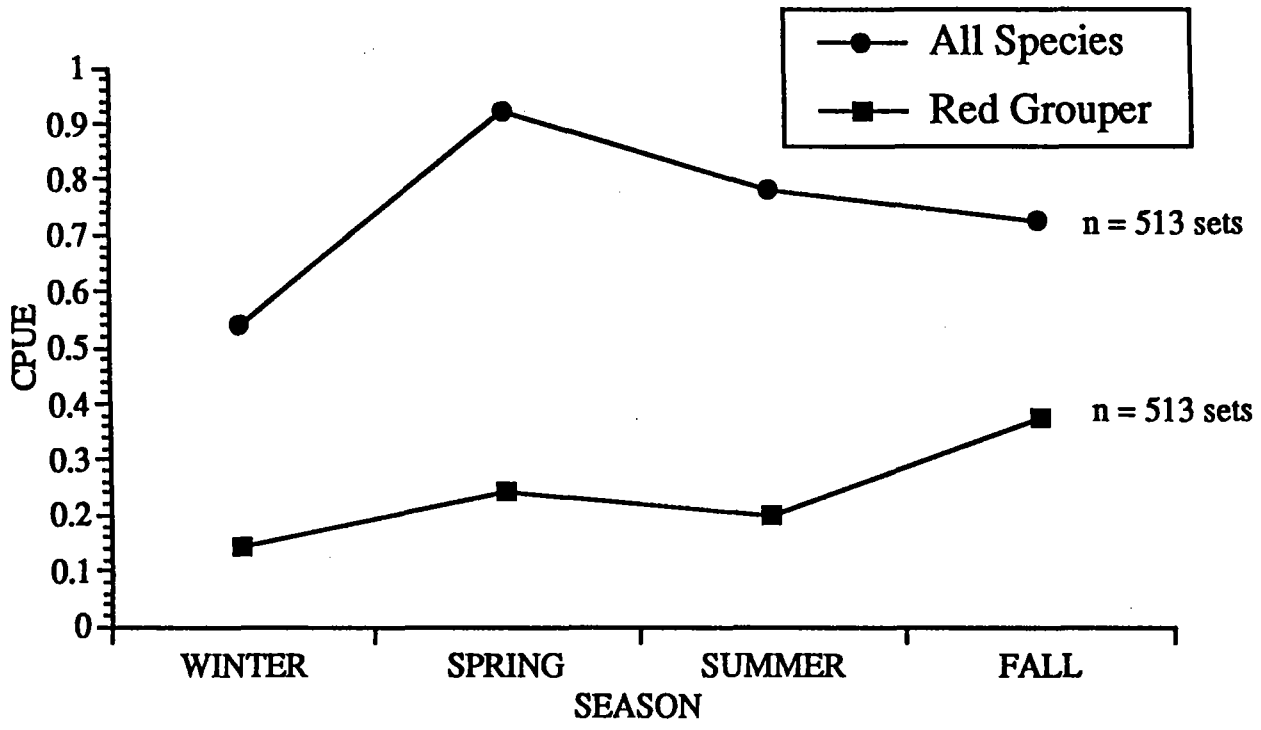


Figure 4. Size and fate of red grouper collected in fish traps from December 1993 through November 1994.

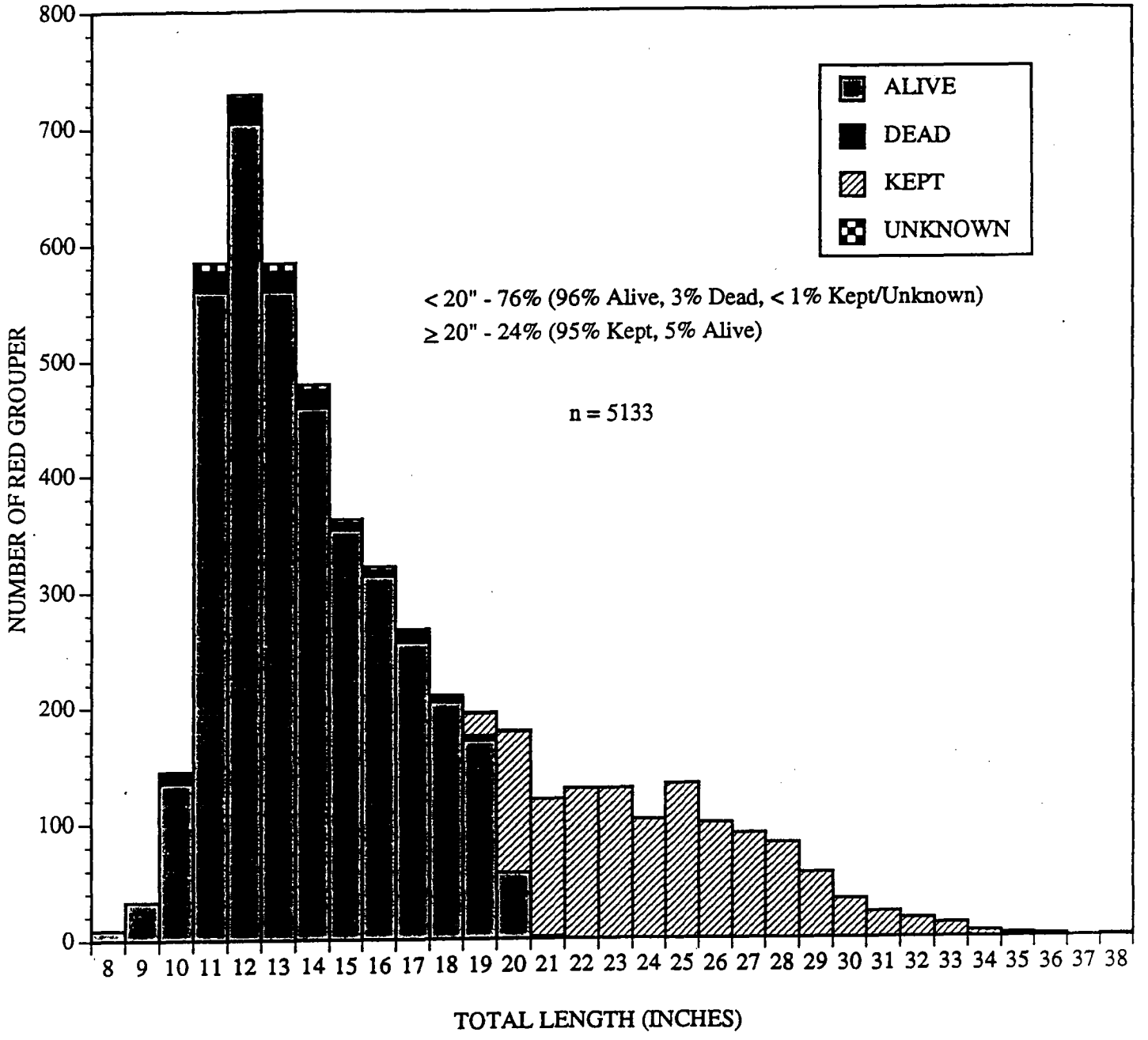


Figure 5. Number of red grouper by depth collected in fish traps from December 1993 through November 1994.

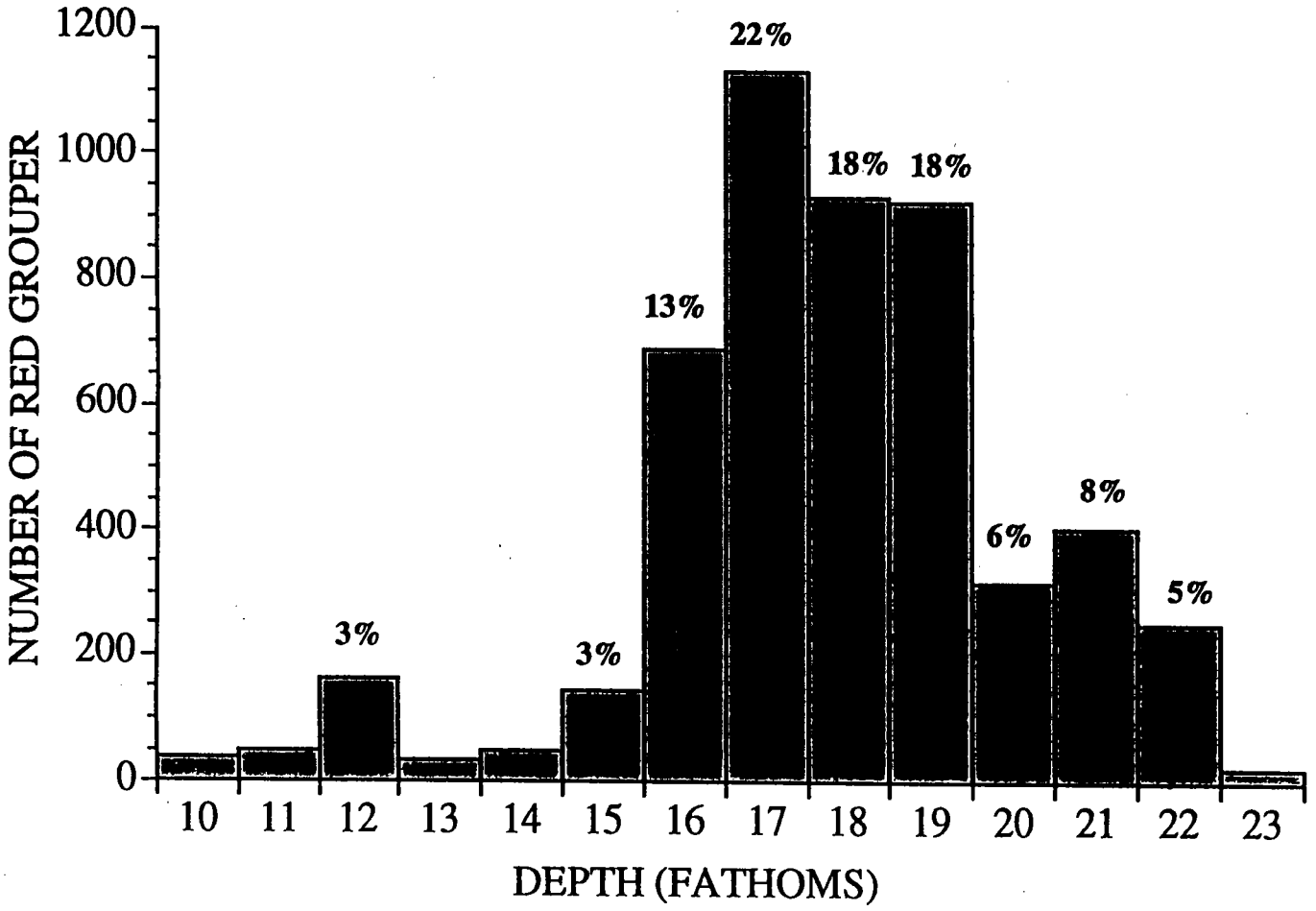


Figure 6. Catch-per-unit-effort (fish per trap hour) by depth (December 1993 - November 1994) for all species combined and red grouper.

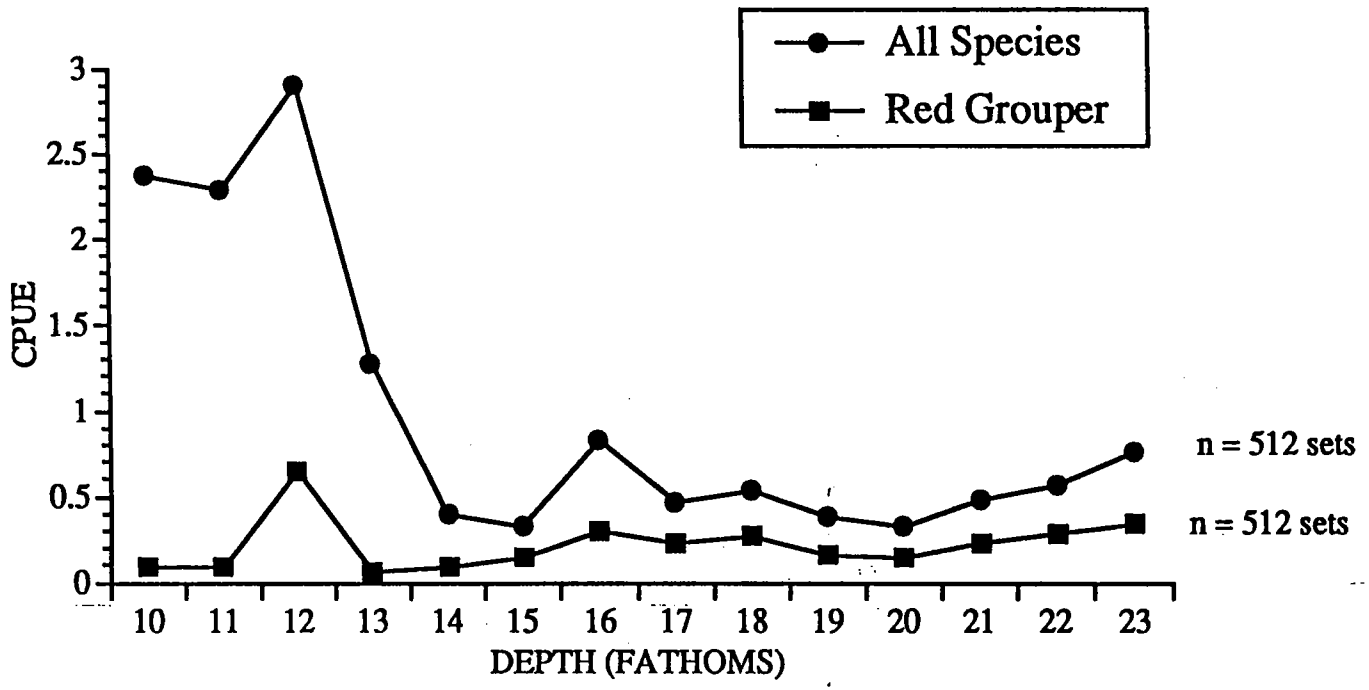


Figure 8

Reported Gulf Reef Fish Logbook Fish Trap Landings. Percent contribution of major species or higher taxa to total reported landings by fish trap gear in Statistical Areas 2-7 between December 1993 and November 1994.

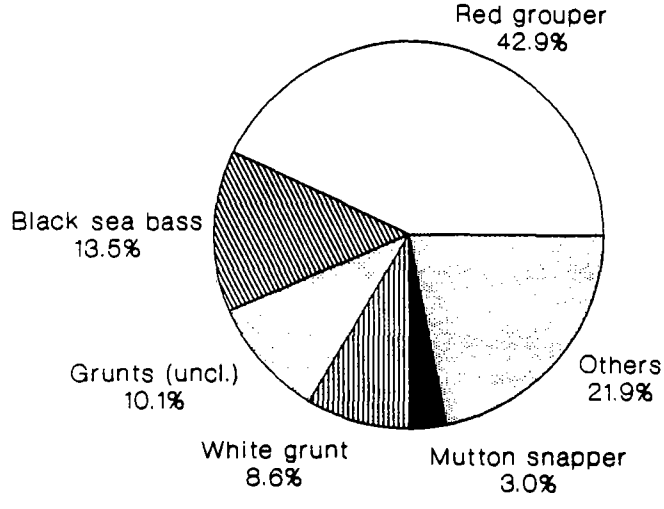


Figure 9

Reported Gulf Reef Fish Logbook Fish Trap Landings per Trip. Frequency histogram of number trips by total landings classes. Data are from Gulf Reef Fish Logbook Database for statistical areas 2-7 between December 1992 and November 1994 (Number of trips = 1,138).

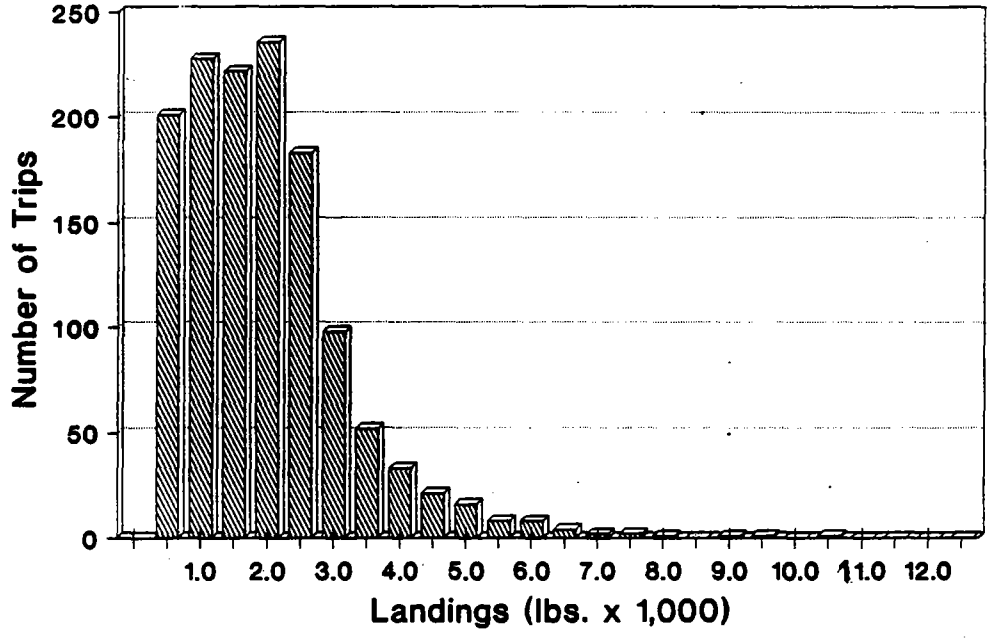


Figure 10

Reported Fish Trap Trip Seasonality. Proportion of fish trap trips completed during each season. Data are from Gulf Reef Fish Logbook Database for trips using fish trap gear in statistical areas 2-7 between December 1993 and November 1994 (N = 1,318). Seasons were categorized as follows: WINTER = December, January, and February; SPRING = March, April, and May; SUMMER = June, July, and August; FALL = September, October, and November.

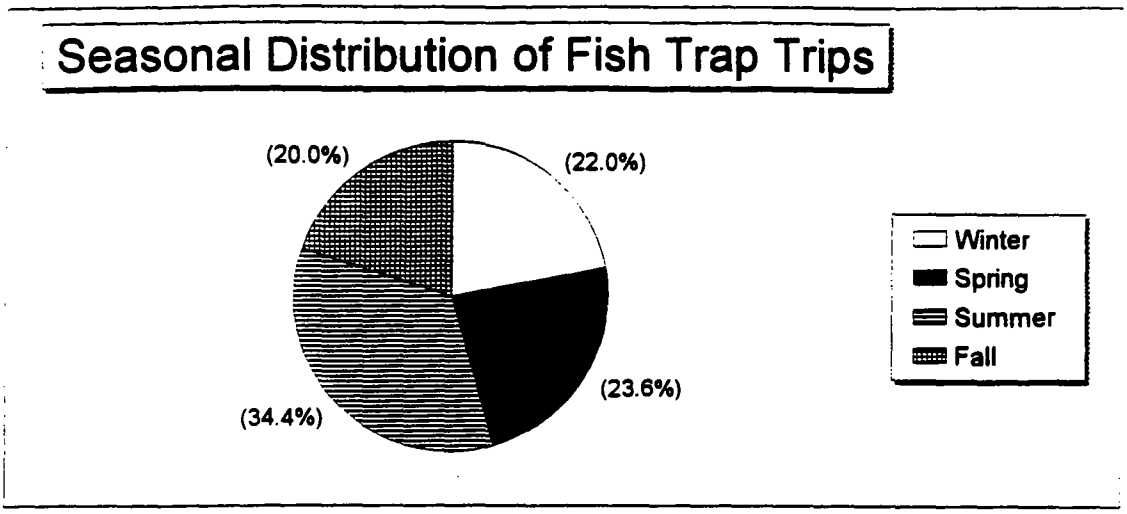


Figure 11

Reported Gulf Reef Fish Logbook Fish Trap Trip Duration. Frequency histogram of number trips by trip duration (days). Data are from Gulf Reef Fish Logbook Database for statistical areas 2-7 between December 1992 and November 1994 (Number of trips = 1,138).

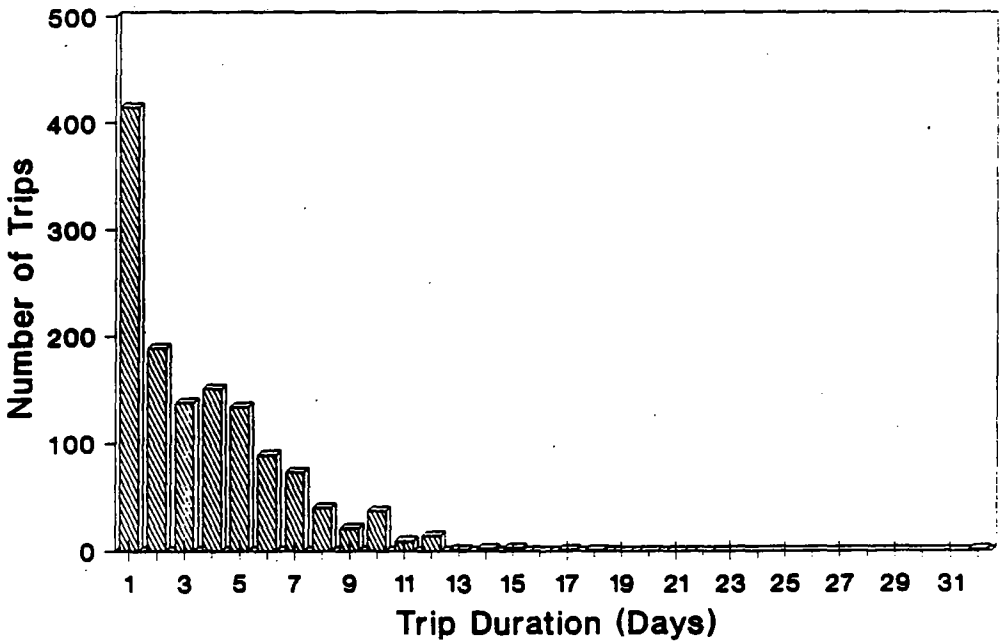


Figure 12

Reported Red Grouper Landings by Fish Trap Gear. Percent by Statistical Area of total red grouper landings by fish traps. Data are from Gulf Reef Logbook Database for Statistical Areas 2-7 between December 1993 and November 1994.

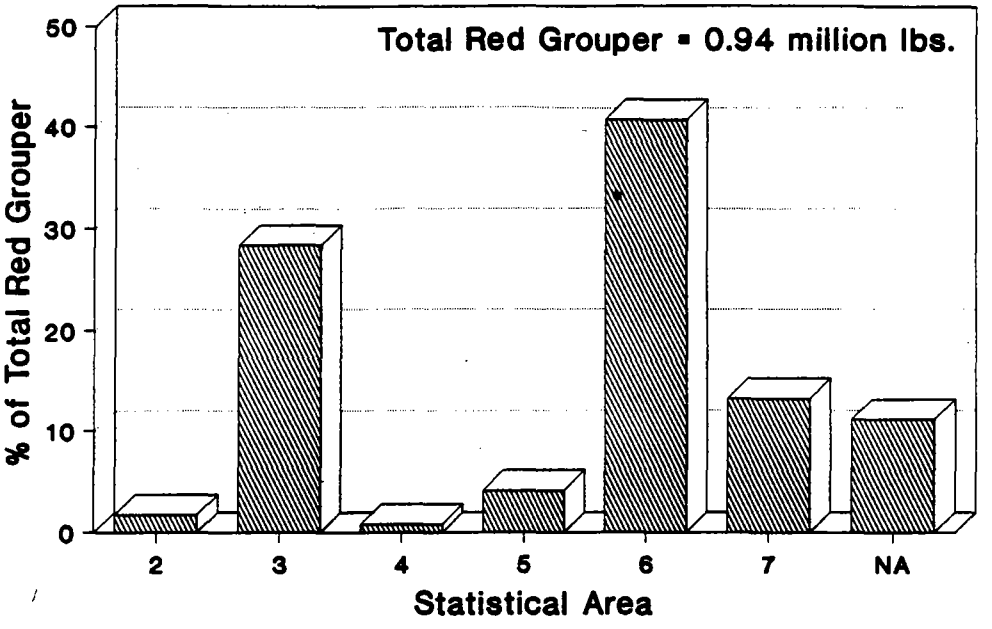
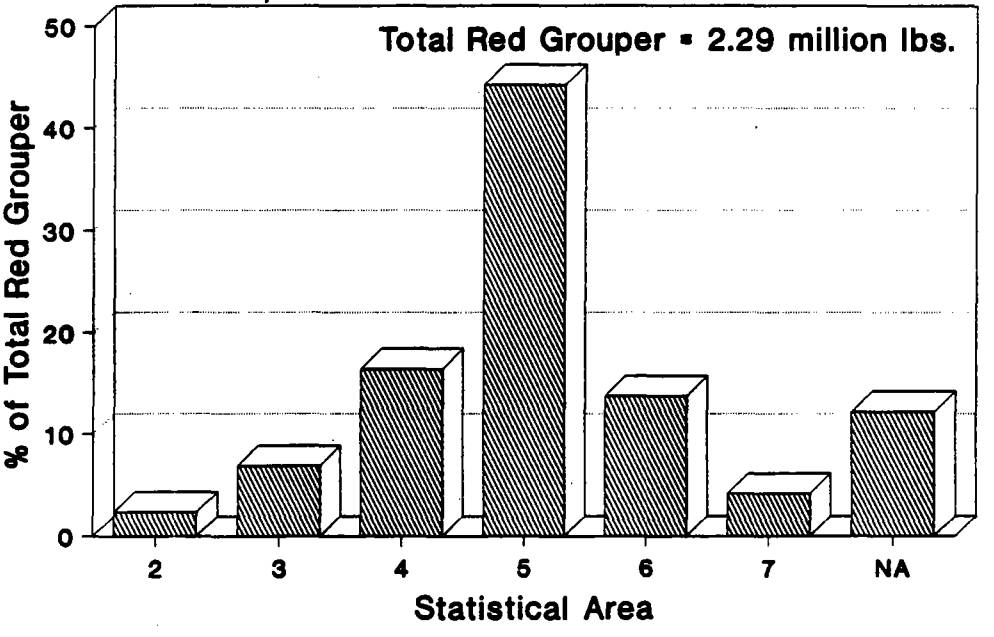


Figure 13

Reported Grouper Landings by Bottom Longline Gear. Percent by Statistical Area of total red grouper landings by bottom longline gear. Data are from Gulf Reef Logbook Database for Statistical Areas 2-7 between March 1994 and February 1995.



Attachment No. 1

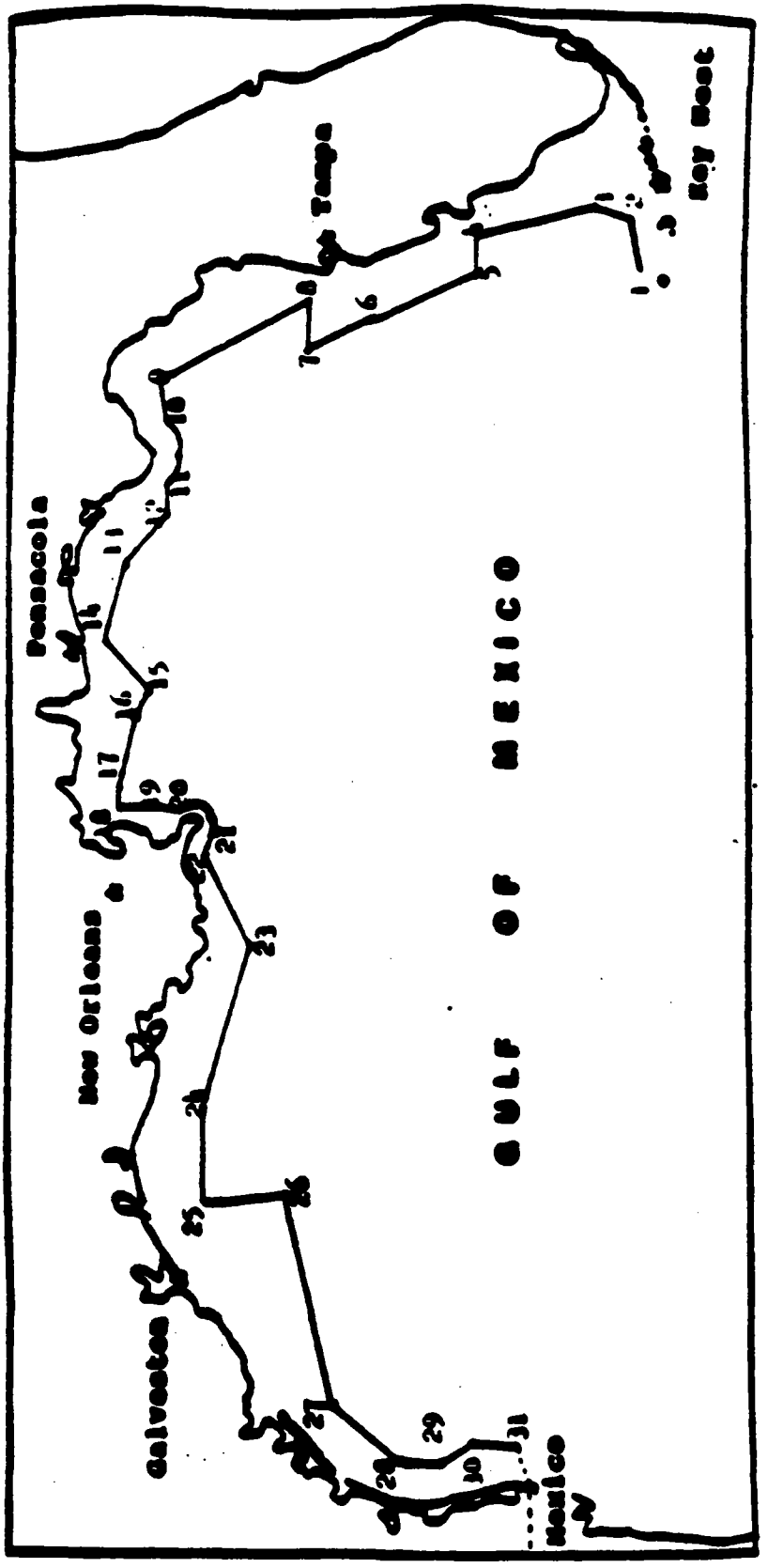


Figure 5. Seaward Limits of the Stressed Area.

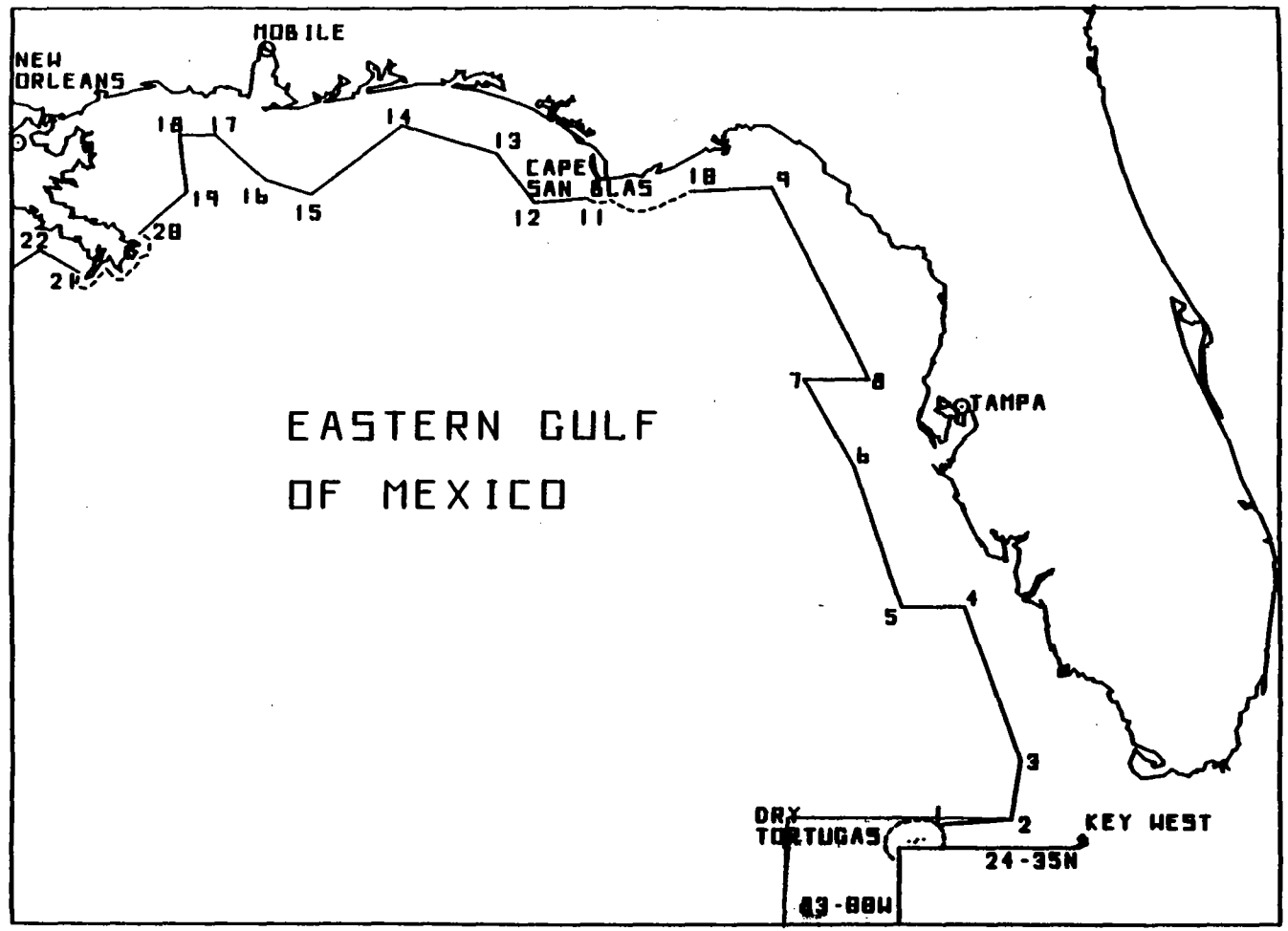


FIGURE 3. SEAWARD LIMITS OF THE STRESSED AREA - EASTERN GULF

Attachment No. 2

*Table 1. Estimated 1986-1991 mean annual harvest of reef fish species by harvesting sector (data source) from the Gulf of Mexico in decreasing magnitude of total annual harvest. The commercial estimates were derived from SEFSC Cumulative landings files. The data sources are as described in the caption for Table 1. Partially classified landings landings were redistributed into species by the within group species proportions of the total within group landings identified to species from (Table 1). Data are in pounds whole weight.

	Rank	Species	Commercial	Headboat	MRFSS & TX	Combined	Group Total
	1	red grouper	7,194,178.00	114,335.00	2,596,067.00	9,904,580.00	
	4	black grouper	1,322,296.00	37,609.00	1,717,218.00	3,077,123.00	
	7	gag	878,006.00	188,035.00	1,465,150.00	2,531,190.00	
	12	yellowedge grouper	1,043,860.00	1,337.00	99,625.00	1,144,822.00	
	16	warsaw grouper	228,649.00	15,250.00	289,766.00	533,664.00	
	18	scamp	342,628.00	18,263.00	64,264.00	425,154.00	
	20	snowy grouper	179,682.00	0.00	16,274.00	195,957.00	
	23	yellowfin grouper	133,656.00	464.00	17,951.00	152,071.00	
	25	nassau grouper	9,133.00	335.00	139,776.00	149,246.00	
	26	jewfish	80,208.00	4,732.00	54,759.00	139,699.00	
	48	rock hind	958.00	3,903.00	5,058.00	9,918.00	
Grouper	49	speckled hind	2,940.00	1,537.00	4,375.00	8,853.00	18,272,277.00
	3	red snapper	3,247,262.00	549,090.00	1,653,443.00	5,449,795.00	
	5	vermillion snapper	1,810,058.00	327,222.00	516,483.00	2,653,763.00	
	6	yellowtail snapper	1,494,583.00	254,784.00	831,440.00	2,580,807.00	
	10	gray snapper	564,410.00	132,562.00	747,758.00	1,444,730.00	
	15	mutton snapper	323,384.00	65,291.00	181,233.00	569,908.00	
	17	lane snapper	106,510.00	84,553.00	261,463.00	452,526.00	
	29	silk snapper	86,908.00	4,932.00	8,774.00	100,614.00	
	43	cubera snapper	597.00	590.00	21,167.00	22,355.00	
	44	black snapper	6,108.00	0.00	15,499.00	21,607.00	
Snapper	45	queen snapper	15,737.00	0.00	4,151.00	19,688.00	13,315,793.00
	2	greater amberjack	2,123,736.00	293,344.00	3,070,790.00	5,487,870.00	
	8	gray triggerfish	266,867.00	126,820.00	1,624,838.00	2,018,525.00	
	9	white grunt	260,588.00	450,863.00	1,203,489.00	1,914,941.00	
	11	black sea bass	180,191.00	53,243.00	970,687.00	1,204,121.00	
	13	red porgy	390,230.00	138,349.00	234,801.00	763,380.00	
	14	tilefish/gr. north	586,520.00	0.00	1,740.00	588,260.00	
	19	hogfish	66,123.00	1,098.00	228,750.00	295,971.00	
	21	sand perch	5,705.00	25,807.00	145,507.00	177,019.00	
	22	pigfish	24,009.00	5,643.00	146,782.00	176,434.00	
	24	bluestriped grunt	20,539.00	4,839.00	125,336.00	150,934.00	
	27	bank sea bass	16,739.00	29,168.00	65,954.00	111,861.00	
	28	tomtate	14,990.00	74,602.00	20,562.00	110,154.00	
	30	knobbed porgy	46,370.00	29,057.00	15,343.00	90,770.00	
	31	whitebone porgy	46,329.00	4,115.00	39,153.00	89,597.00	
	32	jolthead porgy	43,856.00	15,225.00	26,767.00	85,848.00	
	33	rock sea bass	8,271.00	9,157.00	37,845.00	55,273.00	
	34	littlehead progy	27,687.00	12,854.00	13,657.00	54,198.00	
	35	almaco jack	19,850.00	8,946.00	22,497.00	51,293.00	
	36	lesser amberjack	19,605.00	611.00	30,445.00	50,661.00	
	37	spotted/spottail	22,104.00	5,894.00	15,270.00	43,268.00	
	38	Spanish grunt	5,876.00	0.00	37,304.00	43,180.00	
	39	black margate	5,614.00	77.00	35,561.00	41,252.00	
	40	sailors choice	5,114.00	9.00	32,455.00	37,577.00	
	41	ocean triggerfish	3,385.00	874.00	21,342.00	25,600.00	
	42	margate	3,177.00	6,731.00	13,441.00	23,350.00	
	46	French grunt	2,171.00	9,066.00	4,714.00	15,950.00	
	47	queen triggerfish	1,488.00	3,420.00	6,348.00	11,256.00	
Other	50	grass porgy	4,179.00	2,883.00	1,118.00	8,180.00	13,726,723.00
TOTALS			23,293,064.00	3,117,519.00	18,904,190.00	45,314,793.00	45,314,793.00

*Table reprinted from Table 2 in Goodyear, memo to Thompson, 1993
`ource: Eklund 1993

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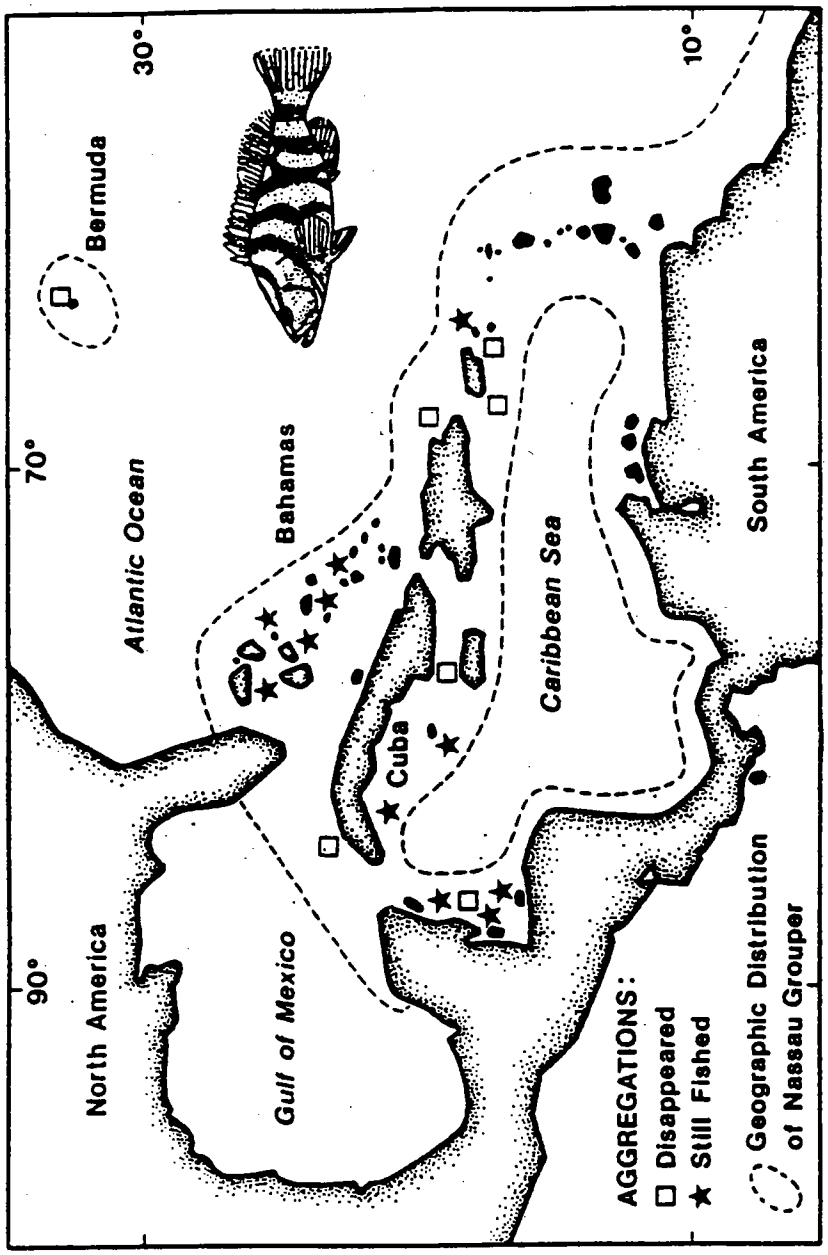


source: Eklund 1994

Table 10. Percent commercial landings of Nassau grouper by gear type for the east and west coasts of Florida, U.S.A. from 1986-1992. Nets include drift nets, gill nets and run-around nets; Handlines include electric and hydraulic reels, as well as bandit rigs. Longlines are bottom reeffish longlines. Data from NMFS accumulated landings files.

Florida - EAST Coast	1986	1987	1988	1989	1990	1991	1992
Fish Traps	0	0	0	5.81	0	1.60	0
Nets	0	0	0	0	0	1.86	0
Hand Lines	100	0	54.81	68.49	100	70.80	68.70
Longlines	0	0	45.19	0	0	0	0
Spearguns	0	0	0	25.70	0	25.75	31.30
TOTAL LANDINGS	9476	0	582	1498	3289	3072	3447

Florida - WEST Coast	1986	1987	1988	1989	1990	1991	1992
Fish Traps	13.80	0	0.56	0	4.07	4.19	1.09
Nets	0	0	0	0	0	0	0
Hand Lines	79.31	0	23.37	38.20	91.08	46.80	98.91
Longlines	0	0	76.06	61.80	4.85	49.01	0
Spear	6.89	0	0	0	0	0	0
TOTAL LANDINGS	5804	0	3722	4283	3364	2628	6065

source: Eklund 1994

Table 14. Percentage distribution by state of Nassau grouper caught in the U.S. recreational and commercial fisheries. Recreational fish caught includes those reported released alive or dead. Recreational data are from the Marine recreational fishery statistical survey, the NMFS headboat catch estimates and the Texas Parks and Wildlife estimates. Commercial data are from NMFS accumulated landings files.

Rec. Data	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
TX	0.0	0.0	0.0	0.0	0.0	1.5	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	3.2	0.0	1.9	1.5	0.3	0.0	3.1	0.0	0.0	0.0	0.0	0.0
MS	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FL-W	31.3	33.5	65.2	35.0	45.0	88.0	40.1	95.7	91.3	69.8	78.6	99.1	81.4	89.1	97.0
FL-E	68.7	66.5	34.8	61.8	55.0	8.6	58.4	4.0	8.7	27.1	21.4	0.9	18.6	10.4	2.4
GA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
SC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1
Total Number	156555	83467	100953	85075	67350	146070	108114	125947	93340	28214	46944	41359	58649	30439	83540

Commercial Landings	1986	1987	1988	1989	1990	1991	1992	1993
TEXAS	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0
LOUISIANA	0.0	0.0	1.6	0.0	46.5	0.0	0.0	0.0
FLORIDA-WEST	37.1	0.0	78.6	70.4	27.1	46.1	69.8	63.3
FLORIDA-EAST	62.1	0.0	19.8	26.3	26.5	53.9	30.2	36.7
SOUTH CAROLINA	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Landings (Pounds)	15633	0	4737	6080	12432	5700	11428	7416

source: Eklund 1994

ATTACHMENT 6

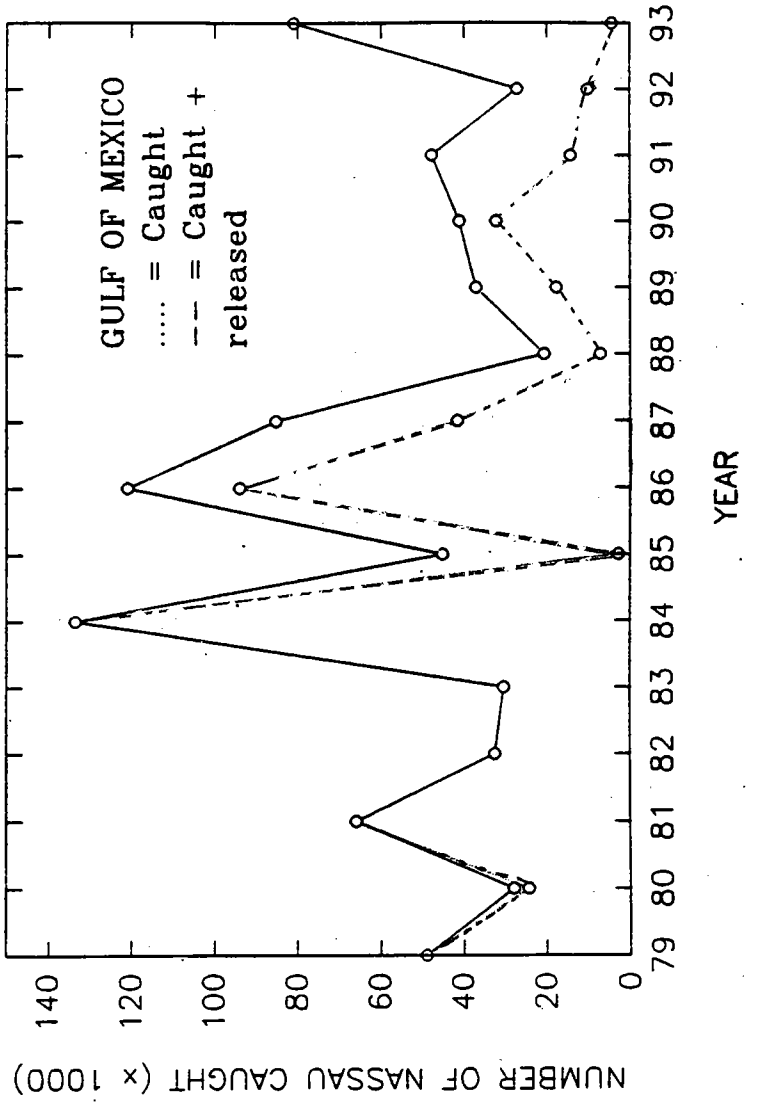
Table 16. Percent commercial landings of Nassau grouper by distance offshore for the east and west coasts of Florida, U.S.A. from 1986-1992. Distances are given in nautical miles. Data are from NMFS General Canvass and Accumulated Landings files.

Florida - EAST Coast	1986	1987	1988	1989	1990	1991	1992
< 3 nm from shore	0	0	0	33.04	9.73	33.01	30.37
3-12 nm from shore	92.55	0	74.05	17.96	8.06	14.52	14.85
12 nm from shore or greater	7.45	0	25.95	49.00	82.21	52.47	54.77
TOTAL LANDINGS	9476	0	582	1498	3289	3072	3447

Florida - WEST Coast	1986	1987	1988	1989	1990	1991	1992
< 3 nm from shore	0	0	1.96	1.28	9.84	11.57	0
3-12 nm from shore	14.21	0	1.93	6.70	31.03	9.44	4.34
12 nm from shore or greater	85.79	0	96.10	92.01	59.13	79.00	95.66
TOTAL LANDINGS	5804	0	3722	4283	3364	2628	6065

source: Eklund 1994

ATTACHMENT 7



source: Eklund 1994