

AMENDMENT 8 AND ENVIRONMENTAL ASSESSMENT

(EFFORT MANAGEMENT AMENDMENT)

TO THE

REEF FISH FISHERY MANAGEMENT PLAN

FOR THE REEF FISH RESOURCES OF

THE GULF OF MEXICO

**(Includes Regulatory Impact Review
and Initial Regulatory Flexibility Analysis)**

June 1995

**Gulf of Mexico Fishery Management Council
Lincoln Center, Suite 331
5401 West Kennedy Boulevard
Tampa, Florida 33609**

813-228-2815

Abbreviations Used in This Document

APs	Reef Fish Advisory Panel and Ad Hoc Red Snapper Advisory Panel
Council	Gulf of Mexico Fishery Management Council
CPUE	Catch Per Unit Effort
EA	Environmental Assessment
EIS	Environmental Impact Statement
EEZ	Exclusive Economic Zone
E.O.	Executive Order
FMP	Fishery Management Plan
GMFMC	Gulf of Mexico Fishery Management Council
IRFA	Initial Regulatory Flexibility Analysis
ITQ	Individual Transferable Quota
MFCMA	Magnuson Fishery Conservation and Management Act
MP	Millions of Pounds
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OY	Optimum Yield
Plan	Reef Fish FMP for the Gulf of Mexico
RD	Regional Director (NMFS Southeast Region)
RIR	Regulatory Impact Review
SAFMC	South Atlantic Fishery Management Council
SEIS	Supplemental Environmental Impact Statement
SSC	Scientific and Statistical Committee
SPR	Spawning Potential Ratio
TAC	Total Allowable Catch

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1. PUBLIC REVIEW

A total of 10 public hearings were held to obtain public comments on this plan amendment with one final hearing held during the Gulf Council meeting in Tampa, Florida on May 10, 1995. The public comment period for this amendment ended on May 5, 1995.

Public hearings were scheduled during 7:00 - 10:00 p.m. at the following locations and times:

Monday, December 5, 1994

Port Isabel Community Center
City of Port Isabel
Corner of Yturia and Maxan
Port Isabel, Texas 78578
210-943-2682

Tuesday, December 6, 1994

Visitor's Center Auditorium
University of Texas
Marine Science Institute
750 Channel View Drive
Port Aransas, Texas 78373
512-749-6730

Wednesday, December 7, 1994

Ballroom South
Holiday Inn on the Beach
5002 Seawall Boulevard
Galveston, Texas 77551
409-740-3581

Thursday, December 8, 1994

Police Jury Annex
Courthouse Square
Cameron, Louisiana 70631
318-775-5718

Wednesday, January 18, 1995*

J.W. Marriott Houston
5150 Westheimer
Houston, Texas
*(8:45 a.m. - 4:00 p.m.)

Monday, December 12, 1994

Venice Fire House
Highway 23
Venice, Louisiana 70091
504-534-7300

Tuesday, December 13, 1994

Versailles Room
Larose Regional Park
2001 East 5th Street
Larose, Louisiana 70373
504-693-7355

Wednesday, December 14, 1994

Auditorium
Gulf Coast Research Laboratory
J. L. Scott Marine Education Center
and Aquarium
115 East Beach Boulevard; U.S. Highway 90
Biloxi, Mississippi 39530
601-374-5550

Thursday, December 15, 1994

Orange Beach Community Center
27301 Canal Road
Orange Beach, Alabama 36561
205-981-6979 (City Hall)

Friday, December 16, 1994

Conference Room
Panama City Laboratory
National Marine Fisheries Service
3500 Delwood Beach Road
Panama City, Florida 32408
904-234-6541

2. LIST OF AGENCIES AND PERSONS TO BE CONSULTED

Gulf of Mexico Fishery Management Council:	Standing Scientific and Statistical Committee Reef Fish Scientific and Statistical Committee Reef Fish Advisory Panel Ad Hoc Red Snapper Advisory Panel Law Enforcement Advisory Panel Ad Hoc Allocation Advisory Panel
Coastal Zone Management Programs:	Louisiana Mississippi Alabama Florida
National Marine Fisheries Service:	Southeast Fisheries Science Center Southeast Regional Office

3. LIST OF PREPARERS

Gulf of Mexico Fishery Management Council	National Marine Fisheries Service
- Wayne Swingle, Biologist	- Richard Raulerson, Economist
- Steven Atran, Statistician/Biologist	- James Waters, Economist
- Tony Lamberte, Economist	- John Ward, Economist
Duke University	
- Michael K. Orbach, Professor of Anthropology	

4. HISTORY OF MANAGEMENT

The Reef Fish Fishery Management Plan was implemented in November 1984. The implementing regulations 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 exception that for-hire boats were exempted until 1987 and each angler could keep five undersize fish; and, (3) data reporting requirements.

The National Marine Fisheries Service (NMFS) has collected annual commercial landings data since the early 1950s, 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). The 1988 assessment also identified shrimp trawl bycatch as a significant source of juvenile red snapper mortality.

In November 1989, NMFS announced a control date, stating that anyone entering the commercial reef fish fishery in the Gulf of Mexico and South Atlantic after November 7, 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.

Amendment 1 to the Reef Fish Fishery Management Plan, implemented in January, 1990, set a 7 fish recreational bag limit and a 3.1 million pound commercial quota for red snapper that together were to reduce fishing mortality by 20 percent and begin rebuilding the population toward the target SPR. However, analyses available to the Council during development of Amendment 1 indicated that additional red snapper harvest

restrictions would be necessary in the future to rebuild to 20 percent SPR by the target year of 2000. Amendment 1 also established a 5 fish recreational bag limit and 11.0 million pound commercial quota for groupers, with the commercial quota subdivided into a 9.2 million pound shallow-water quota and a 1.8 million pound deep-water quota. This amendment also implemented a framework procedure to allow for annual management changes.

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

Amendment 3, implemented in July 1991, provided additional flexibility in the annual framework procedure by allowing the target date for rebuilding an overfished stock to be changed depending on changes in scientific advice, except that the rebuilding period cannot exceed 1.5 times the generation time of the species under consideration. The amendment also transferred speckled hind from the shallow-water grouper quota category to the deep-water grouper quota category and established a new red snapper target year of 2007 for achieving the 20 percent SPR goal established in Amendment 1.

A 1991 Regulatory Amendment set the red snapper TAC at 4.0 million pounds to be allocated with a commercial quota of 2.04 million pounds and a 7 fish recreational daily bag limit (1.96 million pounds) beginning in 1991. This amendment also contained an intent by the Council to effect a 50 percent reduction of red snapper bycatch in 1994 by the offshore EEZ shrimp trawler fleet, to occur through the mandatory use of finfish excluder devices on shrimp trawls, reductions in fishing effort, area or season closures of the shrimp fishery, or a combination of these actions. This combination of measures was projected to achieve a 20 percent SPR by the year 2007. The 2.04 million pound red snapper quota was reached on August 24, 1991, and the fishery was closed to further commercial harvest in the EEZ for the remainder of the year. In 1992, the commercial red snapper quota remained at 2.04 million pounds. However, extremely heavy harvest rates resulted in the quota being filled in just 53 days, and the commercial fishery was closed on February 22, 1992.

An emergency rule, implemented in 1992 by NMFS at the request of the Council, reopened the red snapper commercial fishery from April 3, 1992 through May 14, 1992 with a 1,000 pound trip limit. This rule was implemented to alleviate economic and social upheavals that occurred as a result of the 1992 red snapper commercial quota being rapidly filled. Although this emergency rule resulted in a quota overrun of approximately 600,000 pounds, analysis by NMFS biologists determined that this one time overrun would not prevent the red snapper stock from attaining its target SPR in the prescribed period.

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 individual who is the income qualifier 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 to allow more time for preparation of stock assessments and included additional species in the reef fish management unit.

Amendment 5, implemented in January 1994, established additional restrictions on the use of fish traps in the Gulf of Mexico EEZ, created a non-transferable (but see amendment 7) fish trap endorsement and set a three year moratorium for new entrants to the fish trap fishery, created a special management zone (SMZ) where gear was restricted, provided a framework for establishing SMZs, required that all finfish except for oceanic migratory species and bait be landed with head and fins attached, raised the red snapper minimum size limit to 14 inches in 1994 and then gradually to 16 inches over a period of five years and prohibited all fishing on a mutton snapper aggregation during May and June of each year.

The 1993 red snapper TAC was set by a Regulatory Amendment at 6.0 million pounds, to be allocated with a commercial quota of 3.06 million pounds and a recreational allocation of 2.94 million pounds (to be implemented by a 7 fish recreational daily bag limit). The amendment also changed the target year to achieve a 20 percent SPR from 2007 to 2009, based on the framework provision that the rebuilding period may be for a time span not

exceeding 1.5 times the potential generation time of the stock and an estimated red snapper generation time of 13 years (Goodyear 1992b).

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, permitted vessels with red snapper endorsements were allowed a 2,000 pound possession limit of red snapper, and permitted vessels without the endorsement were allowed 200 pounds of red snapper. The emergency rule permitted transfer of the red snapper endorsement to another vessel owned by the income qualifier but not to another individual. Furthermore, all federal reef fish vessel permit holders were required to agree to abide by the red snapper trip limits regardless of where the fish are caught. 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, extends the provisions of the emergency rule for the remainder of 1993 and 1994, unless replaced sooner by a comprehensive effort limitation program. In addition, it allows the trip limits for endorsed and non-endorsed permitted vessels to be changed under the framework procedure for specification of TAC.

Amendment 7, implemented in February 1994, established a federal reef fish dealer permit, allowed transferability of fish trap endorsements and permits between immediate family members, and allowed the temporary or permanent transfer of any reef fish permit or endorsement to any person upon death or disability of the permit/endorsement holder.

A proposed Regulatory Amendment to move the reef fish longline/buoy gear boundary shoreward from the 20 fathom depth contour to the 15 fathom contour off the southwest and panhandle coasts of Florida for a one year experimental period, during which studies are to be conducted into the impact of longlines on the fishery and habitat was withdrawn by the Council.

Amendment 9 established measures to collect red snapper landings information from vessel permittees and historical red snapper captains for the years 1990-1992 to establish their eligibility under limited access systems, to extend the vessel permit moratorium and to extend the red snapper endorsement system through 1995.

In March, 1994 the Council requested NMFS implement an emergency rule that would make reef fish vessels with logbook records of landings of reef fish from traps during the period of November 19, 1992 through February 7, 1994 eligible for the fish trap endorsement to the reef fish vessel permits. The proposed rule would also allow persons issued fish trap tags by NMFS during that period, who either did not fish but invested in the fishery or had an incapacitating illness, to be considered by the RD on recommendation by an appeals board for eligibility for the fish trap endorsement.

In May, 1994 the Council withdrew proposed Amendment 10 which would have extended the provisions of the emergency rule for the duration of the three-year moratorium on issuance of fish trap endorsements established by Amendment 5. The Secretary subsequently disapproved the proposed emergency rule.

5. PURPOSE AND NEED FOR ACTION

5.1 Current Status of the Commercial Red Snapper Fishery

The effort capacity for the commercial red snapper fishery is excessively high given current quota levels, as evidenced by the 1992 2.04 million pound quota being filled in just 53 days. The interim red snapper endorsement regulations provided in Amendment 6, in combination with a quota increase to 3.06 million pounds, while providing some benefits, did not prevent a derby fishery from developing and resulted in the 1993 red snapper season lasting 95 days. Under the same quota, the 1994 season lasted for 77 days and the 1995 season only 50 days. Some fishermen indicated that 1993 and 1994 were acceptable seasons. Others felt that the season length and depressed red snapper prices due to the market glut were not acceptable, and that the derby effect created unsafe conditions by forcing them to fish in bad weather. The red snapper endorsement provisions of Amendments 6 and 9 will expire after 1995 and the management plan will revert back to an open access and framework procedure system unless a long term effort management system is implemented through a plan amendment.

The reef fish permit moratorium was implemented in May 1992 for a period of not more than three years so that stability in the reef fish fishery could be maintained while the Council considers implementation of limited access programs. This was extended by Amendment 9 through December 31, 1995, while the Council is considering future effort management programs for red snapper. Fishermen displaced from the red snapper fishery may choose to target other reef fish species. In addition, shark longliners who converted from snapper-grouper fishing and are seasonally displaced by closures due to quotas implemented by the Secretarial FMP for sharks (NMFS 1992) may switch to reef fish fisheries (However, although the EIS to the shark FMP states that diversion of shark fishermen to other species is not expected, the semiannual quota for large coastal sharks was harvested within 30 days in July, 1993, requiring these fishermen to target other species until January, 1994). Fishermen who anticipate a future limited access program for other reef fish fisheries may attempt to maximize their harvest of reef fish in order to establish a high level of historical participation. This increase in effort on alternative reef fish species could create or intensify problems with these resources. In order to maintain stability in the reef fish fishery while the Council considers the future direction of management of these resources, an extension of the moratorium beyond the December 31, 1995 expiration may be needed. Such an extension is permissible because permits are transferable.

5.2 Development of the Red Snapper Effort Management System

A control date for future entry into the reef fish fishery was announced in November, 1989. This notice applied to all reef fish, not just red snapper. Its purpose 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.

In March 1992, the Council decided to contract with a sociologist/anthropologist to conduct a series of workshops and look at limited entry for red snapper in as rapid a fashion as possible. This action was taken in response to the derby fishery that developed when the commercial red snapper fishery reopened on January 1, 1992. It became apparent that substantial changes needed to be made in the management of the red snapper fishery in order to restore stability to the fishery while maintaining the stock recovery program.

In June 1992, at the Council's request, Dr. Michael Orbach, a social anthropologist from East Carolina University, moderated the first of three series of workshops with fishermen on effort management. Ten workshops were held in locations from Port Isabel, Texas to Madeira Beach, Florida. The purpose of the first series of workshops was to discuss with fishermen the problems and issues in the red snapper fishery, and to discuss the different forms of effort management and how they have been used in other fisheries.

In August 1992, Dr. Orbach moderated a second series of ten workshops at the same (or nearby) locations as the first series. The objectives of the second series of workshops were to summarize the results of the first series and to evaluate fishermen's perceptions on the impact of various open and limited access alternatives with

respect to fishermen's flexibility, biological, economic and social impacts, enforceability and administrative impacts. The results of these workshops are summarized in Table 1.

In December 1992, Dr. Orbach moderated the third series of eight effort management workshops. This series of workshops was held in conjunction with public hearings for Amendment 6, which extended through 1994 the interim regulations created by emergency action for a red snapper endorsement and trip limits. The purpose of this series of workshops was to present the results of the first two workshop series and to develop options to present to the Council for red snapper effort management.

In January 1993, the Council reviewed a series of issues and options papers for red snapper effort management. By a vote of 11 to 6, the Council decided to fully develop the ITQ option for effort management, and to also include other options for presentation at the next Council meeting, at which time a preferred option would be selected. The Council also selected preferred options for implementation of an ITQ system, if this option were to be selected as the preferred alternative.

In March 1993, the Council reviewed the first draft of Reef Fish Amendment 7. This draft Amendment contained limited and open access options for red snapper management, plus the preferred and alternative options for implementation of an ITQ system and the alternatives for implementation of a license limitation system. It also contained options for extending the reef fish permit moratorium beyond May 1995. Additional ITQ implementation options were developed and, by a vote of 10 to 6, the Council made ITQ the preferred general management option. The Council also added unrelated options to Amendment 7 concerning family transferability of fish trap permit and general reef fish enforceability options.

In March 1993, the Council's Law Enforcement Advisory Panel reviewed the first draft of Amendment 7, along with the Council's preferred options and additions to the amendment. The AP had no comment on the amendment's effort management provisions at this time, but asked that it be allowed to meet again to discuss enforceability issues before final action is taken.

In April 1993, the Council's Reef Fish and Standing Scientific and Statistical Committee reviewed the public hearing draft of Amendment 7. They recommended that, given a lack of a feasibility study on the economic and social aspects of instituting an ITQ system, no action be taken until a feasibility study, or studies, is done specifically addressing the Magnuson Act considerations (16 U.S.C. 1853, Section 303).

In April 1993, the Council's Reef Fish Advisory Panel also reviewed the public hearing draft of Amendment 7. The AP recommended that implementation of a red snapper effort management system be deferred until industry has had a chance to work on developing a business plan, and Council and industry has had a chance to look at all the ramifications of an ITQ system.

In May 1993, the Council reviewed the public hearing draft of Amendment 7, and decided to proceed to public hearings.

During June 7-18, 1993, a series of twelve public hearings for Amendment 7 were held in locations from Port Isabel, Texas to Panama City, Florida.

During June 29-30, 1993, an Ad Hoc Red Snapper Advisory Panel, made up of individuals from each of the Gulf states who would be impacted by the provisions of Amendment 7, met to review the amendment. This panel was split on its opinions regarding effort management, and it neither endorsed nor opposed ITQs. A motion to endorse ITQs as the preferred option failed by a vote of 6 to 6. The Ad Hoc AP also requested an opportunity to meet again to review the amendment before final action is taken.

In July 1993, the Council decided to split Draft Amendment 7 into two amendments. The resulting Amendment 7 consisted of proposals other than those dealing with red snapper effort management and the reef fish permit moratorium. A new Amendment 8 (this document) would deal solely with red snapper effort management and an extension of the reef fish permit moratorium. In addition, the effort management provisions were to be reorganized and simplified to address just three general effort management options; the current management

system as it was prior to the creation of red snapper endorsements, a permanent license limitation system based on the red snapper endorsement system, and an ITQ system.

In September 1993, the Council decided to adopt a slow track schedule for implementation of red snapper effort management, which will delay implementation of a red snapper effort management system until 1996. This decision was made in order to allow more time to gather information and hold workshops. The Council also decided to request that the Regional director convene an Ad Hoc Allocation Advisory Panel to discuss allocation issues, consisting of vessel owners who are not operators, owner/operators, and operators who are not owners.

In October 1993, the Law Enforcement Advisory Panel reviewed the Draft Reef Fish Amendment 8 and the Ad Hoc Allocation Advisory Panel addressed the issue of participation by historical captains.

In November 1993, the Council's Reef Fish Advisory panel (AP) and Scientific Statistical Committee (SSC) reviewed Draft Reef Fish Amendment 8.

In November 1993, the Council reviewed and revised Draft Reef Fish Amendment 8, and industry workshops, public hearings and AP/SSC reviews in 1994. They also instructed staff to prepare draft Amendment 9 which would collect landings information for red snapper for 1990 - 1992 in order to advise the fishermen what their ITQ share might be. This information would also be used by the Council for allocations, if draft Amendment 8 is implemented.

The Council held public hearings on Amendment 9 in January and February, 1994 and approved it in March, 1994.

In May, 1994 the Council reviewed staff revisions to draft Amendment 8, cancelled additional workshops on the amendment and scheduled a review of the amendment by the Ad Hoc Red Snapper AP.

In August, 1994 the Ad Hoc Red Snapper AP reviewed draft Amendment 8, recommended changes, and selected preferred alternatives for portions of the sections for implementing ITQ and license limitation systems.

During November-December of 1994 the SSC, Ad Hoc Red Snapper AP and Reef Fish AP reviewed and commented on the text and management measures of the amendment. Nine public hearings were held in December 1994. In January 1995 the Council heard public testimony and took action to select a license limitation system as their preferred alternative. The revised management measures section was mailed to holders of reef fish vessel permits to solicit their comment on the license limitation system provisions. Final action on the amendment was taken at the May 8-12, 1995 meeting when the ITQ system was selected as the preferred alternative.

6. PROBLEMS REQUIRING A PLAN AMENDMENT

The following specific problems exist with regard to meeting the management objectives for red snapper (Section 8). Most, but not all, of these problems are related to the situation whereby the present quota management system creates a derby fishery.

- The harvest capability of the current red snapper fleet is larger than necessary to produce the commercial quota in an economically efficient manner.
- The derby fishery compromises vessel safety by encouraging fishermen to begin or continue trips under adverse weather conditions.
- Total revenue derived from current landings is not reaching the highest level possible because the quota system creates a derby which tends to depress the average price paid to the fishermen. Lower price may benefit consumers.
- A derby fishery tends to reduce producer surplus that would otherwise be available from the fishery and has an unknown but limited effect on consumer surplus derived from the fishery.
- The current management system contains a number of regulations which in aggregate lead to high administration costs, difficulties in enforcement and compliance, inefficient production of available quota, frustration on the part of fishery participants and difficulties in collecting timely data needed to track and manage the fishery.
- The red snapper stock rebuilding program could be impacted by possible quota overruns associated with the derby fishery, and discard mortality during extended closed periods.
- User conflicts are being exacerbated by differential trip limits under the endorsement system and by the short red snapper quota seasons, which favor those fishermen who are closer to the resource, or have vessels that can operate in inclement weather.
- Net economic benefits are being eroded due to the market glut from the derby fishery and the inability of the industry to provide a red snapper product year round.
- The red snapper endorsement system will terminate in 1995 and cannot be extended because it is a system closed to new entrants. Unless replaced by ITQ or license limitation system, management will revert to open access with equal trip limits for each vessel with harvest allowed until the commercial quota is reached. This will exacerbate the derby fishery.

7. PROPOSED ACTIONS

Alternatives in this amendment include those that propose to establish a comprehensive effort management program for the red snapper fishery to replace the interim regulations implemented through Amendment 6 and extended by Amendment 9. This effort management program could be a limited access system, such as an individual transferable quota (ITQ) or license limitation system, or it could be an open access system with additional effort controls beyond those currently allowed in the FMP's framework procedure for setting TAC. Section 9 (General Effort Management Alternatives) presents general alternatives for both limited and non-limited access effort management. If a limited access system is selected as the preferred alternative, subsequent sections present detailed alternatives for initial allocation of privileges, subsequent transfers, administration and monitoring.

Under limited access alternatives, fishermen would receive specific privileges to participate in the red snapper fishery based on an initial allocation scheme. A fisherman who desires to subsequently enter or increase his participation in the fishery could do so only in conjunction with another fisherman who decreases his participation or leaves the fishery. Thus, allocation of the commercial quota among users would be self-adjusting and ideally

would be independent of measures to achieve or maintain the biological goals of the FMP. Controversial aspects of limited access systems include:

- a. Real or perceived inequities in the initial allocation of fishing privileges;
- b. Appropriateness of assigning ownership privileges in what has historically been an open access industry.

Under open access systems, there are no limits on the number of fishermen in the fishery or the amount of fish any fisherman can harvest in a season. Allocation between commercial fishermen and total annual harvest are treated as a single combined issue and are controlled by limits on short term effort or vessel trip limits to spread out the harvest. Controversial aspects of open access systems include:

- a. Real or perceived inequities from effort or harvest limits compared to historical levels of participation by individual fishermen.
- b. Effectiveness and enforceability.
- c. Economic inefficiency.

For additional discussion on effort management programs, refer to sections 9 and 14.

In considering these alternatives, the Council needs to balance the desirability of maintaining stability in the reef fish fishery while considering future actions against the loss of opportunity to fishermen and the relative health of the biological resources affected by this action.

8. MANAGEMENT OBJECTIVES OF THE FMP

The overall goal of the original management plan was:

To manage the reef fish fishery of the United States within the waters of the Gulf of Mexico Fishery Management Council jurisdiction to attain the greatest overall benefit to the nation with particular reference to food production and recreational opportunities on the basis of the maximum sustainable yield as modified by relevant ecological, economic or social factors.

This amendment has specific objectives which, if met, would help resolve problems generally associated with open access fisheries:

1. To increase the stability of the red snapper fishery in terms of
 - fishing patterns
 - markets
2. To avoid to the extent practicable the "derby" type fishing season.
3. To promote flexibility for the fishermen in their fishing operations
4. To provide for cost-effective and enforceable management of the fishery
5. To optimize net benefits from the fishery

Section 13 of the amendment (Regulatory Impact Review) contains a complete set of the original FMP objectives plus additional objectives supporting other FMP amendments.

9. GENERAL EFFORT MANAGEMENT ALTERNATIVES

In the development of this amendment and its previous draft (Draft Amendment 7 - April 1993) the Council considered whether limited access should also apply to the recreational sector [see minutes of Ad Hoc Limited Access Committee (1989-1991)]. They concluded that such management was not needed for the recreational sector at this time and that it was more appropriate for the commercial sector. That approach was possible because each sector was granted a separate allocation and was being managed separately. The commercial sector was highly overcapitalized in terms of vessels and participants (see SEIS on fishery in Amendment 5). The number of vessels targeting reef fish had increased four-fold since 1975. The restrictive quota placed on red snapper to restore that stock made the problem worse by resulting in a derby fishery (see problems cited in Section 6). The recreational sector was managed through bag and size limits, the effect of which was to make the harvesting privilege progressively more difficult and inefficient for each individual as the number of participants increased. The purpose of this was to spread out recreational landings over the fishing year under the recreational allocation. Whereas the Council's objective in managing the commercial sector has been to allow commercial harvest to be carried out as efficiently as possible and to close the season to fishing when the commercial quota is taken. A previous draft of the RIR (May 1993) discussed limiting effort in the recreational fishery.

This section sets forth three basic alternatives for effort management for the commercial red snapper fishery. These alternatives, along with various ways of implementing them, were discussed in the effort management workshops, and their general impacts with respect to the objectives for effort management set out above are presented and summarized in Table 1. The basic alternatives are:

Alternative 1: No Action - Management under open access and the quota system (See Section 9.1)

Alternative 2: License Limitation (See Section 9.2)

Alternative 3: Individual Transferable Quotas (ITQ) (See Section 9.3)

License limitation and ITQ are access limitation alternatives. Detailed alternatives for implementing each of these general management systems appear in subsequent sections of this amendment. These alternatives would replace or modify the interim red snapper endorsement/trip limit regulations implemented in Amendment 6 and extended by Amendment 9. Other current provisions in the Reef Fish FMP, including the 50% income dependence requirement to obtain or renew a reef fish permit would not be removed and would remain in place for any of the effort management alternatives discussed in Table 1.

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.

Table 1



WORKSHOP PARTICIPANTS PERCEPTIONS OF THE IMPACTS OF EFFORT MANAGEMENT ALTERNATIVES

Alternative	Focus Benefits	Extend Season	Promote Flexibility	Ease of Enforcement, Administration
Licenses to all current permit holders	LOW	LOW	MEDIUM	LOW/MED.
Licenses to permittees with red snapper landings	MEDIUM	LOW	LOW/MED.	MEDIUM
Licenses to threshold qualifiers	HIGH	LOW	LOW	HIGH
ITQ to all current permit holders	LOW	HIGH	MEDIUM	LOW/MED.
ITQ to permittees with red snapper landings	MEDIUM	HIGH	MEDIUM	MEDIUM
ITQ to threshold qualifiers	HIGH	HIGH	MEDIUM	MEDIUM
License and ITQ to current permit holders	LOW	HIGH	MEDIUM	LOW
License and ITQ to permittees with red snapper landings	MEDIUM	HIGH	LOW/MED.	MEDIUM
License and ITQ to threshold qualifiers	HIGH	HIGH	LOW	HIGH/MED.
Ten days per vessel per month	LOW	LOW	MEDIUM	LOW
Two trips per vessel per month	LOW	LOW	MEDIUM	MEDIUM
1,000 trip limit and two-week openings	LOW	MEDIUM	LOW	MEDIUM



In section 14, the above elements are explicitly reviewed for each of the general categories of effort management alternatives which constitute a limited access system (license limitation and ITQ), and are incorporated where applicable into the socioeconomic discussions of alternatives for specific implementation of effort management programs. The sections (13 and 14) discussing the above elements and the "Socioeconomic Impacts" statements under each of the management alternatives comprise the bulk of the RIR. The problems and objectives are described in previous sections of the amendment document as a part of the RIR by reference.

9.1 Alternative 1: No Action - Management Under Open Access and the Quota System

Discussion: The red snapper endorsement system currently will expire after 1995. If no action is taken to implement a subsequent effort management system, red snapper management will return to an open access system regulated through the TAC and framework measures for achieving TAC. Aspects of this alternative are:

- No red snapper endorsement. All federally permitted reef fish vessels will be treated equally.
- No reef fish permit moratorium after the moratorium expires. (The moratorium could be extended in a subsequent amendment.)
- Applicants for a reef fish permit must meet the 50 percent earned income requirement prior to being issued a permit after the moratorium expires. The one year grace period allowed to qualify for earned income when a permit is transferred during the moratorium will no longer exist.
- The same trip limit level will apply to all vessels.

An increase in red snapper abundance and size distribution resulting from the recovery program, combined with an expectation that quota closures will occur, are likely to result in a continuation of the derby fishing that occurred in 1992, 1993 and 1994. If restoration is successful in increasing red snapper abundance the season under the derby fishery will likely become shorter each year. The framework measures for achieving TAC provide a number of regulatory tools for extending the season and spreading out the harvest among fishermen. None of these tools limit who may participate in the fishery or how much each individual fisherman may harvest during the season. These include:

- (a) bag limits
- (b) size limits
- (c) vessel trip limits
- (d) closed seasons
- (e) closed areas
- (f) gear restrictions
- (g) quotas

Impacts: Impacts are discussed under the RIR (Section 13) and Environmental Consequences (Section 14).

9.2 Alternative 2: License Limitation System

Discussion: This would involve issuing licenses to land red snapper for sale, similar to the endorsement in the 1993 emergency regulation and reef fish Amendment 6. If you had a license, you could land red snapper in excess of the recreational bag limit; if you did not have a license, you could not, unless a specified bycatch allowance similar to the 1993 "200 pound" trip limit category was provided. After the initial issuance, these licenses would be the property of the individual, probably subject to an annual administrative fee, until that individual decided to sell or give the license away (if allowed by the plan), or failed to renew the license.

The main difference between a permanent license limitation system and the emergency action/Amendment 6 endorsement system, besides the permanency, is that under a permanent license limitation system there would most likely be some provision for individuals to enter or leave the fishery. This would allow fishermen to move in and out of the fishery according to the needs of their fishing operation.

The principal characteristic of license limitation is that it strictly limits the number of fishing units in the fishery, and focuses the benefits of the fishery on those individuals holding licenses. It limits the ability of individuals to move in and out of the fishery, in part because of the limited number of licenses and in part because the costs of licenses might be fairly high. As a general rule, licenses might cost the equivalent of between one and two years' gross revenue from the fishery. So, if a fisherman landed 10,000 pounds of red snapper each year and sold it for \$2.50 per pound, his gross revenue would be \$25,000. The license for his fishing operation under a license limitation system, then, would probably sell for between \$25,000 and \$50,000, depending on market forces. Regardless of any future value of the licenses, only an administrative fee would be required from individuals who qualify for the initial allocation (see Appendix A discussion of economic rent and windfall profit).

For license limitation to be effective without any other measures, such as trip limits, the number of vessels would need to be reduced to a point where the quota could no longer be filled before the end of the year. Under the current 3.06 million pound quota and catch rates reported in 1993 logbook records, this would require that licenses be issued to no more than the top 21 vessels¹. (This is provided for information only. It is not included as an alternative since it would restrict access to the fishery to a very small group of license holders.) Section 10 contains a range of implementation alternatives for license limitation combined with trip limits. The alternatives considered by the Council for public hearings are summarized below, arranged in order from most restrictive to least restrictive. **(See Section 10 for alternatives).**

- (a) Issue licenses to all those who are current red snapper endorsees (131 endorsements). Trip limits and other framework measures for red snapper license holders would be set through the framework procedure for setting TAC. No commercial harvest of red snapper would be allowed without a red snapper license.
- (b) Issue licenses to all those who are current red snapper endorsees (131 endorsements). Permitted reef fish vessels without a red snapper endorsement could be allowed a small bycatch allowance. Trip limits and other framework measures for both red snapper license holders and permitted reef fish vessels without a red snapper license would be set through the framework procedure for setting TAC.
- (c) Issue licenses for those permitted reef fish vessels where the vessel (or its predecessor operating under the same permit, if the permit was transferred) had landings of at least 1,000 pounds of red snapper in one of the three years 1990-1992. [at least 408 will qualify with logbook records (Figure 1, Section 14), others will qualify with Florida trip tickets or fish house receipts]. Trip limits and other framework measures for red snapper license holders would be set through the framework procedure for setting TAC, and a small possession and daily vessel landing limit of 50 pounds of red snapper would be allowed as a bycatch allowance for permitted reef fish vessels without a red snapper license.

Note: If landing records are used as a basis for determining eligibility under a license limitation system only landings in the years 1990 through 1992 would be used. The preferred alternatives under Section 10.8 shall govern transfer of such records related to eligibility.

The important things to remember about license limitation are:

- 1) License limitation may consolidate the majority of the benefits of the commercial fishery for a restricted number of license holders;

¹ To spread a 3.06 million pound quota over 365 days, the daily red snapper landings would need to average 8,384 pounds per day. The total landings for the top 21 vessels in the logbook system during the 95 day 1993 season averaged 8,369 pounds per day, or 3.055 million pounds in 365 days. However, upon restoration of the stock, the quota should increase by three or four fold.

- 2) the ability to enter the fishery would remain, but only through buying out an existing operator (East Coast Prawn Trawl Task Force 1984) **or by leasing a license;**
- 3) **license limitation itself may not significantly affect the "derby" problem without additional measures such as trip limits or closed seasons or by significant reduction of existing participants;**
- 4) the cost of licenses after the initial allocation would be fairly high; and
- 5) unless the licenses were divided into different categories according to vessel size, landing amount or some other factor, the licenses may in the long run accrue to larger vessel operators who could land more fish annually with the license.
- 6) **License limitation will not solve many of the problems cited in Section 6 or achieve all of the objectives cited in Section 8.**

Impacts: Impacts are discussed under the RIR (Section 13) and Environmental Consequences (Section 14).

In January 1995 the Council tentatively selected license limitation as its preferred alternative. The management measure section of the draft amendment indicating the Council's preferred alternative for a license limitation system in Section 10 was mailed to all 1,560 permit holders for additional comment. After hearing public testimony in May, 1995 the Council selected the ITQ system as its preferred alternative.

9.3 Preferred Alternative: (Alternative 3) Individual Transferable Quotas (ITQ)²

Discussion:³ This would involve issuing either a certain poundage or percentage of the total annual commercial allocation of red snapper to each qualifying owner or operator based on his historical landings in the fishery. This poundage or percentage would be that person's initial share. Annual landings may be controlled by "quota coupons" issued in increments such as 100 pounds. For example, if a qualifying owner or operator's individual share was, or equated to, 25,000 pounds of red snapper in a year, he would be issued 250 100-pound quota coupons for that year. As the annual TAC and commercial quota increased, each shareholder's quota coupons would be increased proportionately. Shares would be the property of the shareholder, probably subject to annual administrative fees for issuing coupons and for transfers of shares. Shares or quota coupons would be transferable. As a general rule, shares might sell for the equivalent of between one and two year's gross revenue from the fishery. For example, shares of, or currently equivalent to, 25,000 pounds with the market price of red snapper at \$2.50 per pound might sell for between \$62,000 and \$125,000, while a quota coupon for 100 pounds might sell for less than the expected value of 100 pounds of red snapper. Under an ITQ system, a "bycatch" allowance for red snapper would not be needed--anyone who wanted to sell ANY red snapper would be required to have quota coupons in the amount of red snapper landed for sale.

² ITQ was selected as the preferred general management option by the Council for public hearings. The Council in January, 1995, after considering public comment, selected license limitation as the preferred alternative and in May, 1995, after further review by the public and by the Council, selected ITQs as the preferred alternative.

³ Unless otherwise indicated, ITQ refers to an individual share of the commercial quota specified annually as part of the TAC. This share may be denominated annually in ITQ coupons valued in pounds. The coupons may be traded, leased, sold, etc.

The main differences between license limitation and ITQ systems are that ITQ systems would not directly limit the NUMBER of fishermen in the fishery, only how much red snapper each fisherman could land for sale each year; ITQ's would allow new fishermen to get into the fishery by purchasing share certificates or quota coupons from current share certificate holders; by buying and selling only portions of their total share holdings or quota coupon, fishermen could adjust the amount of their annual landings in smaller increments and at lower cost than with license limitation; and the incentive for the "derby" fishery would be eliminated with ITQ's.

In open access systems both conservation and allocation of the resource are managed through combinations of harvesting regulations. In an ITQ system conservation is separated from allocation. Conservation measures include the overall quota, size limits and other measures needed to conserve the resource. Allocation is achieved through managing the quota. A management structure to facilitate quota management must be implemented, and must include the following features:

- ITQ structure
- Initial allocation
- Transfer restrictions
- Ownership and transfer controls
- Quota monitoring provisions

Alternatives for implementing an ITQ system are presented in Section 11 for ITQ implementation alternatives.

The important things to remember about an ITQ are:

- 1) Under an ITQ system the number of fishermen in the fishery would not have to be limited;
- 2) since each fisherman could land "his" ITQ amount at any time during the year, there would be no "season" and presumably no "derby";
- 3) there would be no need to impose regulations that reduce the efficiency of fishermen, such as inhibiting the adoption of new and more efficient technologies (Robinson 1985);
- 4) each individual fisherman would be limited in the amount of red snapper he could land for sale each year, unless he purchased more ITQ shares or annual coupons from another fisherman;
- 5) since the cost of each unit of ITQ would be fairly low, it would be easier for new fishermen to get into the fishery than under license limitation, and for current ITQ holders to adjust the amount of their permitted landings according to their need and ability;
- 6) the ITQ shares may over the long run accrue through the marketplace to those fishermen, large or small, who could catch a given amount of red snapper the most efficiently, not simply to the largest operators;
- 7) ITQ's could be difficult and costly to enforce, depending on fishermen's access to a multiplicity of ports and markets (Robinson 1985); and
- 8) In a multi-species fishery where access to one species is limited, wastage may occur when a fisherman's ITQ is reached for the species and additional catches need to be discarded while fishing continues for other species (Robinson 1985).

Council Rationale: ITQs were initially selected by the Council as their preferred option principally because it is the only system that addresses all of the problems cited in Section 6 and has greater likelihood of achieving the objectives listed under Section 8 (see Table 3 in Section 13.10) and is the only system resulting in net economic benefits (see section 13.12). First, the system should greatly reduce or eliminate the derby fishery which should have the following effects: Fisherman can harvest their share at any time of the year most advantageous to them without fear that the season will close in a short time. Therefore, they should be able to maximize the value of their landings of red snapper,

avoid fishing in adverse weather, more selectively harvest other species to maximize use of hold space, ITQ shares, and trip time and to have the leisure to more properly maintain their vessels. The marketplace should benefit by having fresh product available nearly year round and higher product quality resulting in higher value to the fishermen and benefits to consumers.

The distribution of fishing privileges through ITQs, based on historic landings, is an equitable way to allocate the limited resource. Each participant would get a share essentially equivalent to the percentage of the commercial quota they landed in the years 1990-1992. The value of their share would increase in pounds and value as the stock is restored. This system could result in a more equitable distribution than exists under the endorsement system and short fishing season, possibly alleviating some of social conflicts between fisherman. The industry could improve the effectiveness of vessel harvest capacity by consolidating ITQ shares. The resource should benefit from reduced discard mortality since fisherman can use part of their ITQs or purchase ITQs for snapper that would die if discarded (i.e. bycatch). The management system might benefit over time through reduced management cost.

Impacts: Impacts are discussed under the RIR (Section 13) and Environmental Consequences (Section 14).

9.4 Comparison of Alternatives to Magnuson Action National Standards

The effects of the three alternatives as they relate to the Magnuson Act and national standards are discussed below:

National Standard 1

This National Standard requires conservation and management measures to prevent overfishing while achieving, on a continuing basis, the optimum yield (OY) from the fishery. Although separate issues, the prevention of overfishing and the achievement of OY are related. In effect, the most important limitation on the specification of OY is that management measures designed to achieve it must also prevent overfishing. "Overfishing" is defined in the NOAA Guidelines for Fishery Management Plans (Guidelines), 50 CFR part 602, as a level or rate of fishing mortality that jeopardizes the long-term capacity of a stock or stock complex to produce maximum sustainable yield on a continuing basis (§ 602.11(c)).

The Council has developed an objective and measurable definition of overfishing red snapper as required by the Guidelines. Under this definition the red snapper stock is overfished. Consistent with the Guidelines, the Council has instituted a program to restore the stock. The Council annually specifies the total allowable catch (TAC) of red snapper to assure that harvesting up to TAC contributes to restoration of the stock.

The three alternatives of Section 9.0 will not change the process by which the Council establishes the TAC and catch limits, but rather will modify the distribution of harvesting allocations among fishermen and sustain existing management measures that address overfishing. The ITQ program will improve the prevention of overfishing by providing for reductions in discard mortality that normally increase with increased fishing effort in open access fisheries. The slower paced fishery that is anticipated under the ITQ program will reduce this fishing mortality with fewer fishermen operating over a longer season, and because fishermen will minimize their operating costs and land fish that would otherwise be discarded. The slower paced fishery also will enhance the ability of NMFS to prevent exceeding the overall TAC or catch limit because the individual landings of fish will be more closely monitored. The derby fishery is anticipated to continue under the license limitation system and would become more severe under the no action alternative; therefore, these benefits would not be realized.

The achievement of OY is enhanced as a result of improvements in the prevention of overfishing. Reductions in wastage of fish from discard mortality are likely to produce increases in future yields. Fishing mortality of young, undersized fish results in a loss of the growth of those fish. This lost growth represents foregone future biomass and potential harvest. Additional bycatch mortality occurs when red snapper are caught incidental to other reef fish fisheries during quota closures and must be discarded. The reduction of such loss will increase

the benefits to the Nation in terms of potential food production, recreational opportunities, economic, social, and ecological factors. The ITQ program further optimizes the yield from these fisheries by addressing problems associated with allocation conflicts, bycatch loss, discard mortality, excess harvesting capacity, product wholesomeness, safety, and economic stability. The proposed license limitation system would, to some extent, reduce the excess harvesting capacity. It would not achieve the other potential benefits as the derby fishery would be continued. These problems would be exasperated by the no action alternative.

National Standard 2

National Standard 2 requires conservation and management measures to be based on the best scientific information available. The analytical work and data sources queried in developing this amendment were extensive. This analytical work relied on the most current landings data, economic, social, and biological information available at the time of the analysis. Data sources are given in references cited in Section 16 and the Council's record of debate and public comment, and the actions are consistent with National Standard 2.

National Standard 3

This standard requires an individual stock of fish to be managed, to the extent practicable, as a single unit throughout its range, and interrelated stocks of fish to be managed as a unit or in close coordination. The range of red snapper stock extends throughout the U. S. Gulf of Mexico. The species is found also inside State fisheries jurisdictions and in the EEZ. They are found also in Mexican waters which are outside the jurisdiction of the Council, but are managed as separate stocks.

Directed commercial fishing does not occur throughout the range of the U. S. stock but is largely restricted to the area from Pensacola, Florida, through Texas. This fishery accounts for 96.8 percent of the total commercial fishery, based on 1993 catch records (Goodyear, 1993). The management program will apply to all fishing in the EEZ and, with limited exception, to fishing in State waters by fishermen with vessel permits. The fishery occurs predominately in the EEZ. Therefore, the management program is consistent with National Standard 3.

National Standard 4

Under National Standard 4, conservation and management measures shall not discriminate between residents of different states. Further, if it becomes necessary to allocate or assign fishing privileges among U.S. fishermen, such allocation shall be: (1) Fair and equitable to all such fishermen; (2) reasonably calculated to promote conservation; and (3) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges. This National Standard raises two issues, discrimination and allocation.

Discrimination. An FMP must not differentiate among people or corporations based on their state of residency and must not rely on or incorporate a discriminatory state statute (§ 602.14(b)). All fishermen are accorded the same treatment under any of the three alternatives, regardless of their state of residence. However, management measures that have different effects on persons in various geographic locations are permissible.

Allocation. An "allocation" or "assignment" of fishing privileges is defined in the Guidelines as direct and deliberate distribution of the opportunity to participate in a fishery among identifiable, discrete user groups or individuals (§ 602.14(c)(1)).

To be consistent with the "fairness and equity" criterion, an allocation should be rationally connected with the achievement of OY or with the furtherance of a legitimate FMP objective. Otherwise, the inherent advantaging of one group to the detriment of another would be without cause. In addition, an allocation of fishing privileges may impose hardships on one group if they are outweighed by the total benefits received by another group (§ 602.14(c)(3)(i)).

The contribution of each of the three alternatives is to the achievement of the OY is discussed under National Standard 1, above, and under the Section 303(b)(6) factors in Section 14. However, the ITQ program will contribute to the achievement of OY by reducing the likelihood of localized and pulse overfishing by spreading fishing effort over more time. Total fishing mortality also should be reduced by providing fishermen with incentive to more carefully plan their trips. This should reduce discard mortality.

The primary management objectives of the FMP (Section 13.4) are essentially the same as National Standards 1, 2, 4, and 5. The furtherance of these objectives are discussed under these respective standards. A primary management goal of the FMP is to maximize net economic benefits consistent with resource stewardship for the continuing welfare of living marine resources. Specific objectives to accomplish this goal that are relevant to the ITQ program include increasing the stability of the red snapper fishery in terms of fishing patterns and markets, avoiding the "derby" type fishing season, promoting flexibility for the fishermen in their fishing operations, providing for cost-effective and enforceable management of the fishery, and optimizing net benefits from the fishery. As indicated in the RIR (Section 13), economic benefits to the United States are expected from the ITQ program. The license limitation and no action alternatives will not achieve these objectives but would result in more cost effective management than the ITQ alternative (See Section 13.11).

Both the ITQ and license limitation programs will restructure the current fishery. Some fishermen will be better off and some will be worse off. Although these programs will not prevent most persons from entering these fisheries, those persons who receive an initial allocation of harvesting privileges will have a competitive advantage over subsequent participants by not having to pay for those privileges. In brief, those persons benefited by receiving an initial allocation are operators holding permits and vessel owners or lease holders who own or lease a vessel that made landings of red snapper at any time during 1990, 1991, or 1992. The Council's rationale for this particular allocation is that vessel owners and lease holders are the participants who supply the means to harvest fish, suffer the financial and liability risks to do so, and direct the fishing operations. Processors typically are not directly involved in harvesting fish, and crew members are rewarded for their labor and risks through a profit sharing system. The RIR estimates the benefits and costs imposed by this allocation as compared with alternative allocation schemes, including the no action.

An allocation of fishing privileges may be considered consistent with the conservation criterion if it encourages a rational, more easily managed use of the resource, or if it optimized the yield in terms of size, value, market mix, price, or economic or social benefit of the product (§ 602.14(c)(3)(ii)). The ITQ program satisfies this criterion because it allows fishermen to adjust their fishing operations according to weather conditions, market prices, and other factors that currently are discounted in a race for fish during relatively short fishing seasons. This ITQ system will decrease fishing mortality due to discards and bycatch because fishermen will have an incentive to minimize their costs. In addition, the ITQ program will provide an incentive for fishermen to land a premium product that will maximize market value. This will occur as a result of a greater ability for fishermen to coordinate their landings with market variables, and more time while fishing to clean and properly preserve their catch. Hence, the overall yield, in terms of volume and value, from the resource will be optimized. The license limitation and no action alternatives are unlikely to promote these incentives among fishermen.

Finally, consistency with National Standard 4 requires avoidance of excessive shares. An allocation must be designed to avoid creating conditions that foster any person or other entity from acquiring an inordinate share of fishing privileges or control by buyers and sellers that would not otherwise exist (§ 602.14(c)(3)(iii)). Although the National Standard guidelines do not specifically define an "excessive share," they imply conditions of monopoly or oligopoly. The Council does not feel that a monopoly will occur and that owner/operators will remain the dominant entities in the fishery. Therefore, the Council recommended no limit on ownership of licenses or ITQ shares. It is anticipated that this would not lead to overall market control of the fishery. Finally, the allocation scheme can be changed by the Council. Such a change may occur if the Council determines that the program in operation allows for too much or too little consolidation. Therefore, the program is consistent with National Standard 4 with regard to excessive share.

National Standard 5

This standard requires conservation and management measures to promote efficiency in the use of fishery resources, where practicable, except that no such measure will have economic allocation as its sole purpose. The Guidelines recognize that, theoretically, an efficient fishery would harvest the OY with the minimum use of economic inputs such as labor, capital, interest, and fuel (§ 602.15(b)(2)). Hence, an efficient management regime conserves all resources, not just fish stocks. Implementing more efficient management will change the distribution of benefits and burdens in a fishery if it involves the allocation of harvesting privileges. This standard mandates that any such redistribution should not occur without an increase in efficiency unless less efficient measures contribute to other social and biological objectives.

The no action alternative and the proposed license limitation system promote the derby fishery under which the commercial quota is harvested as rapidly as possible. In a time sense the annual quota is harvested efficiently as harvest is completed within a couple of months. Under open access with no trip limits total harvest would be completed more rapidly than under the vessel trip limits of the license limitation and no action alternatives. As the number of participants in the fishery either remain static (license limitation) or increase (no action) no efficiency in excess harvesting capacity is gained over that in the initial allocation of licenses.

This ITQ program provides fishermen an opportunity to reduce economic waste associated with overcapitalization, congested fishing grounds, and fishing mortality due to bycatch discard. Harvesting costs will be lowered because of reduced vessel operating costs. The quality and value of fishery products will be increased. Processing and marketing costs should decrease as the need to hold large amounts of processed fish in storage until sold is diminished. Moreover, the replacement of short intensive fishing seasons with longer, predictable seasons will increase safety at sea and reduce the cost of human capital and equipment invested in the production of products. The ITQ program also will provide biological benefits in terms of reduced discard and waste, and enhanced prevention of overfishing. These social and biological considerations indicate that economic allocation is not the sole purpose of the ITQ program.

National Standard 6

National Standard 6 requires that management measures allow for variations among, and contingencies in, fisheries, fishery resources, and catches. Variations, uncertainties, and unforeseen circumstances can be experienced in the form of biological or environmental changes, or social, technological, and economic changes. Flexibility of a management regime is necessary to respond to such contingencies (§ 602.16(b) and (c)).

None of the alternatives will change the way in which the overall catch limits are determined. These catch limits respond to changes in stock conditions to the extent that they are based on annual biological estimates. However, the ITQ program provides for increased flexibility for fishermen to adjust their fishing effort to changes in biological or economic conditions. The ITQ program allows fishermen to fish when conditions are most favorable (to the fishermen) and to reduce fishing effort when conditions are less favorable. Under current open access management, a fisherman who wants to participate in these fisheries to any extent is forced to participate during the relatively short fishing seasons, regardless of prevailing economic conditions. The ITQ program will enhance the ability of the fishery to respond to variations and contingencies.

National Standard 7

This National Standard requires management measures to minimize costs and avoid unnecessary duplication. Management measures should not impose unnecessary burdens on the economy, individuals, organizations, or governments (§ 602.17(c)).

The RIR indicates that the ITQ program will initially increase annual administration and enforcement costs by about \$659,000 to \$1,749,000 depending on the level of law enforcement efforts, but that annual benefits range between \$2.5 and \$4.1 million in terms of increased revenues while the total cost of harvesting will fall. The annual federal cost of the proposed license limitation system and no action alternative is only about one-third of the expected cost of the ITQ system (See Section 13.11). A fisherman is afforded greater flexibility under the ITQ program by adjusting his share holdings and determining when he will conduct fishing. Fishermen who choose to exit the fishery under either license limitation or ITQ system may receive economic benefit if they sell their share harvest privilege. The burdens on fishermen who do not receive an initial allocation of licenses or ITQs and on society as employment patterns shift, and other transition costs, are discussed in the RIR.

Magnuson Act Section 303(b)(6)

Section 303(b)(6) of the Magnuson Act provides for the establishment of limited access management systems in order to achieve OY if, in developing such a system, the Council and Secretary take into account: (1) Present participation in the fishery; (2) historical fishing practices in, and dependence on, the fishery; (3) the economics of the fishery; (4) the capability of fishing vessels used in the fishery to engage in other fisheries; (5) the cultural and social framework relevant to the fishery; and (6) any other relevant considerations.

These issues are discussed under Environment Consequences in Section 14.

10. SPECIFIC IMPLEMENTATION ALTERNATIVES - LICENSE LIMITATION SYSTEM

This section presents the alternatives for implementing a red snapper commercial license limitation system. Throughout this section, "red snapper endorsement" refers to the existing red snapper endorsement described in Amendment 6, and "red snapper license" refers to a separate license issued to fish for red snapper. Features common to all of the following alternatives are:

- The fishing vessel must be a federally permitted reef fish vessel, in addition to any red snapper provisions.

The impacts of alternatives in this section are discussed in Sections 13 and 14.

10.1 Basic Initial Allocation and Bycatch Provisions

See the background section of 11.2.1 for discussion of previous actions taken by the Council to limit access to the fishery. These actions are related to the selection of alternatives in this section.

Alternative 1: Two classes of red snapper licenses will be issued. A Class (1) license will be issued to an income qualifying owner or income qualifying operator of a currently permitted vessel who qualified for the red snapper endorsement, and to qualifying historical captains (See Section 10.3). In the event of the death or disability of such owner or income qualifying operator, the Class (1) licensee will be issued to the owner or operator to whom the red snapper endorsement is currently issued. Each Class (1) license will entitle a permitted vessel using it to an initial trip limit of 2,000 pounds. A Class (2) license will be issued to the income qualifying owner or income qualifying operator of a currently permitted vessel whose vessel(s) landed at least 500 pounds in each of two of the years 1990 through 1992, as determined by the data collected under Amendment 9. Each Class (2) license will entitle a permitted vessel using it to an initial trip limit of 200 pounds. There will be no bycatch allowance and no commercial harvest will be allowed for vessels without a red snapper license.

Alternative 2: Adopt Alternative 1 above, but provide that the qualifying criteria for Class 2 license be "at least 500 pounds in any one of the three years, 1990-1992".

Alternative 3: Issue the class (1) license to endorsees as above, but issue the class (2) license to all other persons holding a reef fish vessel permit (approximately 1430 additional persons) who will get an initial vessel trip limit of 200 pounds.

Alternative 4: Red snapper licenses will be issued to the current holders of red snapper endorsements (endorsees). Trip limits and other framework measures for red snapper license holders will be set through the framework procedure for setting TAC. There will be no bycatch allowance and no commercial harvest of red snapper will be allowed for vessels without a red snapper license.

Alternative 5: Red snapper licenses will be issued to the current red snapper endorsees. Trip limits and other framework measures for both red snapper license holders and a bycatch allowance for permitted reef fish vessels without a red snapper license will be set through the framework procedure for setting TAC.

Alternative 6: Red snapper licenses will be issued for permitted reef fish vessels where the vessel (or its predecessor operating under the same permit, if the permit was transferred) had landings of at least 1,000 pounds in one of the three years 1990, 1991 or 1992. Trip limits and other framework measures for red snapper license holders will be set through the framework procedure for setting TAC. During the commercial season a possession and daily vessel landing limit of 50 pounds of red snapper will be allowed as a bycatch for permitted reef fish vessels without a red snapper license.

***Alternative 7:** If the Council changes the vessel trip limits in setting TAC, the ratio between trip limits for persons with a class (1) license and other licensed persons will remain 10 to 1; for example 3,000 to 300 pounds.

***Alternative 8:** Issue Class (2) licenses to all eligible applicants who, based on the historical catch records of vessels they owned or operated, had red snapper landings between 1990 and 1992, and who had the requisite eligibility status on:

- a. November 17, 1994, or,
- b. Upon implementation of the amendment (fall of 1995).
- c. Upon publication of proposed rule for the amendment.

Note: If landing records are used as a basis for determining eligibility under a license limitation system only landings in the years 1990 through 1992 will be used. The preferred alternative under Section 10.8 shall govern transfer of such records related to eligibility.

Discussion: Alternative 1 was recommended by the Ad Hoc Red Snapper AP because demonstrated landings of at least 500 pounds of red snapper in two of the three years, 1990-1992, was a minimal indication of dependence on the fishery and because the other persons should be excluded from participation in the commercial fishery. Overall, persons included in the system would be on the order of 225 to 266 vessel owners or operators, of which the 131 endorsees had demonstrated a higher degree of dependence on the fishery. Therefore, a higher initial vessel trip limit is proposed for those persons with endorsements. Alternative 1 would essentially be similar to the current red snapper endorsement system, but would be more restrictive in terms of number of participants in the fishery. The number of licenses issued under the Alternative 1, based on landings records collected under Amendment 9, would be between 225 and 266. The number of Class (1) licenses issued would be between 125 and 137, of which 4 to 6 would be historical captains. The number of Class (2) licenses issued would be between 100 and 129 (James Davis-Martin, NMFS, personal communication). Alternative 2 would increase the total number of participants to approximately 522 vessels.

Alternative 3 was recommended by the Reef Fish AP who felt all persons with vessel permits should be allowed to participate. Part of their rationale was that this would allow Florida-based vessels to participate as the stock recovered off that state. This alternative would increase potential participants by five-fold, although many of these are based in Florida and would not have access to red snapper. It would be essentially the same as the current red snapper endorsement system except that the license would be transferable.

Alternatives 4, 5 and 6 were in the original draft amendment and were presented at public hearings, as were the two APs' alternatives. These alternatives ranged from the most restrictive (Alternative 4) to least restrictive (Alternative 6), allowing alternatives to be set between these extremes.

Alternative 5 and 6 provide for a trip limit for non-license holders to serve as a bycatch level while the season is open. This may be set initially at 200 pounds under Alternative 5, but could be adjusted in subsequent years. Under Alternative 6 this would remain at 50 pounds during the open red snapper season, and the level could be changed by amending the FMP or through the framework procedure for TAC.

Alternative 7 would provide for a constant ratio for trip limits specified in setting TAC of 10 to 1 for endorsees and other persons licensed, respectively. If the Council does not adopt the measure for the FMP, it will have the flexibility under the TAC procedure to set trip limits for the two classes of licensees at levels they feel are more appropriate each year. Alternative 1 of Section 10.1 defines persons who will be eligible as current owners or operators of permitted reef fish vessels whose income was used to qualify for the permit. Current is defined to mean upon implementation of this amendment. Alternative 8 would provide, as does the preferred alternative under Section 10.1, that the eligible persons must have had landings in 1990-1992 on their vessels but current owners or operators would mean as of November 17, 1994, or upon implementation of the amendment (fall of 1995) or date proposed rule is published.

Sections 9.2, 13 and 14 discuss the alternatives and the associated impacts and that discussion is not repeated here. These alternatives determine who would be granted the initial allocation to participate in the fishery and participation after that time would be controlled by the marketplace (i.e., licenses may be sold). All alternatives provide that trip limits would be set for participating vessels under the framework procedure for TAC. This was done to give the Council greater flexibility. For example, the trip limits could be initially set at 2,000 pounds for the endorsees and at 200 pounds (or some other level) for non-endorsees, and could be gradually increased annually as the stock recovers. They could also be reduced if that becomes necessary to extend the season before the quota is reached. Under Alternative 6, more than 408 vessels (Figure 1, Section 14) would qualify; therefore, the initial trip limit would need to be set at a lower level.

10.2 Licenses Initially Issued to Persons or Vessels

Alternative 1: It is the intent of the Council that licenses be issued to persons. (In the event that a license is issued to a vessel owner, the term "person" specifically includes a corporation or partnership.) A license issued to a vessel owner may be used by any permitted vessel owned by the owner, without regard to who operates the vessel. A license issued to an operator is valid only aboard a permitted vessel when the named operator is aboard and in charge of the vessel. In any case, a license must be aboard the vessel. Historical captains⁴ are included as persons.

Alternative 2: A red snapper license is issued to a person. That person (or a designated operator) must be aboard any federally permitted reef fish vessel in order to harvest red snapper under the license.

- a. Person is defined as the vessel owner, or
- b. Person is defined as the person (vessel owner or operator) whose income was used to qualify for the vessel permit, or
- c. Person is defined as the person (vessel owner or operator) whose income was used to qualify for the vessel permit, and historical captains⁴.

Alternative 3: A red snapper license is a vessel license issued to a federally permitted reef fish vessel, and may be renewed, transferred or revoked separately from the reef fish permit.

Discussion: Alternative 1 provides that persons rather than vessels be licensed to harvest red snapper. This is typical of most other license limitation programs (see Section 13.6.4 for references) and appears to more readily facilitate transfer of licenses in the marketplace than is the case for licenses for vessels. Persons licensed included vessel owners and operators whose income qualified for the vessel permit and historical captains.

Under Alternative 2, the red snapper license is not tied to any vessel. The license holder or their designated operator would be able to fish on any permitted reef fish vessel. Under Alternative 3, the license would be associated with a specific vessel, but could be used by any person authorized to operate that vessel. However, on the expiration of the vessel permit moratorium a permit may be obtained for any vessel.

Under Subalternative (2) (a) the license would be issued to the vessel owner whose name is on the vessel permit application at the time licenses are issued. Under Subalternative (2) (b) the license would be issued to the income qualifier of record. Currently, 6.2 percent of the reef fish vessel permits are based on records of

⁴ Historical captains are classified as captains operating continuously in the red snapper fishery under a verbal or written share agreement with an owner to lease a vessel from prior to the control date of November 7, 1989 set for the reef fish fishery, who have landed at least 5,000 pounds of red snapper in two of the three years 1990, 1991, and 1992 and who can meet the more than 50 percent earned income requirement from the year of the control date (1989) to present. The agreement must provide that the captain is responsible for hiring the crew who were paid from the share under his control.

income qualifications of operators rather than owners. That percentage is probably lower for vessels currently holding a red snapper endorsement. If a subalternative defining a person only as an operator was included and selected, this would adversely affect owners by depriving the income qualifying owner from continuing to fish for red snapper, if the operator left the vessel.

In some instances, captains operate vessels under vessel lease agreements with the owners where the captain is classified as a self-employed independent contractor⁵. Under these agreements (which may be written or verbal) the captains pay the owner for use of the vessel through a share of the catch landed and hire and pay the crew. Under such agreements the success of the fishing venture is largely based on the captain's expertise as a historical participant dependent on the fishery. Alternative 1 and subalternative (c) under Alternative 2 would allow these captains to be eligible to be issued a license in addition to persons in subalternative (a) or (b). These captains may remain on the owner's vessel, but if they did not, then they could utilize their license for an additional vessel under some alternatives in Section 10.3. In the data collected under Amendment 9 only 27 persons submitted applications for historical captain status, and only four persons may qualify under the definition.

10.3 Allocation of Multiple Fishing Privileges

If historical captains are selected to participate (10.2) the following alternatives would apply: Such licenses would be fully transferable and could be traded or sold.

10.3.1 In instances where the catch records of the historical captain⁴ were used to qualify a vessel for a license, alternatives are as follows:

- a. The historical captain and owner each would be issued a separate Class (1) license.**
- b. The license would be shared between the owner and historical captain based on the shares in their vessel agreement, or**
- c. The historical captain and owner each would be issued a separate license equivalent to one-half a vessel license, or**
- d. A single license would be issued in names of both the owner and historical captain.**
- e. Qualifying historical captains will be issued a separate license but can only use the license on a vessel he buys and operates.**

10.3.2 If licenses are shared between historical captain and owners (as in 10.3.1 b or c), alternatives are as follows:

- a. For a vessel to land red snapper, the equivalent of 100 percent of a license must be aboard, or**
- b. The owner and historical captain may fish for and land red snapper from separate vessels, but the trip limit each is allowed will be equivalent to their respective share of the license.**

⁵ The legal status of historical captains as independent contractors is based on federal court decisions in *Star Fish and Oyster Co. vs. USA* (Southern District of Alabama) and in *Gulf Coast Oyster and Shrimp Fishermen's Assoc. vs. USA* (Southern District of Mississippi).

⁴ Historical captains are classified as captains operating continuously in the red snapper fishery under a verbal or written share agreement with an owner to lease a vessel from prior to the control date of November 7, 1989 set for the reef fish fishery, who have landed at least 5,000 pounds of red snapper in two of the three years 1990, 1991, and 1992 and who can meet the more than 50 percent earned income requirement from the year of the control date (1989) to present. The agreement must provide that the captain is responsible for hiring the crew who were paid from the share under his control.

No Action Alternative: Licenses are not subdivided, each vessel gets a single license issued to the vessel permit holder whose income was used to qualify for the permit.

Discussion: Under the landings data collection through Amendment 9, persons were given the opportunity to submit records that would qualify them as historical captains. Only four individuals submitted records that may qualify under the definition. Alternative (a) under Section 10.3.1 would grant each of them a separate license. The APs had recommended alternative (e) granting them a license only for a vessel they purchased and operated, but the APs had assumed that the 27 persons submitting records might qualify as historical captains. Under Alternative (a) qualifying historical captain would get a class (1) license entitling him to an initial trip limit of 2,000 pounds. Alternatives (b) and (c) under 10.3.1 would prorate the value of a license between historical captains and owners with each receiving a license worth a percentage of the vessel's license. These alternatives and Alternative (d) would likely not result in additional vessels or at least result in licenses that if fished on other vessels would entitle them only to a trip limit equivalent to their share of the license value (see 10.3.2). For example, a captain leaving a vessel with a license valued at 50 percent could land a trip limit equivalent to 50 percent of a 2,000 pound trip limit level or 1,000 pounds. Since the licenses can be traded or sold, if this occurred or a captain left a vessel, the owner may not be able to operate the vessel on a fiscally sound basis, unless he obtained another captain with a prorated license. Alternative (d) under 10.3.1 would prohibit separation of the license and provide security to the captain. The owner and captain would have to agree on their respective shares of the license. However, the captain would not be precluded from selling his share possibly resulting in the owner having another partner or captain not of his choice. This would result in the defacto acquisition of a share of the value of the earning power of the owner's vessel by the captain.

Alternatives under 10.3.2 address the issue of whether such shared licenses can be separated and fished on separate vessels. Both alternatives limit the allowable vessel catch to the trip limit existing at the time. For example, under Alternative (b) each vessel would be limited to landing only one-half the trip limit, which should not adversely affect other fisherman with a single, full-valued license.

The no action alternative has the effect that licenses would not be shared with or issued to historical captains.

The sharing of vessel licenses to participate in the fishery with historical captains under a license limitation system impacts owners to a greater extent than such sharing under an ITQ system (Sections 11.2.1 and 11.2.2). This occurs because under ITQ's the owner can buy shares or portions thereof equivalent to the poundage that would make his vessel operation fiscally sound, whereas under this system he can purchase only portions of a license that allow him to operate and compete under trip limits with other fisherman for a share of the total commercial quota.

10.4 Transferability of Licenses

Alternative 1: Licenses may be transferred without restrictions.

Alternative 2: Licenses may not be transferred, except under the hardship transfer provisions of Amendment 7.

Alternative 3:

- a. If licenses are issued to persons, they may be transferred only to owners or operators of permitted reef fish vessels.
- b. If licenses are issued to vessels, they may be transferred only to other vessels with valid reef fish permits.

Alternative 4: If licenses are issued to vessels, they may only be transferred to other vessels of the same owner.

Note: All transfer of licenses shall be registered by NMFS and be subject to an administrative fee for the Federal cost of the transfer.

Discussion: Under Alternative 1 licenses to fish commercially for red snapper can be freely traded in the marketplace with the only requirement that such transfers be registered by NMFS. Under the provisions of the FMP such fishing must be upon a vessel with a reef fish vessel permit and rules for such permits will apply to the fishing operation. For example, operators whose income was used to qualify for the permit must be on board the vessel. However, upon transfer of a license issued to such an operator or historical captain, the new owner of the license may use any other operator provided that either the owner or the operator selected qualify for the reef fish vessel permit. Alternative 2 would prohibit transfer to other persons except in cases of death or disability of the license holder, as provided for under the FMP, as amended. This would result in a slow reduction in the number of license holders as persons leave the fishery for reasons other than death or disability. However, this would likely result in severe economic hardship on persons exiting the fishery for other reasons, such as bankruptcy, lost vessels, etc. Alternative 1 would allow transfer without restrictions providing the greatest flexibility to person exiting or entering the fishery. The two subalternatives under Alternative 3 would provide preferential opportunity to persons in the reef fish fishery (other than red snapper) to enter the red snapper fishery. However, upon the expiration of the moratorium on permit issuance, it would have the same effect as the preferred alternative (no restriction on transfer). Alternative 4 is equivalent to no transfer of licenses, but allows owners to replace vessels.

10.5 Number of Licenses That Can Be Owned by One Entity

Alternative 1: Place no limitation on ownership.

Alternative 2: Limit the percentage of red snapper licenses (or red snapper licensed vessels) owned by a single entity to 5 (or some other) percent.

Alternative 3: Limit the percentage of Class (1) red snapper licenses (or red snapper Class (1) licensed vessels) owned by a single entity to 10 percent of the Class (1) licenses, and place no restriction on ownership of Class (2) licenses.

Alternative 4: Reserve 30 or 40 (or some other) percent of red snapper licenses for individually owned single vessel operations.

Discussion: If a market-driven system allowing purchase or transfer of harvesting privilege is utilized, it raises the question of whether some limitation should be placed upon the percentage of all licenses that can be legally held by one entity to prevent monopolies from controlling production. If a market-driven system is utilized, over time the number of persons owning vessels, but not necessarily the number of vessels will be reduced. If eventually a few operations control the license market, the harvesting sector of the industry could be made more efficient. Nonetheless, such control may result in control over the price of licenses. It is also possible in a license limitation system that small producers would be removed from the industry. If they sell out, the small number of controlling entities could quote prices substantially lower than the true value of the licenses due to the reduced competition to purchase the licenses. To a large extent, the issue is, from a social/cultural standpoint, if it is beneficial to retain a diversified harvesting sector assuring individually-owned, single vessel operations are a component of that sector. Likely such individually owned operations will continue to dominate the fishery.

10.6 Duration of Licenses

Alternative 1: Require annual renewal of licenses.

Alternative 2: Require annual renewal of licenses but provide NMFS authority, after consultation with the Council, to modify the time period.

Alternative 3: Require renewal of licenses biennially (or longer period).

Note: NMFS may charge an administrative fee for renewal of licenses.

Discussion: Currently, federal permits for any Gulf fishery under a permitting system are renewable annually, which over time identifies the number of participants fishing or who may fish each year. Annual renewal increases the administrative burden on NMFS and the participants over that for renewal on a biennial or longer basis, but does provide for the collection of economic rent (see Appendix A). Annual periods also provide the option of making reissuance of permits conditional on the permittee having complied with reporting or other permit conditions which may be very important to the successful operation of some systems.

Alternative 2 would provide NMFS and the Council the flexibility to modify the renewal period without amending the plan if annual renewal does not contribute to the effectiveness of the license limitation system or management of the red snapper resource.

A longer period serves principally to reduce the administrative and paper work burden. Currently administrative fees for permits revert to the U.S. Treasury rather than to NMFS as the issuing agency. Over time as participation levels are stabilized, it may be more efficient to have multi-year permits. Persons transferring licenses would be required to register the transfer with NMFS, with a license being issued to the new owner.

10.7 Leasing Licenses

If ownership of licenses is conferred upon the licensee, the issue arises whether he should be allowed to lease the license to owners of other vessels.

Alternative 1: Allow leasing of the license to other owners or operators of permitted reef fish vessels and require registration of such lease with NMFS.

Alternative 2: Prohibit leasing of the license by the licensee.

Alternative 3: Allow leasing with no restrictions.

Discussion: Under many ITQ systems, shares of TAC are allowed to be leased as well as sold. Under such systems, leasing of individual shares may have the advantage of improving the efficiency of single vessel operations. This is not the case under license limitation systems since leasing would result in another vessel participating in the fishery, thereby reducing catch-per-unit effort for other vessels. License leasing would provide an avenue for new entrants into the fishery at a lower cost than license purchasing, since a lease might be for only part of the fishing year. Another advantage of leasing would be increased flexibility to a licensee whose vessel was lost or incapacitated due to mechanical failure and who was unable to replace it during a fishing season. Under unrestricted leasing, NMFS would not have to record leases. Under the Alternative 1, licenses could be leased to owners and operators of permitted reef fish vessels provided such lease was registered with NMFS. The Council elected to limit transfers to persons with permitted vessels since commercial harvest of reef fish is only allowed by permitted vessels. This limits the transfers to commercial fishermen who qualified based on their income for the permits. This would allow persons excluded by the license limitation system an opportunity to harvest red snapper. Currently there are approximately 1,560 active permits. The registration of leases is proposed to allow NMFS and U.S.C.G. enforcement personnel to determine vessels authorized to land red snapper for sale.

10.8 Transferability of Landing Records Related to Eligibility for Class (2) Licenses

Alternative 1 under Section 10.1 creates two classes of licenses; (1) for holders of red snapper endorsements, and (2) for other eligible persons with landing records of at least 500 pounds in each of two of the three years 1990-1992. Persons granted the class (1) license are easily identified since the red snapper endorsement has not been transferable during the 1993-1995 period. Data was collected through Amendment 9 to determine persons eligible for class (2) licenses. However, many vessels have been transferred since 1992 when the permit moratorium was implemented (see Section 11.2.5). The issue of transfer of the 1990-1992 landing records with these vessels needs to be resolved. It is a basic principle of the alternatives of this section that no part of any vessel's landings record will apply for the eligibility of more than one Class (2) license. In effect, landings will not be double-counted.

Alternative 1. The landings records for the 1990-1992 period are retained by the permittee if the permit was transferred to additional vessels owned by the permittee.

Alternative 2. The landings records for the 1990-1992 period will be transferred to the new permitholder if the vessel permit was transferred through sale of the vessel or transferred due to death or disability.

Alternative 3. The landings records for the 1990-1992 period will be transferred to the new permitholder if the vessel permit was transferred through sale of the vessel or transferred due to death or disability, unless there is a legally binding agreement under which the original permitholder retained such landing records.

Alternative 4. The landings records for the 1990-1992 can be transferred to the new permitholder if the vessel permit was transferred through sale of the vessel or transferred due to death or disability.

Alternative 5. The landing records for the 1990-1992 period will not be transferred to the new permitholder, if the vessel permit was transferred through sale of the vessel or transferred due to death or disability, unless there is a legally binding agreement for such transfer, i.e., the permitholder of record in 1990-1992 will retain such records for ITQ eligibility in the absence of an agreement.

Alternative 6. Landings records (for eligibility purposes) cannot be transferred, except in cases of vessel replacement by the permittee of record in 1990-1995.

Alternative 7. Notwithstanding other alternatives of this section that may be selected, an owner of a currently permitted vessel will retain the landings record for a vessel that was substantively controlled by him even though the ownership of such vessel was in the name of a different legal entity. "Substantively controlled" means that the same entity had at least a 50 percent interest in the vessel immediately before and after the change of ownership or the change of ownership was from one to

another of the following: husband, wife, son, daughter, brother, sister, mother or father. The owner of a currently permitted vessel has the burden of proof of substantive control.

Discussion: The Council contemplates that "substantive control" by "the same entity" in this transfer context means that the successor in interest received a 50 percent interest in the vessel as a result of the change of ownership, whether the transfer was (1) from a closely-held corporation to an individual or visa versa, or (2) between successor corporations, or (3) between individuals within the familial relationships listed.

Alternative 1 would allow the permittee who replaced a vessel to retain the landings record for eligibility purposes. The Council originally allowed replacing vessels under a permit because it would have created an undue hardship, if a vessel sank or became inoperable. Similarly, preventing transfer of the landings records from the previous vessels would create an unnecessary hardship. Alternatives 2 through 5 relate to transfer of landings records for ITQ eligibility for vessel transferred through sale with the vessel permit or transfers due to death or disability. Since the vessel permit may have enhanced the sale price of the vessel it seems equitable that the landing record for ITQ eligibility be included with the sale. Some purchasers have indicated that this was a major consideration in purchasing a vessel with a permit. Alternative 2 provides that such records will be transferred. Alternative 3 provides that the records will be transferred unless a legal agreement existed whereby the original permittee retained the right to use such records for ITQ eligibility. Alternative 4 provides such records may be transferred, leaving the original and new permittees to resolve the issue (in court if necessary). Alternative 5 provides that such records will be retained by the original permitholder of record in 1990, 1991 and 1992, unless a legal agreement existed whereby the original permit transferred the record on sale of the vessel. Alternative 6 provides such records cannot be transferred except in cases where the permittee of record in 1990, 1991 and 1992 replaced the vessel with an additional vessel owned by that permittee. Alternative 7 addresses the issue of instances when the 1990-1992 landings records for a vessel controlled by a single owner were submitted by more than one operator or in the name of more than one owner. The latter case may have occurred when recorded ownership of the vessel under the permit changed by incorporation of the vessel or within a family or by shareholder/corporate officer name within a corporation.

11. SPECIFIC IMPLEMENTATION ALTERNATIVES - INDIVIDUAL TRANSFERABLE QUOTA SYSTEM³

This section presents alternatives for implementing an individual transferable quota system for the commercial red snapper fishery. Under this system, there would be an overall commercial quota which would be split into individual shares. Initially, allocations would be distributed based on historical participation and/or other eligibility criteria. Thereafter, participants could enter and leave the fishery, or adjust their individual quotas, by buying and selling all or portions of their quota shares. In this section, the implementation options are divided into four general categories:

- ITQ structure
- Initial allocation
- Ownership and transfer controls
- Monitoring procedures

Appeals and hardships are dealt with in a separate section. Note: preferred alternatives, where indicated, were selected by the Council at its March, 1993 and May, 1993 meetings. The Council will make its final decisions after further review by the Council and by the public.

The impacts of alternatives in this section are discussed in Sections 13 and 14.

³ Unless otherwise indicated, ITQ refers to an individual share of the commercial quota specified annually as part of the TAC. This share may be denominated annually in ITQ coupons valued in pounds. The coupons may be traded, leased, sold, etc.

11.1 ITQ Structure

11.1.1 ITQ Units of Measure

Preferred Alternative 1: Denominate ITQ certificates in percentage terms of commercial quota set under TAC, but translate the percentages into pounds of red snapper at the start of the season or at such time when TAC adjustments are made.

Alternative 2: Denominate ITQ certificates in terms of pounds of red snapper.

Discussion: ITQ shares may be stated in terms of either a percentage of the commercial quota or pounds of red snapper. If stated as a percentage, a shareholder's annual allowable catch of red snapper would be calculated by multiplying the commercial quota for that year by the shareholder's percentage. The commercial quota is determined annually as TAC minus the recreational quota. If stated as pounds of red snapper, new share certificates would have to be reissued each year based on the unspecified percentage share of each shareholder, as changed by share transfers during the year. In either case, ITQ coupons may be issued to each shareholder in denominations equaling the shareholder's share of the commercial quota. These coupons would be used in tracking catch. See Section 11.4, Monitoring Procedures, for further information on the use of ITQ coupons.

11.1.2 Duration of ITQ

Preferred Alternative 1: Confer on an ITQ share certificate holder the privilege to harvest the specified amount for four years after inception of the program after which the program may be extended.

Alternative 2: Confer on an ITQ share certificate holder the privilege to harvest the specified amount indefinitely. It is the intent of this provision that the ITQ harvest privilege will be retained as long as the objectives of the FMP are met.

Alternative 3: Confer on an ITQ share certificate holder the privilege to harvest the specified amount for _____ number of years.

Discussion: This section treats the lifetime of an ITQ share certificate itself and not its possession by any one individual. Possession of ITQ share by individuals are governed by initial and subsequent eligibility requirements, transfer, retention requirements, and any applicable sanctions due to rule violations. ITQ share certificates are instruments that convey the privilege to harvest; the issue of duration of ITQ shares is considered here to apply to harvesting privilege.

The Council selected the preferred alternative because of concerns expressed by fishermen in testimony that there was no provision for terminating the system if it did not produce the expected benefits and because the four-year period would keep windfall profit and speculation to a minimum (May 1995 Council minutes). The latter aspect would allow participants to evaluate the effectiveness of the system and whether it should be extended without considering the need to perpetuate the system due to the increased value of the ITQ shares held. The Council felt that it would require a three-year period to monitor the effectiveness of the system and the fourth year to evaluate this information and take actions to terminate or extend the system. Factors they felt should be evaluated included the effectiveness and cost of enforcement, whether specialty markets developed based on year-round availability and how this would affect prices paid to fishermen. This latter aspect could be used to assess the effects of fees, ranging up to four percent, on the industry profitability. The Council felt one of the most important aspects to be evaluated are the changes in vessel and fishing operation efficiency, i.e. to what degree does it improve the flexibility in making business decisions by the industry. The Council in its discussion concluded that four years was preferable to five years for this evaluation. Five years was too long considering the impact on participants if the system is to be

extended or terminated. Little change may occur in the first year and years two and three should provide a good basis for the evaluation in the fourth year.

In presenting the alternatives under this section at public hearings, the staff referred to Alternative 3 by suggesting the public could insert a recommendation such as five or other number of years for termination of an ITQ system and pointed out that economists generally supported an indefinite time period (if longer) as it tends to maximize values in the marketplace (tapes of public hearings, December 1994). The Council was aware that its preferred alternative was economically inferior to Alternative 2.

A harvest privilege that has an indefinite duration is more easily marketable at a higher premium than a temporary harvest privilege. Aside from its legal ramifications, the choice has management and economic implications. A harvest privilege is tied to the species under consideration, and is therefore coterminous with the viability of the stock. In addition, the value of a catch right directly correlates with the value of the species.

An owner of a harvest privilege may be deemed to optimize the use value of his right over its life span while taking into account profitability through sale or lease of the privilege. Under this condition, the owner has the interest to conserve the stock over a longer period with a harvest privilege of indefinite duration than with a privilege that terminates in some specified date. As a consequence, the privilege with indefinite duration effects a strong interest in a more stable stock level and thereby a more stable fishery. Indeed this differentiation may be rendered immaterial by a choice of a longer period for a temporary harvest privilege.

The preferred alternative (Alternative 1) provides for evaluation of the effectiveness of the ITQ system during the four year interval after implementation. Based on that evaluation the system may be modified, extended or terminated.

11.1.3 Set-Aside for Non-ITQ Catches

Under an ITQ system, there will still be some commercial harvest of red snapper outside of the ITQ system. Red snapper harvested in state waters and sold to non-federally permitted dealers will not be in the ITQ system unless states adopt regulations requiring federal permits or ITQ coupons to harvest red snapper in state waters. Red snapper harvested illegally will be included in the commercial allocation if dealer records reflect the sale of these fish or when confiscated fish are subsequently sold by NMFS. To assure that the commercial sector does not exceed its allocation of TAC, it may be necessary to set aside a small portion for non-ITQ catches.

Preferred Alternative 1: 100% of the commercial red snapper allocation is to be assigned to ITQ.

Discussion: Under this alternative, the entire red snapper commercial allocation would be distributed to ITQ shareholders. Unless some ITQ shares are unfished, red snapper that are landed outside of the ITQ system could cause the commercial allocation to be exceeded, unless adjusted for in setting TAC possibly requiring future reductions in the commercial allocation to keep the recovery program intact. Non-ITQ catches may include red snapper harvested from state waters. If the states adopt compatible rules there would probably be little or no non-ITQ catch (historical catch from state waters was about 2.2 percent of commercial landings). Persons operating under an ITQ would report state waters catch under their ITQ.

The Council addressed the NMFS concern over the effectiveness of the ITQ system if significant quantities of red snapper could be taken outside of the allocation for ITQs which NMFS identified as a critical concern (Kemmerer letter of 11/4/94). Based on statements by state representatives, the Council felt the states would adopt compatible regulations so that this would not be a problem (Council minutes November 1994). The states would need to implement rules that required fishermen selling red snapper to possess ITQ coupons and dealers first buying red snapper to purchase only from persons who possess ITQ coupons. The states had implemented similar rules for the red snapper endorsement system, requiring presentation of endorsement or vessel permit for landed trip limits of 2,000 and 200 pounds, respectively. The Texas representative indicated they did not

currently have authority from the legislature, but limited commercial harvest in their nine mile jurisdiction to a bag limit of red snapper (see discussion under Section 13.8.1).

Alternative 2: A fixed percentage of the commercial red snapper allocation is to be set aside for non-ITQ harvest.

Discussion: This would set aside a fixed percentage of the commercial quota for ITQ distribution. For example, an average of 2.2 percent of red snapper landings were caught from state waters. However, some of this catch may have been by vessels also fishing the EEZ and a smaller portion incidental catch in other state water fisheries. Any changes would need to be made by plan amendment. Thus, fishermen would know the basis for their percentage allocations, and would be able to plan accordingly. However, changes in the amount of non-ITQ catches could result in over or under harvest of red snapper.

11.1.4 Bycatch Provision

There may be a need to provide for a bycatch level for those excluded from the system. The following are possible alternatives for a bycatch provision.

Preferred Alternative 1: If an ITQ system is implemented, a minimum par allocation serves as the bycatch allowance.

Discussion: This alternative provides for all red snapper commercially harvested by federally permitted fishermen to be included in the ITQ system. Implicit in this alternative is no bycatch allowance for snapper landed outside of the ITQ system. Providing a minimum initial allocation (Section 11.2.5) and an initial ownership eligibility level broad enough to include fisherman who may only land red snapper as bycatch (Section 11.2.1) assures that the ITQ system will be able to account for bycatch red snapper at startup. After the initial startup, fishermen who wish to land red snapper as bycatch who do not have an ITQ share can do so by purchasing ITQ shares or quota coupons on the open market, subject to any ownership restrictions. **Red snapper taken as bycatch can be retained aboard the vessel only to the extent that ITQ coupons are aboard the vessel.**

Alternative 2: Provide for a bycatch of _____ pounds per trip or _____ pounds per year to those excluded from the system.

Discussion: These alternatives would complicate any limited entry system that may be adopted. An estimate of bycatch fish would have to be made and deducted from the ITQ allocations, and a trip limit allowance that is set too high could provide a means for fishermen to circumvent the ITQ system. However, it can address the partial inequity introduced by the system if the subject fishermen had been excluded from the system due to imposition of stringent eligibility criteria. For example, if 5,000 pounds of landings were made the basis for inclusion in the ITQ system these fishermen could be excluded from the system.

Alternative 3: No bycatch allowance.

Discussion: This alternative is identical to the preferred alternative for years following the initial startup. However, unlike the preferred alternative, this alternative does not presume that there will be minimum allocations for bycatch in the initial distribution of shares. Fishermen who land small amounts of red snapper as bycatch and are not included in the initial allocation will need to purchase quota coupons on the open market or discard their incidentally caught red snapper.

11.2 Initial Allocation of ITQ Shares and Coupons

11.2.1 Who is Eligible to Receive an Initial Red Snapper ITQ Allocation

This section defines the persons who will be eligible to receive ITQ shares. Subsequent sections provide how some of these persons would share and further define eligibility requirements.

Background: Since the Council has been limiting access to the reef fish and red snapper resources since the implementation of Amendment 1 and since these Council actions affected decisions on allocations in this amendment, this summary is provided to facilitate understanding of the following sections (see Section 4 and 5.2 for additional detail). In the transition from open access, the Council under Amendment 1, implemented restrictive levels of harvest through specification of TACs, commercial quotas, recreational allocation and size and bag limits (Section 11 - Amendment 1). Because of the very restrictive commercial quota on commercial red snapper harvest and a restrictive quota on grouper harvest, the Council felt it was not fair for recreational fishermen to sell their fish. Therefore, such sale was prohibited. The Council also limited persons on board vessels with trawling gear, entangling nets and longline gear (fished in other fisheries such as shark fishery) to a bag limit which could not be sold. Basically this gear was prohibited in directed fisheries for reef fish. The Council also provided for a vessel permit for fishing under the commercial quota and for sale of reef fish. To qualify for a permit the owner or operator must demonstrate that at least 50 percent of his earned income was derived from commercial or charter/head boat fishing. Charter and head boats were included since they traditionally fished commercially in their off-season. The intent of the Council was to limit access to the commercial fishery to commercial fishermen historically dependent on the resource. The Council also published a control date for the commercial fishery in 1989. The effect of the Amendment 1 actions was the elimination of participation in the commercial fishery of recreational fishermen who sold their catch under open access and part-time commercial fishermen not significantly dependent on commercial fishing.

Under Amendment 4 (see Section 5 of that amendment) the Council established a moratorium on the issuance of additional vessel permits effective on date of implementation (5/92) for a three-year period (subsequently extended eight-months by Amendment 9). Transfer of permits was allowed by transfer of the vessel, i.e., the system functioned as a temporary license limitation system. The Council's intent was to further limit access to the fishery by additional commercial participants (see SEIS on fishery in Amendment 5 for discussion of overcapitalization).

Because the derby developed in the commercial red snapper fishery, the Council by emergency rule (effective 12/30/92) created the red snapper endorsement system limiting vessels whose permitted owners or operators could demonstrate landings of at least 5,000 pounds in two of the years 1990-1992 to vessel trip limits of 2,000 pounds and other vessels with permits to 200 pounds. Amendment 6 (6/93) extended the reef fish endorsement system, which was subsequently extended through 1995 by Amendment 9. The intent of the Council was to further restrict access to the commercial red snapper fishery to primarily those persons with a demonstrated dependence on the fishery (i.e., to endorsement holders) while the Council completed this amendment (8). In the process of developing this amendment and determining who would be eligible for participation, the Council determined that there was a class of vessel operators (called "historical captains" by Council⁵) defined by U.S. courts as independent contractors because they leased vessels from the owners under share agreements (see minutes of Ad Hoc Allocation AP). The Council, after review by Reef Fish and Ad Hoc Red Snapper APs and SSC, included historical captains as participants who would be eligible under the limited access systems (also see Section 10.2).

Amendment 9 provided for collection of the landings information from owners and operators who would provide the information necessary to determine their eligibility for license limitation system alternatives and their shares under ITQ alternatives selected by the Council. These persons were provided landings information by trip from NMFS logbook and Florida trip ticket computer files for verification. They were also provided totals of landings for each qualifying year, 1990-1992, and information how to compute what their ITQ share would likely be. All operators were provided the opportunity to provide documentation that might qualify them as "historical captains" (see 59 FR 39301, August 2, 1994 for legal definition).

Preferred Alternative 1: Either the current owners or operators of permitted vessels depending on whose earned income qualified for the permit (i.e., only the income qualifier is eligible) and historical captains⁴.

Alternative 2: Owners of permitted reef fish vessels are eligible to receive initial allocations, or

Alternative 3: Owners of permitted reef fish vessels and operators who are the income qualifiers are eligible to receive initial allocations, or

Alternative 4: Owners of permitted reef fish vessels, operators who are the income qualifiers, and other qualifying operators who have worked continuously on a permitted vessel in the red snapper fishery during 1990, 1991, and 1992 and meet all historical landings and income requirements other than having been the income qualifier on a reef fish permit, or

Alternative 5: Only income qualifiers are eligible to receive initial allocations.

Alternative 6: Only permit holders of record (income qualifiers) during 1990-1992 are eligible to receive initial allocations.

⁵ The legal status of historical captains as independent contractors is based on federal court decisions in *Star Fish and Oyster Co. vs. USA* (Southern District of Alabama) and in *Gulf Coast Oyster and Shrimp Fishermen's Assoc. vs. USA* (Southern District of Mississippi).

⁴ Historical captains are classified as captains operating continuously in the red snapper fishery under a verbal or written share agreement with an owner to lease a vessel from prior to the control date of November 7, 1989 set for the reef fish fishery, who have landed at least 5,000 pounds of red snapper in two of the three years 1990, 1991, and 1992 and who can meet the more than 50 percent earned income requirement from the year of the control date (1989) to present. The agreement must provide that the captain is responsible for hiring the crew who were paid from the share under his control.

Alternative 7: Current owners of permitted reef fish vessels and operators who are the income qualifiers for the permit and historical captains⁴.

(See Section 11.2.2 for proration of shares between historical captains and owners.)

Discussion: Of the current owners and operators (1,553 persons) to whom a permit for a vessel was issued, approximately 6.2 percent were income qualifying operators and 93.8 percent owners. Of the owners holding red snapper endorsements (the 131 highliners), 72 percent were owner/operators and the remainder income qualifying owners who employed operators (Section 14.3 -Thomas et al 1993). Approximately 1,073 owners or operators submitted records of red snapper landings for two of the three years, 1990-1992, that were acceptable to NMFS under Amendment 9 (Council minutes - November, 1994). This number of persons will be reduced by the requirement eligible person be current permit holders and that value may be increased through the appeals process since some persons submitted no records; therefore, the exact number of persons who would qualify for ITQ shares is unknown. Approximately 9,200 packages describing the qualifications for applying for historical captain status were distributed by NMFS under Amendment 9. Only 27 persons responded and of these only four provided the information necessary. A few others may qualify under the appeals process.

With the exception of historical captains, the Council selection of participants under the preferred alternative is consistent with previous actions to limit participation in the fishery (see Background Section above). The Council felt that historical captains had a status similar to owners who derived their principal income from the fishery, i.e., they leased the vessel and took the same risk of gaining a return based on their expertise in fishing, whereas other operators employed by owners usually were compensated by owners even if the trip was unsuccessful. The Council consistently excluded owners, who could not demonstrate a dependency on the fishery through the 50 percent income criteria, in its actions in limiting access to the fishery (see Background Section above). Generally through its actions, the Council had consistently limited the commercial fishery to commercial fishermen; therefore, the decision to grant the ITQs to the income qualifying operators under the preferred options is not inconsistent with that policy. It also reflects the Council position when license limitation was considered as the preferred limited access system (see Draft Amendment 8 dated May 1995). Generally it was conceived that most of these owners who could not qualify on income were persons who had the vessel as a tax write-off [a common practice (B. Austin 1984)] or were recreational (part-time commercial) fishermen that the Council proposed to exclude by the income requirement.

The range of alternatives under this section includes combinations of including or excluding all participants other than crew members serving under an operator. The Council rejected these in the process of selecting a preferred alternative. In Draft Amendment 7 the preferred alternative selected was essentially the same, except including historical captains (Council minutes March and May 1993). Section 5.2 lists all the reviews by Council APs and SSC of Draft Amendment 8 during which the alternatives were considered based on the following discussion which provided points that were considered in selecting the alternatives.

⁴ Historical captains are classified as captains operating continuously in the red snapper fishery under a verbal or written share agreement with an owner to lease a vessel from prior to the control date of November 7, 1989 set for the reef fish fishery, who have landed at least 5,000 pounds of red snapper in two of the three years 1990, 1991, and 1992 and who can meet the more than 50 percent earned income requirement from the year of the control date (1989) to present. The agreement must provide that the captain is responsible for hiring the crew who were paid from the share under his control.

ITQ shares will be issued to individuals. However, reef fish permits are issued to vessels, not to individuals. Each vessel may have an owner/operator, separate owners and operators with the owner being the income qualifier, or separate owners and operators where the operator is the income qualifier. This section defines who is eligible to receive an initial allocation (subsequent ownership after the initial allocation is considered in the section on ownership and transfer controls). Vessel owners are those who provide the vessels and gear and take most of the financial risks associated with red snapper fishing, therefore it may be preferable that they be the individuals who receive the initial ITQ allocations along with whatever financial benefits may accrue. In many cases, the owner is also the income qualifier. However, on some vessels, the income qualifier is an operator who is not the owner. In these situations, it is the skill and effort of the operator that results in the vessel qualifying for a permit. Under these situations, it may be desirable to reward the individual responsible for the permit being issued. In some instance captains, operate vessels under vessel lease agreements with the owners where the captain is classified as a self-employed independent contractor. Under these agreements the captains pay the owner for use of the vessel through a share of the catch landed and hire and pay the crew their shares. Under such agreements the success of the fishing venture is largely based on the captain's expertise as a historical participant dependent on the fishery. The Preferred Alternative would allow these captains to be eligible to share an ITQ with the owner who qualified for the vessel permit.

Alternatives 1 through 5 and 7 recognize only the current owners, operators, captains and income qualifiers who are in the fishery at the time of implementation of this amendment as eligible to receive initial allocations. Alternative 6 recognizes only the persons holding permits in 1990-1992 as income qualifiers for the permit as eligible.

The Ad Hoc Red Snapper AP recommended Alternative 7 recognizing both the owner and the operator whose income qualified for the current vessel permit.

11.2.2 Allocation of Multiple Fishing Privileges

This section addresses the issue of sharing between historical captains and owners if such captains are selected to participate in the ITQ system (see 11.2.1, Alternative 1).

Typically under lease agreements between owners and historical captains, the fish harvested belonged to the captain (minutes Ad Hoc Allocation AP). The captain hired the crew and sold the fish. The owner was paid the agreed upon share (typically 38-40 percent) and the crew were paid from the captain's share. If the owner operated a processing facility, frequently the fish were sold to the owner, but the fish could be sold to other entities depending on where the vessel landed.

Preferred Alternative 1: Prorate the allocation of ITQ shares between historical captains⁴ and owners based on the percentage of the value of the landings each would get under the vessel share agreements between owners and captains that were in effect in 1990, 1991, and 1992, or

Alternative 2: 100 percent of the allocation of ITQ shares goes to the owner and 0 percent to the historical captain, or

Alternative 3: 50 percent of the allocation of ITQ shares goes to the owner and 50 percent to the historical captain, or

Alternative 4: Double count the vessel's 1990-1992 landings record for purposes of arriving at a grand total for the fishery and issue the captain and owner each a 100 percent allocation, or

⁴ Historical captains are classified as captains operating continuously in the red snapper fishery under a verbal or written share agreement with an owner to lease a vessel from prior to the control date of November 7, 1989 set for the reef fish fishery, who have landed at least 5,000 pounds of red snapper in two of the three years 1990, 1991, and 1992 and who can meet the more than 50 percent earned income requirement from the year of the control date (1989) to present. The agreement must provide that the captain is responsible for hiring the crew who are paid from the share under his control.

Alternative 5: Prorate the allocation of ITQ shares between historical captains⁴ and owners or between qualifying operators and owners based on the percentage of the value of the landings each would get under the vessel share agreements between owners and captains or qualifying operators that was in effect in 1990, 1991, and 1992.

Discussion: The Council has provided a broad range of alternatives for public consideration from allowing both the owner and captain to get 100 percent shares based on the vessel's landing record to providing the owner receive the entire share based on that record.

The issue here is that the landing record for the historical captain and the owner of the vessel is the same for the qualifying years of 1990-1992 (see Section 11.2.3 which follows). If both are granted credit for those landings in determining ITQ allocations then that inflates the total landings figure for the average of the two highest years, during 1990-1992 that will be used as the base for computing the shares (percent of commercial quota) of all participants. The effect of this is to lower the share granted to all other participants. Alternative 4 would create this effect.

The Council has selected Alternative 1 as its preferred alternative to prorate the ITQ shares between the owner and historical captain based on the value of landings each would get under vessel lease agreements that were in effect in 1990, 1991 and 1992 because that would not have the effect cited above. For instance if under that agreement the owner received 40 percent of the value, the ITQ shares would be prorated 40 percent to owner, and 60 percent to the captain. This recognized that under the agreement harvested fish belonged to the captain until sold and the vessel was leased based on a share of landings value rather than a monetary exchange.

Alternative 2 is similar in effect to alternatives under 11.2.1 (above) which would not recognize historical captains as eligible to receive ITQ shares. The other alternatives provide for sharing of the ITQ shares between the owners and captains at different levels. Alternative 4 would give each the owner and the captain 100 percent shares based on the vessel's landing record. Under an ITQ system, each qualifying person would be given a percentage share based on an average of past landing records. The total of all shares would be equivalent to 100 percent of the annual commercial quota. If a qualifying captain and qualifying owner were each given a duplicate share equal to the vessel's historical landing record, then the total of all shares would exceed 100 percent of historical landings. Then everyone's share would have to be adjusted downward to make the total of all shares equal to 100 percent. This would reduce the shares of owner/operators below their historical landing level, adversely affecting them. Owner/operators make up 72 percent of the current red snapper endorsement holders.

Alternative 3 would not have this adverse effect on owner/operators since the qualifying owner and qualifying captain would each get a share equivalent to 50 percent of the share based on the vessel's landings, nor would Alternative 1 with some other split between owner and captain, such as 40 percent owner/60 percent captain or 60 percent owner/40 percent captain. The Ad Hoc Red Snapper AP favored Alternative 5 allowing the owner of vessels operating under a permit issued to a qualifying operator to get an allocation equivalent to the vessel share of landings. The structure of this alternative would limit that to current owners and operators who were associated in that relationship in 1990 - 1992.

11.2.3 Eligibility Criteria for Initial Allocation

Alternative 1: Issue ITQ share certificates to all eligible applicants who, based on their historical catch records of vessels they owned or operated, had red snapper landings between 1990 and 1992. Valid catch records will be based on the same criteria used for the red snapper endorsement, i.e., logbook records first, then Florida trip tickets, then fish house receipts.

Discussion: The MFCMA states that, in developing a limited access system, the Council must take into account present participation in the fishery plus historical fishing practices in, and dependence on, the fishery. Limiting the initial allocation of ITQ shares to current permit holders who had red snapper landings during the

1990 to 1992 eligibility period will result in allocation shares to those fishermen who meet both criteria of present and historical participation in the red snapper fishery. NMFS has estimated that in 1990, 1991 and 1992 there were 800, 904, and 700 vessels respectively with red snapper landings. Based on NMFS logbook and Florida DNR trip ticket data, at least 1,287 vessels had red snapper landings in at least one of the three years (Figure 1, Section 14).

Preferred Alternative 2: Issue ITQ shares to all eligible applicants who, based on the historical catch records of vessels they owned or operated, had red snapper landings between 1990 and 1992, and who had the requisite eligibility status on:

- a. November 17, 1994, or
- b. Upon implementation of the amendment (fall of 1995), or
- c. (Preferred Alternative): Date of publication of proposed rule for this amendment.

Valid catch records are as defined in Alternative 1 above.

Discussion: The preferred alternative of Section 11.2.1 defines persons who will be eligible as income qualifying owners or operators of currently permitted reef fish vessels (i.e., the person whose income was used to qualify for the permit) and historical captains. This alternative would provide, as does the preferred alternative under section 11.2.2 (for historical captains) that the eligible persons must have had landings in 1990-1992 on their vessels but current owners, operators, or historical captains would mean as of November 17, 1994, or upon implementation of the amendment (fall of 1995) or upon publication of the proposed rule. The preferred alternative establishes such eligibility status on date the proposed rule is published. The Council selected the preferred alternative which provides eligibility would be based on landings records for the 1990-1992 period and because the status of current applicant (income qualifying owner or operator of a permitted vessel and historical captains) would be determined as of publication of the proposed rule. NMFS and General Counsel suggested that date to allow them to determine who is eligible before the final rule is implemented because an anticipated increase in permit transfers just before implementation. ITQ shares must be issued shortly after implementation. The definition of historical captains requires they also be current participants in the fishery to be eligible [see definition in footnote under 11.2.1 and rule definition (50 FR 39301)]. **Note:** Section 11.2.5 provides for transfer of landing records from 1990-1992 with transfer of the vessel permit.

Alternative 3: Issue a minimum allocation ITQ share certificate to all eligible applicants.

Discussion: Under this alternative, all reef fish vessel permit income qualifiers would receive a share of the red snapper allocation whether they had previous red snapper landings or not. This implies that the red snapper fishery is not a separate fishery, but rather a component of the overall reef fish fishery. Therefore, all qualifiers of reef fish vessel permits are part of that overall fishery and should be allowed an opportunity to be included in the initial allocation. Under the reef fish permit moratorium, there are currently 1,553 permitted reef fish vessels. Since this alternative would result in a larger number of initial allocation recipients than under the preferred alternative, the initial individual allocations would be proportionately smaller.

Alternative 4: Issue ITQ share certificates to all eligible applicants who have red snapper landings over a certain threshold in one of the years 1990, 1991 or 1992. The threshold criteria is (select 1):

- a. any red snapper landings
- b. 500 pounds
- c. 1,000 pounds
- d. 5,000 pounds
- e. other

Discussion: This alternative would set a minimum threshold in order to establish a historical dependence on the red snapper fishery. This is similar to the threshold criteria that was specified for the 1993 red snapper endorsement, except that the threshold would only need to be met in one of three years rather than two of three years. Subalternative (a) is identical to the preferred alternative, but is included here to illustrate the full range of threshold levels. Based on NMFS logbook and Florida DNR trip ticket data, the minimum number of permitted vessels meeting the threshold would be:

500 pounds	- 522
1,000 pounds	- 408
5,000 pounds	- 177

Figure 1 in Section 14 provides estimates for additional threshold levels. The actual number of qualifying vessels will be higher than the above estimates as additional vessels may qualify based on fish house receipts.

Alternative 5: Issue ITQ share certificates as in one of the above alternatives with the additional requirement that the applicants must have had red snapper landings in at least (1 to 3) number of years.

Discussion: The discussion for the previous alternative also applies to this one. Refer to Figure 1 in Section 14 for minimum estimates of qualifying vessels with from one to three years of qualifying landings. This alternative has no threshold criteria for eligibility (see Alternative 4).

Alternative 6: Issue ITQ share certificates to all eligible applicants who, based on their historical catch records of vessels they owned or operated, had red snapper landings of at least 500 pounds in two of three years between 1990 and 1992 and who were in the fishery prior to November 7, 1989 (control date).

Discussion: Because of the limited resources available and large number of vessels with permits, the Ad Hoc Red Snapper AP felt the eligibility criteria should exclude recent entrants in the fishery and persons landing minimum catches (<500 pounds) in the qualifying years. This would reduce initial recipients of ITQs to about (more than) 219 vessels (Figure 1 in Section 14).

11.2.4 Initial Apportionment of ITQ Shares

Preferred Alternative 1: Allocate proportionately based on the average of the highest two out of three years landings from 1990 to 1992.

Discussion: Under this allocation system, the top two out of three years red snapper landings would be averaged for each eligible persons. These averages would be summed together to arrive at a grand total. Each person's percentage of that grand total would then be the basis for his initial allocation. This system avoids penalizing an eligible person (see Sections 11.2.1 and 11.2.3) who had a bad year or missed a year of fishing during the eligibility period. However, an eligible person who had only one year of eligible landings would receive a reduced initial allocation, since the basis for his allocation would be the average of that one year of landing plus zero. An eligible person who entered the fishery on speculation and had only one year of landings would therefore not be denied entry into the ITQ system, but would enter at a lower allocation than others with similar landings over two or more years. The 1993 landings are not included in the landings averages because these landings occurred after the Council proceeded with development of a red snapper effort management program. Due to the knowledge that a program was being considered and the differential trip limits created by the 1993 red snapper endorsement provisions, landings in 1993 may be atypical.

Table 2 shows several examples of how this alternative (combined with a 100 pound minimum allocation alternative) might work. For purposes of the examples, it is assumed that the two year averages sum up to 2.6 million pounds, and that the quota to be allocated is 3.06 million pounds. The individual pound allocations will increase if the quota is higher than assumed, and will decrease if the sum of two year averages is higher than assumed.

Alternative 2: Allocate proportionately based on average landings record during the eligibility qualifying period from 1990 to 1992.

Discussion: This is similar to the previous alternative except that all three years would be averaged instead of only the top two. Thus eligible persons with landings in all three years would generally receive higher initial allocations than eligible persons with similar landings in only two years, and both groups would receive higher allocations than eligible persons with only one year of landings.

Alternative 3: Allocate proportionately based on highest year landings during the eligibility qualifying period from 1990 to 1992.

Discussion: This alternative would treat anyone who had at least one year of red snapper landings during the eligibility on an equal basis, whereas the other alternatives in this section would give greater consideration to those fishermen with more years of participation in the fishery. This alternative would benefit individuals who had an especially good year or who upgraded to a larger vessel during the eligibility period.

(NOTE: REFER TO SECTIONS 13 AND 14 FOR ADDITIONAL DISCUSSION AND IMPACTS OF THE ABOVE ALTERNATIVES.)

VESSEL	Logbook Landings			Highest 2-year Average	% Allocation (unadjusted)	% Allocation with a 100 lb. minimum	Lb. Allocation (with a 3.06 MP quota, and 100 lb. min.)
	1990	1991	1992				
A	0	0	18,108	9,054	0.3482%	0.3462%	10,590
B	28,280	33,640	24,926	30,960	1.1908%	1.1841%	36,230
C	1,867	860	0	1,364	0.0525%	0.0522%	1,600
D	1,618	4,778	0	3,198	0.1230%	0.1223%	3,740
E	25,864	0	7,655	16,760	0.6446%	0.6410%	19,610
F	0	3,132	11,033	7,083	0.2724%	0.2709%	8,290
G	2,110	0	0	1,055	0.0406%	0.0404%	1,240
H	0	46,891	25,417	36,154	1.3905%	1.3826%	42,310
I	0	11,366	0	5,683	0.2186%	0.2174%	6,650
J	75	14	59	67	0.0026%	0.0033%	100
K	0	42,678	50,022	46,350	1.7827%	1.7726%	54,240

11.2.5 Transferability of Landing Records Related to Eligibility

The FMP, as amended, provides for transfer of reef fish vessel permits under the following conditions:

- (1) Transfer of permits between vessels owned by the income qualifying owner of a permitted vessel is allowed, and
- (2) Transfer of permits between individuals is allowed only with the transfer of the permitted vessel (e.g. by sale), and
- (3) In the event of death or disability of a permit holder, the Regional Director shall have the authority to transfer, either permanently or temporarily, the permit to a person specified by the permit holder, their legal guardian or the estate.

These transfer conditions became effective on May 7, 1992 (Conditions 1 and 2) and January 7, 1994 (Condition 3). Prior to the initiation of the vessel permit moratorium on May 7, 1992 anyone with more than 50 percent of earned income from commercial or charter fishing could obtain a permit for any vessel. Since May 1992, vessels have been transferred under these conditions. This section addresses the issue of transferability of the landing records for these vessels during the 1990-1992 period upon which ITQ shares would be based under Section 11.2.4.

There have been 543 transfers of reef fish permits during the period May 8, 1992 to August 1, 1994. This includes 119 transfers by an owner to another vessel owned by the same entity, 259 transfers associated with a change of ownership, and 165 transfers for which it could not readily be determined if there was a change in ownership or not. Of the 259 transfers, there were several transfers that were the result of lease agreements, which upon expiration transfer back to the original ownership. Many vessels have changed hands multiple times.

The issue that the alternatives under 11.2.5 address is that under the permit moratorium vessels may be and have been transferred to other persons by selling the vessel, the value of which has been enhanced by having a permit assigned to it. However, under the eligibility criteria ITQs will be issued only to current owners or operators whichever is the income qualifier. Therefore, the original owner who sold this vessel may have developed the landings record but cannot participate in the ITQ system. So the issue is one of fairness, i.e., should that record go with the vessel, since without it that vessel cannot qualify for eligibility to fish under an ITQ.

The alternatives fall into three exclusive sets. Alternatives 1 and 6 relate to transfer of a permit by an income qualifying owner to a replacement vessel which is allowed under the permit moratorium. Both alternatives allow this but Alternative 6 would not allow any other transfer of records. Alternatives 2, 3, 4 and 5 relate to the provision of the moratorium (see Amendment 4) which allows the transfer of a permit with the transfer of ownership of the vessel to another person by an owner whose earned income qualified him for the permit [also see 50 CFR 641.4(m)]. If an owner, who did not qualify for a vessel on earned income, sold his vessel both the income qualifying operator and the vessel can no longer fish commercially for reef fish. However, if this operator is aboard another vessel and meets the eligibility requirements of Sections 11.2.1 and 11.2.3 then records are available to assign that person ITQ shares and he is not affected by this section. Similarly, historical captains (approximately four persons) are not affected since the value of the 1990-1992 landings records are shared with the income qualifying owner in assigning ITQ shares. If any historical captain has dropped out of the fishery before the date specified in Section 11.2.3 he is ineligible for shares. Alternative 7 is exclusive and addresses the issue of 1990-1992 landing records of a single individual that may have been listed under more than one name (e.g., his and his corporation name for his vessel - see discussion).

***Preferred Alternative 1.** The landings records for the 1990-1992 period are retained by the permitted owner if the permit was transferred to additional vessels owned by the income qualifying owner.

Alternative 2. The landings records for the 1990-1992 period will be transferred to the new permitted owner if the vessel permit was transferred through sale of the vessel or transferred due to death or disability.

Alternative 3. The landings records for the 1990-1992 period will be transferred to the new permitted owner if the vessel permit was transferred through sale of the vessel or transferred due to death or disability, unless there is a legally binding agreement under which the original permitholder retained such landing records.

Alternative 4. The landings records for the 1990-1992 can be transferred to the new permitted owner if the vessel permit was transferred through sale of the vessel or transferred due to death or disability.

***Preferred Alternative 5.** The landing records for the 1990-1992 period will not be transferred to the new permitted owner, if the vessel permit was transferred through sale of the vessel or transferred due to death or disability, unless there is a legally binding agreement for such transfer, i.e., the permitholder of record in 1990-1992 will retain such records for ITQ eligibility in the absence of an agreement.

Alternative 6: Landings records (for eligibility purposes) cannot be transferred, except in cases of vessel replacement by the permittee of record in 1990-1994.

***Note:** There are three preferred alternatives.

***Preferred Alternative 7:** Notwithstanding other alternatives of this section that may be selected, an owner of a currently permitted vessel will retain the landings record for a vessel that was substantively controlled by him even though the ownership of such vessel was in the name of a different legal entity. "Substantively controlled" means that the same entity had at least a 50 percent interest in the vessel immediately before and after the change of ownership or the change of ownership was from one to one to another of the following: husband, wife, son, daughter, brother, sister, mother or father. The owner of a currently permitted vessel has the burden of proof of substantive control.

Discussion: The Council contemplates that "substantive control" by "the same entity" in this transfer context means that the successor in interest received a 50 percent interest in the vessel as a result of the change of ownership, whether the transfer was (1) from a closely-held corporation to an individual or visa versa, or (2) between successor corporations, or (3) between individuals within the familial relationships listed.

Alternative 1 would allow the permittee who replaced a vessel to retain the landings record for eligibility purposes. The Council originally allowed replacing vessels under a permit because it would have created an undue hardship, if a vessel sank or became inoperable. Similarly, preventing transfer of the landings records from the previous vessels would create an unnecessary hardship. Alternatives 2 through 5 relate to transfer of landings records for ITQ eligibility for vessel transferred through sale with the vessel permit or transfers due to death or disability. Since the vessel permit may have enhanced the sale price of the vessel it seems equitable that the landing record for ITQ eligibility be included with the sale. Some purchasers have indicated that this was a major consideration in purchasing a vessel with a permit. Alternative 2 provides that such records will be transferred. Alternative 3 provides that the records will be transferred unless a legal agreement existed whereby the original permittee retained the right to use such records for ITQ eligibility.

Alternative 4 provides such records may be transferred, leaving the original and new permittees to resolve the issue (in court if necessary). Alternative 5 provides that such records will be retained by the original permitholder of record in 1990, 1991 and 1992, unless a legal agreement existed whereby the original permit transferred the record on sale of the vessel. Alternative 6 provides such records cannot be transferred except in cases where the permittee of record in 1990, 1991 and 1992 replaced the vessel with an additional vessel owned by that permittee.

Alternative 7 addresses the issue of instances when the 1990-1992 landings records for a vessel controlled by a single owner were submitted by more than one operator or in the name of more than one owner. The latter case may have occurred when recording ownership of the vessel under the permit changed by incorporation

of the vessel or within a family or by shareholder/corporate officer name within a corporation.

The Council selected Preferred Alternative 1 as the fairest of the two Alternatives 1 and 6. They selected Preferred Alternative 7 since NMFS felt that would allow them to consolidate the records of a single owner that exist in the computer file from the Amendment 9 data collection that may have been submitted under two or more names, without having to resolve the issue under the appeals board (Section 12.0). The Council selected Alternative 5 as its Preferred Alternative recognizing that the participants had already or would initiate such agreements and if they did not there would be fewer participants to share the limited resource. By legally binding agreement the Council meant an agreement recognized by both parties. If the parties were not in agreement they could resolve the issue in any civil court outside of the rules and procedure of the FMP, as amended.

11.2.6 Minimum Initial Allocation of ITQ Shares

Preferred Alternative 1: Minimum allocation - Allocate as in one of the alternatives for initial allocation of ITQ shares with the additional provision that all eligible fishermen will receive a minimum quota share equivalent to 100 pounds.

Discussion: Many of those who will be eligible to receive ITQ shares land only small amounts of red snapper as a bycatch. If a bycatch allowance is created instead of including these fishermen in the ITQ system, those red snapper landed outside of the ITQ system will need to be accounted for when allocating shares. This alternative allows fishermen to land red snapper as bycatch within the ITQ system by establishing a minimum allocation for those fishermen with very low levels of historical landings. This alternative would not directly affect fishermen who are eligible for initial allocations of more than 100 pounds. However, depending on the number of minimum allocations issued, allocations to other red snapper fishermen would be decreased slightly. Since fishermen who receive minimum allocations will receive more than their proportional shares, this could result in shares being distributed that will not be fished. However, ITQ shares distributed as minimum allocations would have the same transferability as shares distributed as part of the proportional allocation.

Of the vessels with logbooks, 1,153 caught some red snapper during the 1990-1992 period. Of those vessels, 1,013 caught more than 100 pounds in one of the three years and 335 caught more than 100 pounds in two of the three years. If all the vessels that caught less than 100 pounds in two out of the three years are granted a par share of 100 pounds as their initial allocation, approximately 42,500 pounds of additional allocation would be necessary.

Alternative 2: Do not set a minimum quota allocation. All eligible ITQ share recipients will receive a straight percentage allocation.

Discussion: Under this alternative all eligible fishermen would receive an ITQ allocation. However, some allocations would be extremely small. This might force NMFS to issue quota coupons in denominations smaller than what could be efficiently administered. In 1994 the red snapper minimum size will be 14 inches, which corresponds to an average of 1.8 pounds whole weight (1.6 pounds gutted weight). It is not inconceivable that some fishermen could receive an allocation which is smaller than the weight of one legal fish.

11.3 Ownership and Transfer Controls

This section deals with the conditions pertaining to the possession of ITQ share certificates after the initial allocation. Certain features relative to initial ITQ share ownership may need to be modified to accommodate changes in fishing conditions that may hinder the achievement of an economically efficient red snapper industry.

11.3.1 Timing of First Transfer of ITQ Share Certificates

The market for an ITQ share serves as a mechanism for ITQ participants to develop the most efficient operational fishing scale. Transferability (sale or lease) of quota certificates promotes the development of such a market. Aside from efficiency consideration, the transferability of ITQs may be designed to achieve other objectives, e.g., effort reduction, that may be necessary when market pressures are not sufficiently strong to effect the desired objectives. The alternatives in this section pertain to the ITQ share certificates, not the individual quota coupons.

The initial eligibility requirements for holding ITQ shares may be very liberal as to include persons who may no longer be actively involved in red snapper fishing operations. It is possible that some ITQ holders are mere speculative participants. Although speculation has an economic role to play, it may mar the effective implementation of the ITQ program. The timing of ITQ share transfer coupled with some retention conditions (discussed below) offers potential for addressing these issues. Mainly due to the nature of any allocation method that is based on historical participation or on some measures of equity, the initial ITQ share distribution does not usually promote economic efficiency. The timing of ITQ share certificate transfer can either accelerate or retard the speed towards economic efficiency in the red snapper industry.

Preferred Alternative 1: Allow transfer of ITQ shares starting 6 months after the beginning of the program.

Alternative 2: Allow transfer of ITQ shares starting on the first year of the program.

Discussion: Preferred Alternative 1 would delay the transfer for six months, to provide NMFS time to prepare for that activity. NMFS will have just completed the initial allocation of ITQs by the beginning of the program which will be a significant administrative burden, requiring determination of eligibility, assessing ITQ levels and hearing and resolving disputes. Transfer through sale or lease would be permitted after the first six months. This would immediately open up avenues for the development of more efficient operating scale for each participant. If there are requirements for retaining ITQ shares, most holdings will be utilized either through fishing or transfer of the ITQ shares. To a certain extent windfall gains can arise from ITQ share sale or lease (see Appendix A). Initially these gains would not be substantial especially when the eligibility requirements to initially hold ITQ share certificates are not very restrictive. There would many participants and procedures for appraising ITQ shares would not be so developed yet.

11.3.2 Persons Eligible to Transfer ITQ Shares After the Initial Allocation

The eligibility requirements discussed above pertain only to the determination of participants for initial distribution of ITQ shares. The following alternatives relate to subsequent ownership of ITQ share certificates and composition of program participants. When an ITQ share transfer is coursed through the market, ownership becomes largely a matter of financial savvy and could become unrelated to the exploitation of the red snapper resource. For reasons of equity or conservation, the Council may opt to restrict ownership. Note: These alternatives refer to ownership and transfer of the ITQ share certificates. They do not pertain to ownership and transfer of the quota coupons, which are valid only for the year in which they are issued.

Preferred Alternative 1⁶: For the first one and a half years, transfers of ITQ share certificates can only occur among those who were eligible to receive a red snapper ITQ allocation at the start of the ITQ program. Thereafter, provide no eligibility requirements on the transfer of ITQ shares, except as those provided under ownership restrictions or rule violations. Transfer of ITQ shares is limited to natural persons who are U.S. citizens or permanent resident aliens.

Alternative 2: Allow the transfer of ITQ share certificates only among the original but currently active participants of the program. Transfer of ITQ shares is limited to natural persons who are U.S. citizens or permanent resident aliens.

Alternative 3: Allow the transfer of ITQ share certificates only among the original participants of the program. Transfer of ITQ shares is limited to natural persons who are U.S. citizens or permanent resident aliens.

Alternative 4⁷: Allow the transfer of ITQ share certificates among all those who are eligible to receive a red snapper ITQ allocation at the time of the transfer. Transfer of ITQ shares is limited to natural persons who are U.S. citizens or permanent resident aliens.

Alternative 5: Provide no eligibility requirements on the transfer of ITQ share certificates, except as those provided under the section on ownership restrictions or rule violations.

Discussion: The Council selected Preferred Alternative 1 because it would give existing reef fish fishermen preference during the initial phases of the ITQ. The Council felt that it was completely equitable and consistent with §303(b)(6) of the Magnuson Act to give preferential treatment to the historical participants in the fishery for this 18-month period. They limited transfer during this 18-month period to natural U.S. citizens and permanent resident aliens because of concern that foreign entities (corporations or persons) would attempt to buy shares before the marketplace has set fair market price. Natural persons would include officers and shareholders of corporations (March and May 1993 Council minutes). The Council in its first discussion on limiting initial transfer to U.S. citizens considered a definition used in the MAFMC surf clam ITQ system. That was to utilize the definitions of persons who could document vessels under 46 USC 12.102-12.108. However, it was speculated that some Indochinese immigrants were already in the fishery. Therefore, on advice of General Counsel the Council included permanent resident aliens.

The alternative restricts transfer of ITQ shares during the startup phase to those individuals initially in the ITQ program. This will prevent speculative entry into the fishery while participants adjust to the system. Since a majority of reef fish permit holders are likely to qualify as initial participants under the preferred alternative for initial allocation, there will still be a large number of potential buyers and sellers of ITQ shares to allow development of an ITQ share market. Once the startup period is complete, all restrictions on transfer of ITQ shares will be lifted, except as provided for ownership restrictions or rule violations, in order to allow for a

⁶ Eligibility for this alternative is defined as meeting the eligibility requirements of the preferred alternative in section 11.2.1 at the start of the ITQ program, regardless of whether the person received an initial allocation.

⁷ Eligibility for this alternative is defined as meeting the eligibility requirements of the preferred alternative in section 11.2.1 at the time of the transfer.

completely open market system and for new entrants into the fishery. Because no foreign fishing for red snapper is authorized in the EEZ, ITQ share ownership is restricted to U.S. citizens and legal residents.

Alternative 2 provides for an ever decreasing number of shareholders harvesting red snapper in the fishery, since only exit from the fishery is allowed. Reduction in current high effort level would be more rapidly achieved under this alternative. However, the market for ITQ shares would become more limited and might not be able to accommodate fluctuations in harvest operations due to changing stock and red snapper market conditions. The restrictiveness of this alternative also disallows other uses of ITQ share certificates. Banks and other credit institutions may not honor ITQ share certificates as collateral for loans since they could not (temporarily) own them in cases of foreclosures. This could limit the capability of vessel owners with ITQ share certificates to upgrade their operations when necessary. On the other hand, this could also prevent persons being precluded from harvest due to financial problems not directly related to fishing operations. Unless at some future time provisions were instituted allowing new entrants into the fishery this alternative may not stand legally.

Alternative 3 is less restrictive than Alternative 2 but still prevents some uses of ITQ share certificates (e.g., bank borrowing) that could enhance the development of most efficient harvesting scale of operations. If most of the exiting participants are marginal operators, this alternative will have similar effects as the first alternative since in this case the transfer can occur mostly among the remaining participants. While this alternative accommodates previous participants who left the fishery for some pressing reasons, it also opens up questions on equity where individuals are not allowed to share in the common resource for the sheer lack of historical participation in the fishery. It also may not stand legal challenge since there is no provision for new entrants other than the original closed group.

The fourth alternative is less restrictive than either Alternatives 2 or 3. This alternative allows red snapper fishermen initially excluded to re-enter the fishery and utilize their prior investments of skills and money in the red snapper fishery.

Alternative 5 provides an environment conducive to the speedy and full development of the ITQ share market and the achievement of an efficient red snapper harvest sector. However, this alternative will also permit persons to buy up ITQ shares who are not fishermen, but who obtain the shares purely for financial or political reasons (some fishermen have expressed concern that anti-commercial fishing interests may attempt to buy up shares in order to remove them from the fishery). Harvest allocation will be mainly determined by financial ability and fishing skills. Persons desiring to enter the fishery may do so by purchasing ITQ coupons and/or shares and meeting other eligibility requirements.

11.3.3 Continuing Ownership of ITQ Shares (Use It or Lose It)

The following alternatives presuppose that ownership of ITQ shares are validated annually or every such period necessary to ensure that conditions for valid ITQ shares are satisfied. These alternatives should be taken without prejudice to the choice on the duration of ITQ share certificates (Section 11.1.2). That is, if ITQ share certificates carry the weight of a perpetual right, they may be revoked any time conditions set forth under this section are not met.

Preferred Alternative 1: No ITQ share certificate or any portion thereof shall revert to the management program, except in pursuance to sanctions on rule violations [see 50 CFR 904(d)].

Alternative 2: If for any one fishing year 50 % (or some other percentage) of a person's holdings of ITQ shares are not fished, sold or leased, his entire holdings of ITQ shares (less that portion sold) shall revert to the management program.

Alternative 3: If 50 % (or some other percentage) of a person's holdings of ITQ shares are not fished, sold or leased for 2 (or some other time period) consecutive years, his entire holdings of ITQ shares (less that portion sold) shall revert to the management program.

Alternative 4: If for any one fishing year 50 % (or some other percentage) of a person's holdings of ITQ shares are not fished, sold or leased, his holdings of ITQ shares shall be proportionately reduced.

Alternative 5: If 75 % (or some other percentage) of a person's holdings of ITQ shares are not fished, sold or leased for 2 (or some other time period) consecutive years, his holdings of ITQ shares shall be proportionately reduced.

Discussion: The Council selected Preferred Alternative 1 because it imposes no "use" restriction on ITQs. If persons choose not to harvest under ITQ shares in any year that would benefit the restoration of the stock (March and May 1993 Council minutes). The remaining alternatives are all various types of "use it or lose it" provisions. An ITQ share certificate is "used" if an ITQ coupon is used. However, a coupon is valid only for the fishing year it is issued. They require that ITQ shares or portions thereof be surrendered when they are not "used" (i.e., fished, sold or leased) for purposes of harvesting red snapper. Alternatives 2 and 3 require surrendering all ITQ holdings, while alternatives 4 and 5 limit the amount to be surrendered. Each of the alternatives can be made more or less restrictive by the choice of the percentage use requirement or the number of years for which such use requirement must be met.

In the initial stages of the ITQ system, the use requirement serves to weed out speculators and those receiving catch allocations beyond their current capacity, especially if transfer of ITQ shares is not immediately allowed. Marginally efficient operators may also be affected by the use requirement although this group may be expected to intensify their fishing effort if only to cash in later on their ITQ holding when sale or lease becomes permitted. In later stages of the program, this use requirement would compel operators to consolidate ITQ shares mainly to the extent of matching their catch capacity. It would also weed out any shareholders who buy up shares without intending to use them, such as fishermen seeking to monopolize ownership or anti-commercial interests seeking to eliminate a portion of the commercial fishery. If the use requirement is very restrictive, e.g., using 100 percent of ITQs within one fishing season, this matching may be difficult to realize, because it takes time to increase catch capacity. Restrictive use requirement may also tighten access to financial sources, since ITQ share certificates cannot be effectively utilized to serve as loan collateral or be counted as part of one's capacity to liquidate loans. Over the life span of the program, the use requirement acts to ensure that the total annual crop above overfishing levels is harvested. Since the market for red snapper in addition to harvest levels influences the profitability of the red snapper industry, it is important for the use requirement to account for fluctuations in this market. Additionally, the TAC needs to be "correctly" specified in order to avoid overfishing and to prevent undue reversion of ITQs to management.

The major drawbacks of the use requirement are 1) the instability it brings to the harvest sector and 2) it will create a negative conservation impact by forcing ITQ shareholders to harvest red snapper that they may not have otherwise harvested in order to maintain eligibility. If some ITQ shares are not fished (e.g. held by lending institutions) the effect is more rapid restoration of the red snapper stock. Although ITQ holders are assured of a certain amount of catch, they can minimize harvest cost by fishing during the height of a seasonal crop like red snapper. To a large measure, cost minimization is still a major objective in red snapper fishing even under the ITQ program, because ex-vessel price is largely influenced by imports. The racing derby nature of the fishery would still be present during the months of higher red snapper abundance, and this would be likely accentuated by the use requirement. It should also be remembered that if an ITQ share is not fished other

fishermen benefit in terms of higher CPUE, i.e., if 20 percent are used only as financial documents and not fished a 20 percent reduction has been achieved.

11.3.4 Disposition of ITQ Shares That Revert to Management

Preferred Alternative 1: ITQ shares that revert to management will be proportionately reissued to shareholders in the following and subsequent years.

Alternative 2: ITQ shares that revert to management will not be reissued during the red snapper rebuilding period. Thereafter, they will be proportionately reissued.

Discussion: Under Alternative 2 any shares reverting to NMFS for violations of the provisions of the ITQ program, or for other reasons, would not be reissued. This would result in the allocation of the commercial quota to ITQ holders being less than 100 percent of the quota. The percentage not allocated would aid in restoration of the stock in a shorter period. The Preferred Alternative would redistribute the returned ITQ shares proportionately to all shareholders.

11.3.5 Maximum Ownership or Use⁸

Due to the transferability of ITQs, the Council may opt to restrict the cumulative amount of ITQ owned or used by any single person within a single fishing year or certain period of years. Although there are existing anti-trust laws that could be invoked with respect to ownership of ITQs, the Council may need to introduce additional provisions in order to meet certain objectives, like avoidance of costly anti-trust litigations, preservation of equitable access to the use of a common resource, etc.

Preferred Alternative 1: No maximum shall be imposed on the possession of ITQ shares and fishing of ITQ coupons for any single fishing year.

Alternative 2: For any single fishing year, no person shall possess ITQ shares and fish ITQ coupons that are more than 10 percent (or other percent) of the total quota allocated to the ITQ system.

Alternative 3: For 2 consecutive years, no person shall possess ITQ shares and fish ITQ coupons that are more than 20 percent of the total quota allocated to the ITQ system.

Alternative 4: No person shall possess more than the maximum percent of ITQ shares that was initially issued to any one person at the start of the ITQ program.

Discussion: Preferred Alternative 1 presupposes that only the anti-trust laws may be invoked if a problem exists. The Council considered adoption of Alternative 2, limiting possession of ITQ shares to no more than 10 percent. However, in discussion of this alternative they concluded such a limit could be easily circumvented by a family or corporation where individual members each held up to 10 percent. Therefore, they adopted Alternative 1 as the preferred alternative. **The RIR (Section 13.8.3) concludes that given the large number of substitute species and products for red snapper available to consumers the market is unlikely to result in major consolidations of ITQ shares.** The next two alternatives differ mainly in the accounting period considered for possession of ITQs, i.e., one year for the former and two years for the latter. The last alternative is equivalent to Alternative 2, except that the maximum possession limit would be set at the level of the highest single initial allocation of ITQ. The maximum initial ITQ for any one vessel is expected to be less than 3 percent, however, a person who owns several vessels could accumulate a significantly higher total allocation. A person includes a corporation, company or other legal entity that owns permitted vessels or holds a vessel permit.

The major concern addressed by ownership restriction is the monopolization of the ITQ market. Considering the level of current participation and capitalization in the industry, monopolization of the ITQ market is not expected to occur in the near future. Initial ownership restriction could also delay any movement toward a monopoly situation. It is, however, possible that over time a group of individuals, particularly fleet owners or those belonging to some associations, could have effective control over the ITQ market. To the extent that this prevents other entities from restructuring their operations to the most efficient scale, there may be some ground for restricting the ownership of ITQs. In addition, control of the ITQ market by some individuals could prevent other legitimate entities from sharing in the exploitation of common resource at reasonable cost. While in principle such control is possible, one cannot be certain that it will ever occur. If no ownership requirement is adopted, the Council may need to assess the market some later time to ensure that the market for ITQs is working under competitive conditions.

⁸ In this set of alternatives, possession of ITQs means ownership of permanent ITQ shares while fishing of ITQs means possession and fishing of annual individual quota coupons.

11.4 Monitoring Procedures

The ITQ system requires frequent monitoring of activities to ensure that overharvest of individual allocations do not materialize and that the market for ITQs is working properly. Information flow is very vital to the success of the ITQ program.

11.4.1 Quota Tracking

Timeliness of harvest information from individual participants of the program is extremely important to avoid exceeding individual and overall quotas.

Preferred Alternative 1: Utilize a quota tracking system similar to the one adopted in the South Atlantic wreckfish fishery (See discussion for provisions of this tracking system).

NMFS may implement by proposed and final rules modifications to the monitoring procedure to improve efficiency, provided the following essential elements are addressed: Each shareholder is advised in a timely manner of his or her annual individual quota in pounds of red snapper; individual quotas or portions thereof are transferable, to the extent allowed under the implementing regulations; the ultimate user of a portion of the individual quota can be identified; an individual's available quota can be readily correlated with red snapper possessed aboard a fishing vessel or by a dealer; and individual and total quotas can be readily monitored.

Discussion: This alternative can be readily implemented since it is now currently used in a fishery in the Southeast and the details have already been worked out. The salient features of the system are described below. The cost of implementing this system is likely to be higher than that for the wreckfish fishery.

The indented portion of the preferred alternative would allow the monitoring system to be improved without the necessity for an amendment to the FMP. The requirement for proposed and final rules would ensure opportunity for comment by the Council and affected fishermen on a proposed modification of the monitoring system.

Note: The following are the salient features of the wreckfish system:

- 1) ITQ coupons will be issued each year in denominations of pounds equaling the total pounds of a shareholder's individual quota of red snapper.**
- 2) Coupons will be serially numbered and coded for each shareholder.**
- 3) Coupons will be separable at the center. The fisherman's half of the coupon will be submitted to NMFS with the logbook sheet for the trip within seven days of the trip settlement. The dealer's half of the coupon will be given to the dealer who purchases the red snapper.**
- 4) No red snapper may be possessed on board a vessel unless that vessel has on board a reef fish permit, ITQ coupons and logbook sheets.**
- 5) The operator of a vessel must have coupons on board in denominations totaling at least the weight of red snapper on board. Coupons totaling at least the weight of red snapper on board must be "canceled" by being signed and dated, in ink, prior to landing.**

- 6) The owner or operator of the vessel must sell all red snapper landed through a federally permitted dealer.
- 7) A dealer must receive from the vessel operator the dealer's half of coupons in denominations equal to the weight of red snapper received. The dealer must "cancel" each dealer's half-coupon upon receipt by entering the permit number of the vessel from which the red snapper were received, the date received, the dealer's permit number, his signature and date, in ink. Canceled coupons must be available at the dealer's premises in amounts equal to the red snapper at the premises until such coupons are submitted to NMFS.
- 8) The dealer's half of the coupons will be submitted to NMFS on a monthly basis, or more frequently, of required, with such other reports that may be required.
- 9) Refinements of the quota monitoring system can be made by NMFS and Council staffs if allowed under the OMB data collection control and is hereby authorized under the FMP.

Alternative 2: Use the existing method of collecting harvest data to monitor harvest under the ITQ program.

Discussion: This alternative utilizes the current system of data collection. Although it has been relatively effective in monitoring the commercial quota for red snapper, it has several flaws. Currently landings information to monitor the quota is collected from dealers by NMFS and the states. Beginning in 1993 all commercial reef fish vessels were required to submit logbook sheets for each trip listing species and poundage landed. Beginning in 1994 reef fish dealers (first purchasers) who received fish from the EEZ were issued permits and required to keep a record of fish received from each vessel. This record must be retained for one year and be available for inspection by authorized officers or designees of the SEFSC director (port agents). The dealer is required to report only aggregate landings of a species for a prescribed period (usually weekly for the derby fishery). This system has the necessary data and could be modified to provide the information to cross-check data submitted by fishermen by logbook and be used to monitor ITQ landings. However, permitted vessels are not required to sell to a permitted dealer and dealers purchasing reef fish from state waters are not required to obtain a permit or keep records of individual landings by vessels by trip.

While potentially this system could be used to monitor landings by revising the reporting requirements, it does not provide the flexibility to the industry that the coupon system does. Under the coupon system, persons can buy, sell, trade or lease the coupons, without transfer registration by NMFS. Without the coupons, ITQ shares (or portions thereof) must be bought, sold, traded, or leased. This creates problems for persons who may have used the ITQ share as collateral for a loan, as the lending institution may hold the share. It also involves registration of each transfer by NMFS and the inherent delays in that system. Persons, in order to meet landing obligations may need to temporarily transfer part of their share, due to incapacitation of vessel or operator and resume their operation later in the season. Some of the flexibility in consolidating annual shares for more efficient vessel operations is lost without the coupon system.

Alternative 3: Establish a reporting system requiring the following persons to file reports regarding landings and other information covered by ITQ holdings: a) vessel/boat captains, b) red snapper dealer or first buyer, and c) all holders of ITQ share certificates.

Discussion: This alternative requires submission of reports by a number of persons closely involved with the harvest and sales of red snapper. The idea of this alternative is to generate the similar information from three independent sources. Vessel captains must maintain a trip log indicating, among others, the species and poundage of red snapper caught. This log does not have to be submitted on a regular basis but should be available upon request to NMFS or any ITQ enforcement agency. Dealers receiving red snapper must file a weekly or monthly report on the species and amounts of red snapper received, the name of vessel/captain

landing red snapper, and the name of the owner or any identifier of the ITQ certificates covering the red snapper landed. Lastly, ITQ certificate holders must file a monthly report indicating their beginning unused balance of ITQ share, any change in holding due to sale or lease, amount of red snapper landings including the vessel/captain and dealers involved, and the ending balance of their ITQ share holdings. Although this system is costly on both the ITQ participants and the administering agency, the cost to participants may be deemed as part of the resource rental for the limited right to exploit the fishery resource (see Appendix A). The additional cost to the administering agency may be substantial depending on how much of current data collection and management cost is shifted to the new system. Under this system, an ITQ certificate holder would continue to be responsible for monitoring the use of any ITQ coupons which he has sold to others. It may be noted that current regulations affecting the red snapper fishery do not appear to be a substantial cost.

11.4.2 Monitoring Transfers of ITQ Shares

In addition to monitoring the use of individual quotas, there is a need to monitor the market for ITQ certificates. It is possible that the type of individual quota monitoring adopted could incorporate additional features specifically designed to monitor the ITQ share market. The following alternatives, then, may be incorporated in the design of a system for monitoring individual quota share certificates.

Preferred Alternative 1: Require all sales and leases of ITQ share certificates to be registered with and approved by the National Marine Fisheries Service. An administrative fee will be charged to handle the cost of registering the share transfers. Such registration of transfers are allowed only during the months of January through October each year (or other 2-month period prescribed by NMFS).

Discussion: Transfer, i.e. sales and leases, of ITQs is an integral part of the ITQ program. This alternative recognizes the fact that the program's administering agency must exercise some control over such transfer, in order to issue the annual ITQ coupons to the current owner/lessee of the ITQ share. Registration is a logical step in this regard. Under this alternative, approval by NMFS of ITQ share transfer serves to ensure that the transaction itself and the transacting parties do not violate any applicable regulations on the possession and use of ITQ share certificates. The criteria for approval may be broadened to include any violation by the transacting parties of **any** fishery regulations. The negotiation for sale or lease of ITQ share certificates is mainly the responsibility of the transacting parties. The development of the market for ITQ shares is left solely in private hands. The transfer of ITQ shares will require reissuing a new share certificate in the name of the recipient. The Magnuson Act provides the fee for such action shall not exceed the administrative cost of issuing such a certificate (i.e., currently approximately \$50). Each year after the Council sets TAC and the quota (usually September) NMFS must compute the value of each ITQ share in terms of poundage and issue ITQ coupons in denominations of pounds to each share holder before the start of the fishing season (January 1). In order to do this, transfers of ITQ certificates is prohibited during the months of November and December. This prevents persons from legally transferring shares during these months but **persons may conclude agreements for such transfers during that period for registration of transfer by NMFS following that period.**

Alternative 2: Establish a "clearing house" which administers the transfer of ITQ shares. This shall be composed of representatives from the industry and state and federal fishery agencies.

Discussion: Under this alternative, the bonded clearing house may be conferred limited or broad functions. If limited, it functions mainly as a facilitator of all ITQ share transfers. Negotiations are performed by the owners and buyers/lessees of ITQ certificates among themselves with minimal involvement of this body. It thus merely serves as the "meeting place" for transactors and keeps records of only the final transactions. In its broader version, this body could render binding decisions on the contracts involving the transfer of ITQ share certificates. It could have the right to enforce rules regarding ITQ share certificate possession and transfer, including the setting of maximum or minimum price. It could even set rules outlawing any ITQ certificate transactions not properly coursed through it. Buyers and sellers of ITQ share certificates do not have to meet or know one another to effect the transfer. This alternative provides broader avenues for the full development of the ITQ share market than the first alternative. So long as government agencies have effective control over

this body, particularly its broader version, the ITQ share market may achieve its intended objective of accommodating stock and market conditions for red snapper.

Alternative 3: Allow the transfer of ITQ shares to transpire under the usual procedures for the transfer of private properties.

Discussion: This alternative leaves entirely the development of the ITQ share market to private entities. Depending on the frequency of transfer and necessity to adjust the operating scale for red snapper fishing, this alternative could be more costly than the second alternative, since individuals may have to spend more money and time finding the right buyers or sellers. There also will be extreme difficulty keeping track of the owners or users of ITQ certificates, especially for the purpose of enforcing certain regulations like maximum ownership, reporting requirement, etc.

11.4.3 Monitoring and Transfers of ITQ Coupons

The previous section presented alternatives for monitoring ownership of share certificates. This section presents alternatives for monitoring the use and transfer of individual coupons. Unlike the share certificates, which retain value year after year, quota coupons are valid only for the fishing season in which they are issued.

Preferred Alternative 1: Annual coupons issued in denominations of pounds to the shareholders would be freely sold, leased or traded with no agency registration.

Discussion: This alternative allows the transfer of ITQ coupons to transpire under the usual procedures for the transfer of private properties. It provides the greatest flexibility to fishermen. Coupons may be sold or traded to anyone. This may include persons who do not own share certificates but are otherwise eligible to fish for red snapper (i.e., hold reef fish permits), and persons who are not eligible to fish commercially for red snapper but are obtaining the coupons on speculation for later resale to an eligible red snapper fisherman. With no agency registration, the coupon transfer would occur immediately upon agreement between buyer and seller.

Alternative 2: Annual coupons issued in denominations of pounds to the shareholders would be sold, leased or traded with no agency registration, provided that coupons may be transferred only to red snapper ITQ shareholders.

Discussion: This would limit transfer of coupons to holders of ITQ share certificates. It would therefore limit entry into the red snapper fishery to those eligible to own share certificates. The requirement that a purchaser must first own a share certificate restricts entry into the red snapper fishery by increasing the cost for a fishermen who is not included in the initial allocation. Without agency registration, there will be no monitoring of coupon transaction, making enforcement of transfer restrictions difficult.

Alternative 3: Annual coupons issued in denominations of pounds to the shareholders would be sold, leased or traded with no agency registration, provided that coupons may be transferred only to federal reef fish permit holders.

Discussion: This is similar to the previous alternative, but would limit transfer of coupons to holders of reef fish permits and thus provide a larger base of eligible purchasers. Speculators who do not hold reef fish permits would be prohibited from obtaining quota coupons. Fishermen who want to become eligible to obtain red snapper quota coupons would not need a share certificate, but would need a reef fish permit. Since they need the reef fish permit in any event to harvest red snapper, this alternative imposes no additional cost on entry into the red snapper fishery. However, as with the previous alternative, with no agency registration, there will be no monitoring of coupon transaction, making enforcement of transfer restrictions difficult.

Alternative 4: Require all sales and leases of ITQ coupons to be registered with and approved by the National Marine Fisheries Service.

Discussion: This would require that all coupon transactions be submitted to NMFS for approval. If restrictions on ownership of ITQ coupons are established, this would allow NMFS to determine whether a transaction is allowable. However, it would slow down the actual transfer of coupons and prevent any transfers from occurring on weekends or federal holidays, when NMFS offices are closed. Thus it would limit the flexibility of coupon transfers.

Alternative 5: Establish a "clearing house" which administers the transfer of ITQ coupons. This shall be composed of representatives from the industry and state and federal fishery agencies.

Discussion: This alternative is identical to the previous alternative, except that transfers would be monitored through a clearing house rather than through NMFS.

12. SPECIFIC IMPLEMENTATION ALTERNATIVES - APPEALS AND HARDSHIPS

Regardless of the type of system implemented, disputes are likely to arise over certain aspects of the operation of the system. A large portion of these disputes will occur when the system is first implemented and will be related to establishing shares for ITQs or the right to participate in the system. Even though the criteria established under the system will regulate these issues, there will be gray areas where a judgment is required on whether certain criteria are met.

Establishment of an appeals board would provide a means to hear disputes and render a recommendation on the issues. The appeals board could be constituted from persons permitted under the system with or without agency representation. The board could be convened periodically to review all disputes or only those referred to it by the agency. The board or Council could set its operations procedures, but at least should include limiting the time for presentation of disputes and rendering a decision by secret ballot. Such a decision would be a recommendation to the Regional Director (or his designee). At minimum, compensation for travel cost should be provided to board members.

12.1 Appeals Board

Preferred Alternative 1: Create an appeals board to hear disputes and render an opinion.

Alternative 2: Do not create such a board (i.e., agency resolves disputes.)

Alternative 3: Employ a licensed arbitrator to render an opinion.

Discussion: A number of limited access systems have appeals boards that are largely composed of members of the industry regulated (e.g. such a board was used for spiny lobster). The board hears the dispute and renders an opinion. The opinion is a recommendation to the agency which makes the final decision. The use of such a board is generally more acceptable to the fishermen since persons engaged in their industry who understand their operations render the opinion. The board would not hear disputes related to violations and will only hear disputes referred to it by the **Council, to provide for an orderly process.**

Persons will be notified of the appeals process by the Council and persons with disputes will be required to set forth the nature of their dispute or hardship in a letter, that should include relevant information supporting their claim or hardships (e.g., landings records). The Council will advise them of the time and place the appeals board will hear their case.

If such a board is not created, then all disputes will be resolved by the agency (NMFS). This may occur at the level of the clerk issuing permits or may be elevated to a higher level. NMFS could also employ temporarily a trained arbitrator to hear disputes and render an opinion. Regardless of who attempts to resolve such disputes, the final regulations will be binding until amended, and a dispute resolution should address only the gray areas. If such a board is created, members will require compensation for, at least, travel and subsistence costs.

12.2 Structure and Function of Appeals Board

The appeals board will function to ensure that the criteria for acceptance of eligibility and landings data are applied properly **and under Section 12.3 would hear hardship cases**. For example, the appeals board would determine if specific landing data should be credited to a specific fisherman based on NMFS log books, Florida trip tickets, or dealer receipts. Additionally, the board would determine if there was sufficient justification to allow late applications or landings data for a specific fisherman. The board may consider applicants or landings data outside the scope of the criteria established by the Council. Members of the appeals board will provide their individual recommendation for each appeal to the Regional Director for final action.

The appeals board will resolve all the issues related to the eligibility for ITQ shares based on the criteria under Section 11.2 (or under Sections 10.1, 10.2 and 10.3 for licenses) before it reviews hardships. Section 12.5 provides for a separate quota set-aside for resolving ITQ hardships.

Preferred Alternative 1: A special advisory panel composed of commercial industry members will be appointed by the Council to review and evaluate appeals. Recommendations by panel members must be provided individually to the Council Chairman or directly to the Regional Director (RD). The Council Chairman would provide the individual recommendations to the RD. The RD would render the final opinion on approval/disapproval of the appeal. Advisory Panel members would be selected by the Council from a minimum of three recommendations by each state director. Persons submitting appeals must state their case in writing and submit it to the Council or NMFS for distribution to the Advisory Panel before the appeal is scheduled for review.

Other alternatives for structure of the appeals board are listed below:

Alternative 2: The appeals board will consist of each of the state directors or their designees, plus one fisherman from each state. The fishermen will be selected by the Regional Director from recommendations of the state directors, and will be selected from those fishermen who, if an ITQ or a license limitation system is selected, have agreed to accept their allocation of quota or license. Each state director will submit a minimum of three recommendations.

Alternative 3: The Council will appoint members from participants in the limited access system.

Alternative 4: Allow each major red snapper association to elect or appoint a member.

Alternative 5: Include one member for each regulatory agency whose jurisdiction is part of the management area.

Alternative 6: The Council will appoint members who have no association with the red snapper industry.

Discussion: The board should consist of no more than five to ten persons or, to reduce travel cost and individual case loads, could be structured as three separate regional boards with smaller membership (e.g., three members). The Council could select the members from participants in the system or allow the fishery associations to select the members, or appoint persons with no association with the red snapper industry. However, in the latter case the members likely would not serve without salary compensation. Representatives of the agencies should be members.

Disputes reviewed by the board will be those referred to the Council or NMFS, and the board will render individual opinions that are recommendations to the Council Chairman or the Regional Director (or his designee).

The appeals board will resolve all the issues related to the eligibility for ITQ shares based on the criteria under Section 11.2 (or under Sections 10.1, 10.2 and 10.3 for licenses) before it reviews hardships. Section 12.5 provides for a separate quota set-aside for resolving ITQ hardships.

12.3 Consideration of Hardship Cases by the Appeals Board

It is the intent of the Council that hardship allocations under this section be awarded only to persons with a demonstrated dependence on the red snapper resource.

Preferred Alternative 1: The board will consider hardship cases when resolving disputes and determine their merits on a case by case basis. Awards will be made when an individual proves circumstances which were beyond his control.

Guidelines: Since hardships are, by their nature, unique situations, the Council cannot predict all of the circumstances which would merit consideration. the Council emphasizes that hardship allotments are to be awarded on the basis of circumstances which were beyond an individual's control, as opposed to difficulties resulting from unfortunate business judgments. The following examples of meritorious circumstances are offered to aid the special advisory panel in its determinations:

- a. The fisherman's vessel was in the boat-yard for reconditioning and the work was not done in a timely manner despite the owner's persistent efforts; or
- b. The fisherman's vessel was the subject of litigation and he was thereby prevented from fishing; or
- c. A health problem, physical or mental, of a degree sufficient to prevent the fisherman from fishing existed, regardless of whether he was, himself, the patient; or
- d. A family situation required the fisherman's presence and attendance to the extent that he could not engage in fishing.

These examples are not exhaustive, and are given only to illustrate situations resulting from circumstances beyond the control of the fisherman. The Council further instructs the special advisory panel to require documentation and/or other proof of the claims made pursuant to this section.

Alternative 2: The board will consider hardship cases when resolving disputes. Hardships will only be considered for specific circumstances:

- a. Medical disability during at least 50% of the eligibility qualifying period.
- b. Bankruptcy of a boat owner that would have qualified. Landings that would have accrued to the bankrupt permit income qualifier may be used by the current owner or operator to meet eligibility requirements.
- c. other circumstances specified by the Council, approved by the Secretary, and published in the Federal Register.

Alternative 3: The board will not consider hardship cases.

Discussion: It is the Council's intent that the appeals board finish the task of establishing eligibility of participants based on landings information before it addresses hardships. Allocations of ITQ share based on hardship is limited by Section 12.5. Some applicants may fail to meet eligibility requirements due to individual circumstances beyond their control. Alternative 2 would allow the appeals board to consider hardships which would meet specific criteria. However, since hardships are, by their nature, unique situations, the Council may not be able to predict in advance all of the types of hardship cases that it wishes to consider. The Preferred Alternative would allow the appeals board to consider hardship cases on a case by case basis. However, this alternative, and to a lesser extent Alternative 2, could result in decisions being made subjectively rather than objectively, and could result in biased decisions. Alternative 3 would guarantee objectivity by removing consideration of hardship cases requiring all decisions to be based on the same eligibility requirements, (i.e., landings data).

12.4 Duration of the Appeals Board

Preferred Alternative 1: The board is terminated after the initial allocation of ITQs or licenses is completed.

Alternative 2: The board's term is indefinite and may be used to render an opinion in any dispute referred to it by the Regional Director.

Discussion: Typically such appeals boards cease to exist after the initial allocation of fishing rights is completed. Alternative 1 would retain the board to address those issues relating to operation of the limited access system as may be referred to it by the RD.

12.5 Quota Set-aside for Resolving ITQ Hardships

Preferred Alternative 1: Up to 3 percent of the initial commercial red snapper allocation will be set aside to use for resolving ITQ hardship cases.

Discussion: Under this alternative, hardship allocations would come from a set-aside. Fishermen who do not appeal will not have any reduction in their initial allocations as a result of hardship awards. If the set aside is too small, then fishermen receiving hardship allocations may be forced to receive reduced shares. On the other hand, if there is unused set aside after hardships have been appealed, then this surplus could need to be redistributed to eligible fishermen in a manner consistent with the terms for initial distribution of shares. **At the current TAC the set-aside is equivalent to 92 thousand pounds.**

Alternative 2: There will be no set-aside of the commercial red snapper allocation for resolving ITQ hardship cases.

Discussion: Under this alternative, shares for hardship allocations would be awarded by proportionately reducing the initial allocations to fishermen who do not appeal. In effect, eligible fishermen would receive an initial notification of eligibility and/or ITQ allocation. If an ITQ system is being adopted, then after all hardships have been resolved, fishermen will receive a corrected ITQ allocation reflecting their reduced shares as a result of hardship awards. Because of the knowledge that hardship allocations awarded to others will reduce their initial allocations, there may be an incentive for fishermen to appeal their initial allocations whether they realistically expect to prevail or not, thereby overloading the appeals process.

12.6 Quota Set-aside and Other Measures for Resolving ITQ Legal Disputes

Preferred Alternative 1: All shares distributed during the first years of the ITQ program will be qualified by the condition that they may be reduced by some quantity based on the outcome of legal disputes at some future date.

Alternative 2: There will be no set-aside or other measure applied to compensate for legal disputes that ultimately could result in increases in shares or additional shares being distributed.

Alternative 3: An amount recommended by GCSE, but not more than 2 percent, will be set aside during the initial allocation of shares to cover any anticipated legal disputes that might result in increased share or additional shares being distributed under the ITQ program. Any amount remaining in the set-aside after the disputes have been settled will be distributed back to the initial recipients.

Discussion: This section addresses legal disputes that are not resolved in the appeals process (Section 12.2) for which a person seeks relief through litigation in the courts or by persons who do not participate in the appeals process and seek such relief. The intent of the Council is that the appeals process be completed before initial allocation of ITQ shares is made. This section would provide for subsequent adjustment of all ITQ shares to provide for allocations granted under litigation. Most likely before these cases are resolved TAC will be increased for the stock and the initial allocations (in terms of pounds) of other participants would not be reduced. However, the preferred alternative provides that all participants be noticed that such adjustments to the ITQ shares (in terms of percentage of commercial quota) may be necessary.

Realistically, there will be legal disputes arising from the allocation of ITQ shares. The number of these and their ultimate outcome will depend to a great extent on the care that has gone into developing the program and in identifying and applying criteria for participation and allocation of shares. Any increase in participation and accepted landings data may result in a proportional decrease in the shares originally allocated to participants. This did not happen during the wreckfish ITQ program, but certainly the potential, even though small, exists. Thus, there are several options available to address the problem. The preferred option is to initially distribute all shares (equal to 100 percent) and then reduce each share some proportional amount based on the outcomes of the legal disputes such that the total share distribution never exceeds 100 percent. Another option is to ignore the possibility of having to reduce individual shares by distributing 100 percent of the shares at the outset. Subsequent shares awarded as a result of a legal dispute would be added to the total such that the subsequent allocations would result in something more than 100 percent of the commercial TAC being distributed as ITQ shares. Obviously, the Council would have to consider this increase in shares when establishing annual commercial TACs. A rejected option is to subtract a carefully estimated amount from the total share amount available. The remaining amount would then be distributed to all participants with the qualification that their shares may be increased at some time in the future (after settlement of the legal disputes).

13. REGULATORY IMPACT REVIEW

13.1 Introduction

Executive Order (E.O.) 12866 "Regulatory Planning and Review" was signed on September 30, 1993 and established guidelines for promulgating new regulations and reviewing existing regulations. While the E.O. covers a variety of regulatory policy considerations, the costs and benefits of regulatory actions are a prominent concern. Section 1 of the E.O. is repeated in its entirety:

Section 1. Statement of Regulatory Philosophy and Principles.

- (a) *The Regulatory Philosophy. Federal agencies should promulgate only such regulations as are required by law, are necessary to interpret the law, or are made necessary by compelling public need, such as material failures of private markets to protect or improve the health and safety of the public, the environment, or the well-being of the American people. In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.*
- (b) *The Principles of Regulation. To ensure that the agencies' regulatory programs are consistent with the philosophy set forth above, agencies should adhere to the following principles, to the extent permitted by law and where applicable:*
- (1) *Each agency shall identify the problem that it intends to address (including, where applicable, the failures of private markets or public institutions that warrant new agency action) as well as assess the significance of that problem.*
 - (2) *Each agency shall examine whether existing regulations (or other law) have created, or contributed to the problem that a new regulation is intended to correct and whether regulations (or other law) should be modified to achieve the intended goal of regulation more effectively.*
 - (3) *Each agency shall identify and assess available alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made by the public.*
 - (4) *In setting regulatory priorities, each agency shall consider, to the extent reasonable, the degree and nature of the risks posed by various substances or activities within its jurisdiction.*
 - (5) *When an agency determines that a regulation is the best available method of achieving the regulatory objective, it shall design its regulations in the most cost-effective manner to achieve the regulatory objective. In doing so, each agency shall consider incentives for innovation, consistency, predictability, the costs of enforcement and compliance (to the government, regulated entities, and the public), flexibility, distributive impacts, and equity.*
 - (6) *Each agency shall assess both the costs and the benefits of the intended regulation and, recognizing that some costs and benefits are difficult to quantify, propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs.*
 - (7) *Each agency shall base its decisions on the best reasonably obtainable scientific, technical, economic, and other information concerning the need for and consequences of the intended regulation.*

- (8) *Each agency shall identify and assess alternative forms of regulation and shall, to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt.*
- (9) *Wherever feasible, agencies shall seek views of appropriate State, local, and tribal officials before imposing regulatory requirements that might significantly or uniquely affect those governmental entities. Each agency shall assess the effects of Federal regulations on State, local, and tribal governments, including specifically the availability of resources to carry out those mandates, and seek to minimize those burdens that uniquely or significantly affect such governmental entities, consistent with achieving regulatory objective. In addition, as appropriate, agencies shall seek to harmonize Federal regulatory actions with related State, local and tribal regulatory and other governmental functions.*
- (10) *Each agency shall avoid regulations that are inconsistent, incompatible, or duplicative with its other regulations or those of other Federal agencies.*
- (11) *Each agency shall tailor its regulations to impose the least burden on society, including individuals, businesses of differing sizes, and other entities (including small communities and governmental entities), consistent with obtaining the regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations.*
- (12) *Each agency shall draft its regulations to be simple and easy to understand, with the goal of minimizing the potential for uncertainty and litigation arising from such uncertainty.*

In compliance with E.O. 12866, the Department of Commerce (DOC) and the National Oceanic and Atmospheric Administration (NOAA) require the preparation of a Regulatory Impact Review (RIR) for all regulatory actions which either implement a new Fishery Management Plan (FMP) or significantly amend an existing plan, or may be significant in that they reflect important DOC/NOAA policy concerns and are of public interest.

The RIR is part of the process of preparing and reviewing fishery management plans and provides a comprehensive review of the changes in net economic benefits to society associated with proposed regulatory actions. The analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve problems. The purpose of the analysis is to ensure that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way.

The Regulatory Flexibility Act (P.L. 96-353) has the purpose of relieving small businesses, small organizations, and small governmental entities from burdensome regulations and record keeping requirements. The Small Business Administration (SBA) defines a small business in the commercial fishing activity, classified and found in the Standard Industrial Classification Code, Major Group, Hunting, Fishing and Trapping (SIC 09), as a firm with receipts up to \$2.0 million annually. Additionally, the SBA defines a small business in the charter boat activity to be in the SIC 7999 code, Amusement and Recreational Services, not elsewhere classified, as a firm with receipts up to \$3.5 million per year.

To meet the basic objective of the Regulatory Flexibility Act, federal agencies are required to determine if proposed regulations will have a significant economic impact on a substantial number of small business entities. The main source of information for this determination is the RIR, but the determination may require additional information not contained in the RIR. If it is determined that the proposed regulation(s) will have a significant impact on a substantial number of small business entities, then an Initial Regulatory Flexibility Analysis (IRFA) must be prepared and, as in the case of making the original determination, the RIR serves as the source of most of the information for the IRFA. However, certain information required for completing the IRFA is not necessarily available in the RIR. For example, if the RIR does not contain an estimate of the

number of small businesses affected, a description of the small businesses affected or a discussion of the nature and size of impacts, then it would be necessary to expand on the information shown in the RIR.

13.2 Previous Red Snapper Management Regime

The following summary is limited to major actions affecting the red snapper fishery. Refer to Chapter 4 for a full summary of the history of reef fish management.

The Reef Fish Fishery Management Plan was implemented in November 1984. The implementing regulations included gear restrictions, a 13-inch size limit for red snapper, and data reporting requirements.

The first red snapper assessment in 1988 indicated that red snapper was significantly overfished and that reductions in fishing mortality were necessary to rebuild red snapper to a recommended 20 percent spawning potential ratio (SPR). The 1988 assessment also identified shrimp trawl bycatch as a significant source of juvenile red snapper mortality.

A control date of November 1, 1989 established a public awareness of potential eligibility criteria for future access to the reef fish resource. Amendment 1, implemented in January, 1990, set a 7 fish recreational bag limit and a 3.1 million pound commercial quota. Further analyses indicated that additional red snapper harvest restrictions would be necessary in the future to rebuild to 20 percent SPR by the target year of 2000. Amendment 3, implemented in July, 1991, established a new red snapper target year of 2007 for achieving the 20 percent SPR goal established in Amendment 1.

A 1991 Regulatory Amendment set TAC at 4.0 million pounds to be allocated with a commercial quota of 2.04 million pounds and a 7 fish recreational daily bag limit (1.96 million pounds) beginning in 1991. This amendment also contained an intent by the Council to effect a 50 percent reduction in the shrimp bycatch of red snapper to achieve the 20 percent SPR target by the year 2007. In 1992, the commercial red snapper quota remained at 2.04 million pounds. The quota was filled in 53 days and the commercial fishery was closed on February 22, 1992. The fishery was reopened by emergency rule that allowed for an additional catch of 600,000 pounds under a 1,000 pound trip limit. Analysis by NMFS biologists determined that this one time increase in catch would not affect the SPR target.

Amendment 4, implemented in May 1992, established a moratorium on the issuance of reef fish permits and proposed Amendment 5 would raise the red snapper minimum size limit to 14 inches in 1994 and then gradually to 16 inches over a period of five years. The 1993 Regulatory Amendment set red snapper TAC at 6.0 million pounds and changed the target year to achieve the 20 percent SPR from 2007 to 2009.

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 qualified owners or operators and allowed a 2,000 pound possession limit of red snapper. Other vessels were restricted to a 200-pound trip limit. This emergency action was effective for 180 days and 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 1992 emergency rule for the remainder of 1993 and 1994, unless replaced sooner by a comprehensive effort limitation program. Amendment 7 established a federal reef fish dealer permit and allows the temporary or permanent transfer of any reef fish permit or endorsement to any person upon death or disability of the permit/endorsement holder.

13.3 Problems in the Fishery

Effort capacity in terms of the number of vessels that are legally eligible to participate in the red snapper fishery is at a level that current quotas can be taken in a relatively short period of time. For example, in 1992 there were no trip limits and the quota of 2.04 million pounds was harvested in 53 days. For 1993 an endorsement system was implemented whereby qualifying and non-qualifying vessels could land either 2,000 or 200 pounds per trip. This change, in combination with a quota increase to 3.06 million pounds, did not prevent a derby fishery from developing and the 1993 season lasted 95 days. While some fishermen indicated that 1993 was an acceptable season, others felt that the season length and price declines associated with the derby fishery were not acceptable, and that the derby created unsafe conditions by forcing them to fish in bad weather. The red snapper endorsement provision and the permit moratorium will expire after 1994 and 1995 respectively, and at that time the management of red snapper will revert to an open access system unless a long term effort management system is implemented.

The following specific problems exist with regard to meeting the management objectives for red snapper. Most, but not all, of these problems are related to the situation whereby the present quota management system creates a derby fishery.

- The harvest capability of the current red snapper fleet is larger than necessary to produce the commercial quota in an economically efficient manner.
- The derby fishery compromises vessel safety by encouraging fishermen to begin or continue trips under adverse weather conditions.
- Total revenue derived from current landings is not reaching the highest level possible because the quota system creates a derby which tends to depress the average price paid to the fishermen. Lower price may benefit consumers.
- A derby fishery tends to reduce producer surplus that would otherwise be available from the fishery and has an unknown but limited effect on consumer surplus derived from the fishery.
- The current management system contains a number of regulations which in aggregate lead to high administration costs, difficulties in enforcement and compliance, inefficient production of available quota, frustration on the part of fishery participants and difficulties in collecting timely data needed to track and manage the fishery.
- The red snapper stock rebuilding program could be impacted by possible quota overruns associated with the derby fishery, and discard mortality during extended closed periods.
- User conflicts are being exacerbated by differential trip limits under the endorsement system and by the short red snapper quota seasons, which favor those fishermen who are closer to the resource, or have vessels that can operate in inclement weather.
- Net economic benefits are being eroded due to the market glut from the derby fishery and the inability of the industry to provide a red snapper product year round.
- The red snapper endorsement system will terminate in 1995 and cannot be extended because it is a system closed to new entrants. Unless replaced by ITQ or license limitation system, management will revert to open access with equal trip limits for each vessel with harvest allowed until the commercial quota is reached. This will exacerbate the derby fishery.

13.4 Management Objectives of the FMP

The original management objectives of the FMP are as follows:

Overall Goal: To manage the reef fish fishery of the United States within the waters of the Gulf of Mexico Fishery Management Council jurisdiction to attain the greatest overall benefit to the nation with particular reference to food production and recreational opportunities on the basis of the maximum sustainable yield as modified by relevant ecological, economic or social factors.

Objectives shown in the original FMP:

FMP-1. To rebuild the declining fish stocks wherever they occur within the fishery.

FMP-2. To establish a fishery reporting system for monitoring the reef fish fishery.

FMP-3. To conserve and increase reef fish habitats in appropriate areas and to provide protection for juveniles while protecting existing and new habitats.

FMP-4. To minimize conflicts between user groups of the resource and conflicts for space.

Amendment 1 added the following objectives:

A1-1. The primary objective of the FMP shall be to stabilize long term population levels of all reef fish species by establishing a certain survival rate of biomass into the stock of spawning age to achieve at least 20 percent spawning stock biomass per recruit.

A1-2. To reduce user conflicts and nearshore fishing mortality.

A1-3. To respecify the reporting requirements necessary to establish a database for monitoring the reef fish fishery and evaluating management actions.

A1-4. To revise the definitions of the fishery management unit and fishery to reflect the current species composition of the reef fish fishery.

A1-5. To revise the definition of optimum yield to allow specification at the species level.

A1-6. To encourage research on the effects of artificial reefs.

A1-7. To maximize net economic benefits from the reef fish fishery.

This amendment broadens and extends the above objectives as follows:

A8-1. To increase the stability of the red snapper fishery in terms of fishing patterns and markets.

A8-2. To avoid to the extent practicable the "derby" type fishing season.

A8-3. To promote flexibility for the fishermen in their fishing operations.

A8-4. To provide for cost-effective and enforceable management of the fishery.

A8-5. To optimize net benefits from the fishery.

13.5 Analytical Approach

Most of the measures in the amendment are specifically designed to help meet the primary objective of the FMP regarding optimizing the benefits to the nation from the management of the species contained in the fishery management unit. The measures will be looked at separately to determine whether or not they contribute, in a positive manner, to the RIR condition of realizing a net positive economic benefit (benefits net of public and private costs).

Those proposed measures which result in more restrictive fishing practices designed to rebuild overfished stocks will involve an analysis which provides a contrast of short term losses with long term gains, a procedure which is common with management schemes of that type.

The net economic benefits (which can be negative or positive) include the sum of (1) expected changes in producer surplus and consumer surplus for landings from the commercial fishery, (2) potential changes in consumer surplus derived from recreational and other non-use sources and (3) management costs (plan preparation and review, enforcement, additional data collection and public burden in terms of reporting costs).

The analysis used in this draft of the RIR will involve a combination of qualitative and quantitative approaches. In other words, the RIR analysis will attempt to discover how the proposed management measures affect net societal benefits but in some cases there will be no attempt to place estimated dollar values on the gains or losses which are discussed. The first and major reason is that in some cases the data on the biology and economics of the fisheries is insufficient even though the biological and economic decline of the fisheries is well established. The second reason is that it may be more important at this stage to see if there are plausible benefits at all vs. trying to place exact dollar values on benefits when such an approach is not possible. One of the main qualitative methods employed will be to relate the results of studies on other limited entry systems and determine the extent to which these studies apply to management for red snapper.

13.6 General Comparison of No Action, License Limitation, and ITQ Management Systems for the Red Snapper Fishery.

This section of the RIR presents a discussion of three general alternatives for managing the red snapper fishery: no action, license limitation and individual transferable quotas (ITQs). The section begins with a brief review of the red snapper fishery and its fishermen. This is followed by some common outcomes of open access management and by a discussion of the no action situation for Gulf red snapper. Next, the effect of a license limitation program in concert with a total allowable catch (TAC) set by the Council is discussed. Then, management of the fishery under a system of ITQs is discussed by assuming that applicable status quo regulations are replaced by an ITQ regime and that the TAC remains set by the Council. The section concludes with a comparison of the effects of the three basic alternatives in terms of their effects on stock conservation, relative degree of capitalization, relative harvesting costs, expected levels of fishing effort and other relevant performance variables.

Management of the red snapper fishery is complicated because the harvest of red snapper occurs within the context of the multi-species reef fish fishery. In addition, the existence of a substantial red snapper bycatch in the shrimp fishery and a major recreational fishery for red snapper further complicate the management of this fishery resource. The fishery is currently managed through the application of a TAC that is allocated to the commercial and recreational components of the fishery, a vessel trip limit, a moratorium on vessel permits and a number of other rules (size limits, bag limits, gear restrictions and others) which govern the recreational and commercial harvests.

Section 14 (Environmental Consequences) of the amendment provides a considerable amount of detail on the red snapper fishery and gives an extensive summary of the results of a recent survey of red snapper fishermen (Thomas, et.al., 1993). All of the language which follows in Section 13.6.1 is composed of unedited excerpts from the Environmental Consequences section and is provided as background for the rest of Section 13.6. As a cautionary note, the information should not be interpreted as forming the basis for RIR

conclusions. Some of the information, or similar information, is repeated elsewhere in the section to illustrate various points about the no action, license limitation and ITQ proposals. To the extent that some discussions may appear to be redundant, the purpose is to emphasize certain important cautions or other relevant considerations which the Council will be addressing.

13.6.1 Background Information (Excerpted in its entirety from Section 14)

13.6.1.1 Introduction

As evidence that there is unused potential in the red snapper fishery, 2.67 million pounds of red snapper were landed by an estimated 800 vessels (with no quota closure) in 1990, according to NMFS. In 1992, 3.1 million pounds of red snapper were landed by an estimated 700 vessels in just a 53 day regular season plus 42 day emergency reopening. Unused potential in the red snapper fishery could exist in the form of licenses being transferred to larger vessels, installing more fishing gear on vessels, making more trips or longer trips, targeting fishing areas closer to port to reduce travel time, concentrating fishing operations in more experienced and effective operators, and using advanced technology to more quickly and precisely locate red snapper concentrations.

Fishermen who are excluded from the red snapper fishery are likely to target other reef fish species. In a recent report on vermilion snapper (Schirripa 1992), NMFS reported that the directed fishery for vermilion snapper has expanded in the past three years in the waters off Louisiana and Texas. Furthermore, sharp increases in commercial vermilion snapper catch from directed trips were seen in the months following the closure of the red snapper fishery.

13.6.1.2 Information Summarized from the Thomas et.al. Survey

Thomas et.al. (1993) conducted a survey of red snapper fishermen who own and operate their own boats (owner/operators) and who were issued a red snapper endorsement, that allowed trip limits of 2,000 pounds. Owner/operators constituted 72 percent of the 131 persons holding red snapper endorsements. Of these, 79 percent (75 fishermen) were interviewed.

Fishing Practices in and Dependence on the Fishery: Almost all of the fishermen (70 percent) surveyed by Thomas et.al. (1993) used bandit rigs to target red snapper and other reef fish. In addition to bandit rigs, nearly half (45.9 percent) used rods and reels. Approximately 19 percent used longlines for species other than red snapper.

Prior to implementation of restrictive quotas, fishermen surveyed by Thomas et.al. (1993) exercised a greater degree of diversity in fishing behavior. Only 77.3 percent fished all year long for red snapper. Nearly 23 percent fished for red snapper during specific months with this period being predominantly October through March. After implementation of the quotas all fishermen target red snapper only in the months of the open season.

A consequence of the short season and derby fishery has raised concern among surveyed fishermen over safety issues. Fishermen feel that they are being forced to fish in weather they normally would avoid. Nearly half (49.2 percent) indicated weather they normally would have avoided occurred in 6 to 15 of their trips, while only 12.3 percent did not fish in such weather.

Since the implementation of regulations in the red snapper industry, a significant number of fishermen report increases in their effort directed at the harvest of triggerfish, silk snapper, vermilion snapper, and king mackerel. One of the unintended effects of regulations on red snapper may be increased stress on the stocks of these other species. This suggests that fisheries managers need to conceptualize policy not along the lines of a single fishery, but in terms of a more general fisheries management program.

Typically those fishermen that in the pre-regulation period (1986-1989) targeted red snapper all year also targeted (or caught) a greater diversity of finfish species than fishermen who targeted red snapper in certain

months (Thomas et.al. 1993 - Tables 10 and 11). In the post-regulation period and after red snapper season was closed a significantly greater effort was applied targeting vermilion snapper and king mackerel, with more modest increases directed at other species. Fishermen that targeted red snapper only during certain months in the pre-regulation period directed significantly greater effort at triggerfish, silk snapper, scamp, and tuna in the post-regulation period.

The great majority of respondents (over 80 percent) intend to continue fishing commercially for red snapper for the next two to three years. This is so despite the fact that most are pessimistic about the future price of fish (84 percent), many are concerned about their ability to make payments or buy supplies (58 percent), and slightly less than half (49 percent) are confident they will earn enough to support their families.

A model for decision making behavior, derived from the Fishbein-Azjen theory of reasoned action, was developed for explaining labor intentions of fishermen. The intention to remain in the fishery was found to be related to the following factors: (a) relative economic optimism for the fishery; (b) the willingness among fishermen to change fishing behavior in order to persist in the industry; (c) support of significant others for remaining in fishing; (d) confidence that one's sons will be able to have a future in fishing; and (e) an unwillingness to move away from one's hometown.

Thomas et.al. (1993) predicted that these fishermen are likely to continue fishing for red snapper long after it would appear profitable in a simple accounting sense for them to do so. Furthermore, when fishermen do decide to leave that particular fishery, it is reasonable that they will opt for other fisheries before pursuing work options on land. These social analyses indicate a major degree of dependency on the fishery.

Income and Labor Effects of Management: Thomas et.al. (1993) examined economic trends and perceptions in their survey of owner/operators holding red snapper endorsements. These were examined for pre-regulation (1986-1989) and post-regulation periods and are summarized below.

Several social and economic indicators show declines for fishermen from the period of 1986-89 to the present. Fishermen report an average fall in income from the late 1980's to 1993 of \$15,836, a decline of 40 percent. During the same time period, they report an average depreciation in the value of their boats of \$29,556, a decline of 31 percent. The number of crew reported for an average trip declined by 1 crew member, a decline of 26 percent in this labor segment of the fishery. Focus group data suggest that family members are increasingly relied upon to supplement crews. Most fishermen report changes in the amount of money available for boat maintenance.

Owner/operators sampled reported that average income in the pre-regulation period was \$39,554, after regulations was \$30,768, and projected 1993 average income to be \$23,718, i.e., a significantly different change for each period. In addition to reporting an average reduction of crew from 3.8 to 2.8, 40.5 percent of them reported the effect of regulation had a large effect on their ability to maintain a steady crew. They reported a decrease in both the number of trips and length of trips after regulation. Although the percentage of income derived from red snapper did not change materially, (i.e., from 64.0 to 59.1 percent), the value of red snapper declined.

Fishermen's beliefs about their future over the next 2 to 3 years were largely pessimistic. A fairly high percentage felt it was unlikely that they would make enough to support their family (38 percent), get a higher price for red snapper (84 percent), be able to make boat payment and buy supplies (33 percent), or have sons enter the fishery (89 percent). They believed it likely that they would fish more often for other species (64 percent) and would have to spend more time away from home (65 percent).

Despite recent economic hardship, and pessimism for the future of the industry, it appears that the majority of these fishermen will continue to fish for red snapper for as long as they possibly can. Many will adapt to stressed conditions by increasing effort in fishing for other species. Few are likely to pursue successfully non-fishing employment, at least in the near future.

Demographic and Social Information Relevant to the Fishery: Endorsed owner operators tend to be fairly old (49 years), have considerable experience as commercial fishermen (19.5 years), have paid off their boats (67 percent), and have another source of family income (51 percent). Most have no experience working on land or in fishing not involving hooks and line. This profile suggests that these men have financial and personal investments in red snapper fishing which preclude an easy movement to other lines of work.

The majority of respondents reported increased conflict among fishermen, and a significant fraction (42 percent) reported decreased cooperation. Self ratings of quality of life show a 37 percent decline over the last five years, and most fishermen anticipate further declines in the next five years.

The decline in cooperation between fishermen was largely attributed to the red snapper endorsement system where some vessels received 2,000 pound trip limits and all others 200 pound trip limits. Thomas et.al. (1993) summarized that the increased conflict serves to retard the ability of fishermen to act collectively in addressing management issues. This likely results in much testimony on issues being self-serving statements of fragmented segments of the industry.

13.6.1.3 Economics of the Fishery

GMFMC (1981; 1989) and Waters (1988; 1992a; 1992b) described in more details the economics of the commercial reef fishery. Landings of red snapper continued its long-term decline since 1965. The decline in landings is due in part to a decline in catches from foreign fishing grounds, a decline in the size of domestic snapper population, and regulation. The commercial quota for red snapper was met on August 24, 1991, and the fishery closed the remainder of the year. Total 1991 landings were 2.2 MP. In 1992 the commercial quota of 2.04 MP was filled early and the fishery closed on February 22, 1992, but was re-opened from April 3 through May 14, 1992 under a 1,000 pound trip limit per vessel. An estimated 3.1 MP were landed in that year. In 1993 the fishery closed after 95 days with estimated landings of 3.2 MP. Early closure was due to unusually high catch rates and a derby atmosphere. The decline in red snapper landings was more than offset by the increase in grouper and other snapper landings.

In 1991 red snapper landings had a total ex-vessel value of \$5.3 million. This is only about 15 percent of total reef fish values in 1991, and is definitely a small percentage relative to previous years: 27 percent in 1985, 45 percent in 1980, 64 percent in 1970, and 73 percent in 1960. Real ex-vessel value (i.e., adjusted for inflation) of red snapper declined by approximately 68 percent since 1983. Although ex-vessel prices for red snapper increased steadily over time, the increases were unable to offset both inflation and the decline in landings. Of course, ex-vessel prices dropped significantly at the height of the derby in January and February of 1992. The drop in ex-vessel prices was also reflected in the drop of prices at the Fulton Fish Market.

Aside from domestic landings of groupers and other snappers, red snapper has a close market substitute in imports. During 1991, the U.S. imported nearly 10.8 MP of fresh snappers and 1.7 MP of frozen snappers, and 5.6 MP of fresh or chilled groupers and nearly 3.9 MP of frozen groupers. On a live-weight basis, imports of fresh and frozen snappers constituted nearly 61 percent of total snapper supplies and 46 percent of total grouper supplies in the U.S. Most imports of fresh snappers and groupers originated from countries in the Caribbean or along the Gulf of Mexico, especially Mexico and Panama. Most imports of frozen snappers and groupers originated from Mexico or various countries in southeast Asia.

Existing demand estimates (Cato and Prochaska, 1976; Keithly and Prochaska, 1985) show that the demand for both snappers and groupers are price inflexible. Over time, demand for these species has become more price inflexible especially as imports have accounted for an increasing share of total snapper/grouper supplies in the U.S. The major implication of such type of demand is that revenues to domestic fishermen would increase (decrease) with an increase (decrease) in landings.

Although domestic red snapper still commands a market, the increasing share of imports in the U.S. supplies of snappers necessitates that the domestic harvesting industry has to be more efficient to stay competitive. License limitation may be the initial step to improve efficiency in the industry by reducing the rate of effort increase in the fishery. However, it is unlikely to eliminate the derby fishery.

13.6.1.4 Minimum Number of Vessels Qualifying for Red Snapper Endorsement

If landing records are used as a basis for determining eligibility under a license limitation system only landings in the years 1990 through 1992 will be used. The preferred alternative under Section 10.8 shall govern transfer of such records related to eligibility.

The Council's preferred alternative is that recommended by the Ad Hoc Red Snapper AP. The Council concurred with the AP that demonstrated landings of at least 500 pounds of red snapper in two of the three years, 1990-1992, was a minimal indication of dependence on the fishery and that the other persons should be excluded from participation in the commercial fishery. Overall, persons included in the system would be on the order of 225 to 266 vessel owners or operators, of which the 131 endorsees had demonstrated a higher degree of dependence on the fishery. Therefore, a higher initial vessel trip limit is proposed for those persons with endorsements. The preferred alternative would essentially be similar to the current red snapper endorsement system, but would be more restrictive in terms of number of participants in the fishery. **The number of licenses issued under the preferred alternative, based on landings records collected under Amendment 9, would be between 225 and 266. The number of Class (1) licenses issued would be between 125 and 137, of which 4 to 6 would be historical captains. The number of Class (2) licenses issued would be between 100 and 129 (James Davis-Martin, NMFS, personal communication).**

13.6.2 Discussion of Open Access Fisheries

The classic pattern of development in an open access common property fishery (Gordon, 1954) is illustrated in Pearce (1992) by the Pacific halibut fishery that is conducted in waters off Alaska and northern British Columbia. The fishery developed around the turn of the century as the fleet expanded in response to favorable prices and profits. By the early 1920's, the stocks were overfished and catches fell by half in less than a decade. In response to this problem, Canada and the United States established an international commission to rebuild the stocks by restricting the fishing seasons. Even though halibut can be fished year round and fresh fish command the best price, the commission was forced to progressively shorten the fishing season as the fleet continued to expand and as stocks declined. By the late 1970's, the fleet was restricted to fishing a few weeks per year and in 1989, the season for the U.S. fleet lasted 36 hours. As Pearce reminds his readers, this example of expansion of fishing capacity for Pacific halibut exemplifies the problems inherent in a common property fishery managed under open access. For Pacific halibut he specifically identified the waste associated with capital and labor being idle for most of the year, the extra cost of freezing and storing almost all the catch, the loss in quality and freshness of the fish as they were feverishly caught and handled and the meager incomes of the fishermen.

Pearce's report of the history of the Pacific halibut fishery is not an isolated case and many commercial fisheries have undergone a pattern of development that mimics the halibut case in many important aspects. While some of the following case histories do not specifically cover the effects of additional fishing effort on the biological status of the fisheries and the reaction of fishermen to the regulations, the cases clearly demonstrate the increase in effort which is common to open access fisheries. MacKenzie (1979) related that the Newfoundland fishery had "approximately 3,000 traps in operation in 1977 and, following a relatively successful season, an increase of 40% is reported for 1978." Arnason (1993) reports that during the period 1943-1983 the value of fishing capital in Icelandic fisheries increased four times as much as the increase in

catch values (1200% versus 300%). In the Gulf of Mexico shrimp fishery, the number of vessels in the fishing fleet expanded by 107% from 1960 to 1988 while landings increased 22% (Ward, 1994). In an analysis of U.S. northeast fisheries, Kurkul and Wang (1988) found that fishing fleet profitability has declined since 1978 as a result of increased effort coupled with a decline in stock abundance. Other examples include stock collapses in fisheries for North Sea herring (Saetersdal, 1980 and Saville and Bailey, 1980) and Peruvian anchoveta (Pauly and Tsukayama, 1987 and Glantz, 1979).

The red snapper fishery has experienced similar problems. Section 13.2 gave a description of the management history for red snapper and it is clear that the Council has had to add to the list of management measures to deal with the continuing problems. As can be generally expected with attempts to regulate common property fisheries, the regulations tend to become more restrictive over time and do not always totally resolve the problem being addressed. For example, by 1992 there were a substantial number of reef fish and red snapper regulations in place, including a moratorium on reef fish permits. Nonetheless, in 1992 the quota of 2.04 million pounds was harvested in 53 days. As a direct response, the Council changed the regulations and in 1993 the endorsement system was implemented whereby qualifying and nonqualifying vessels could land 2,000 or 200 pounds per trip, respectively. This change, even in conjunction with a 50% increase in the quota, did not prevent a derby fishery from continuing and the 1993 season lasted 95 days.

13.6.3 No Action

If the Council elects to take no action in terms of implementing a revised management regime, the following commercial regulations will be in effect, or could be evoked under the framework provisions of the FMP starting in 1996. In this case, no action essentially means that the fishery reverts to open access.

- No reef fish permit moratorium.
- No red snapper endorsement. Any trip limits would be applicable to all permitted vessels.
- Applicants for reef fish permits must meet the 50 percent earned income requirement after the moratorium expires. The one year grace period allowed to qualify for earned income when a permit is transferred during the moratorium will no longer exist.
- Size limits which will gradually increase to 16 inches.
- Vessel trip limits.
- Closed seasons.
- Closed areas.
- Gear restrictions.
- Quotas.

If the moratorium and endorsement provisions expire, the 50% earned income requirement will be the only regulation which controls entry into the red snapper fishery. The minimum income requirement is specifically designed to reserve the fishery for full-time fishermen by preventing part time fishermen from entering the fishery. At the same time, this minimum income requirement possesses some attributes of a license limitation method of restricting access to the fishery. For example, individuals must qualify to participate in the fishery and individual catch is unrestricted until the commercial quota is achieved. The minimum income requirement differs from license limitation in that 1) individuals qualify annually rather than only at the beginning of a limited entry program, 2) the total number of potential qualifiers is not limited, and 3) qualifiers cannot sell or rent their fishing privileges (Waters, 1991).

From an economic efficiency perspective, minimum income requirements in and of themselves are unlikely to result in the lowest possible costs of producing a given quantity of fish. Also, minimum income requirements would neither restrict the potential long run growth in fishing effort by additional qualified commercial participants nor restrict the long run growth in effort by existing qualified fishermen. Even without additional reef fish entrants who may be able to qualify in the future, the reef fish minimum income requirement does not seem to be a realistic constraint on entry at the present time. It can be noted that in 1993 there were about 2,000 permit holders but mandatory logbook data indicate that only about 1,350 actively fished (personal communication, James Waters, NMFS).

The potential for increases in fishing effort for the no action fishery is particularly important given the increases in stock availability that may occur if bycatch reduction devices (BRDs) are used in the Gulf of Mexico shrimp fishery. The resulting increases in reef fish stock sizes, including red snapper, will encourage additional recreational and commercial entry while current participants will increase their levels of effort. Even if stock rebuilding allows for an increase in TAC, the short run economic benefits of reduced bycatch will be diminished over time as additional effort causes harvest costs to increase with fishing seasons becoming shorter in duration (Ward and Macinko, 1993). (Note: NMFS has completed data collection and will be conducting an analysis to investigate this expected outcome. In addition, a MARFIN cooperative agreement has been granted to Texas A&M University to analyze this problem.)

13.6.4 License Limitation

A license limitation program restricts access to a fishery resource by means of allowing harvest only by license holders. Assuming sufficient restrictions on the ability to gain a license and a provision to make the licenses transferable, some of the rent generated by the fishery resource are reflected in the value of the license. If the initial licenses are provided to the fishermen at no cost, they receive a benefit when they exit the fishery by selling their license to the new entrants (refer to Appendix A to the Amendment). The license becomes a barrier to entry, and only the most efficient new entrants will be able to purchase a license and survive in the fishery. If the group of licensed fishermen is sufficiently small and communication costs are minimal, then the fishermen may cooperate to conserve the resource and increase their collective incomes (Muse, 1991). Fishermen can be expected to have more difficulty communicating if they are geographically spread out or if they have conflicting cultural differences. In such cases they will still tend to behave as if the fishery is an open access resource even if there are a reduced number of fishermen.

The current permit moratorium has some features of a license limitation program. For example, the transfer of permits (in effect, licenses) is allowed between vessels owned by the income qualifier but more importantly between individuals when a permitted vessel is sold. This limited transferability feature has created a permit market. A price premium of between \$5,000 and \$10,000 exists for a reef fish vessel with an associated permit (personal communication, Ed Burgess, NMFS).

License limitation programs in other fisheries have had similar market effects. In the case of the Alaskan salmon fishery, the market price of a purse seine permit increased 150% while the price of drift gillnet permits increased over ten times between 1976 and 1978 (Adasiak, 1979). Similarly, the price of an entry permit in the Canadian Pacific salmon fishery increased 1800% between 1972 and 1977 (Pearse and Wilen, 1979).

In addition to creating a market for the permits, the Alaskan experience resulted in the ability of fishermen to obtain credit from conventional lending sources thereby reducing their historical dependence on processors for financing (Adasiak, 1979). Further, since the entry permit was issued to individual fishermen instead of vessels and could not be encumbered by the courts or by contract, fishermen reported that their bargaining power with processors improved and this resulted in increased exvessel prices. While the overall growth in world demand for fish and the elimination of foreign fishing in U.S. waters as a result of the 200 mile limit may have accounted for part of the price increases, some of the increase in price margins to fishermen was clearly credited to the increased bargaining power created by the entry permit.

An additional outcome of the Alaskan salmon permits was that fishing effort increased even though the number of total participants was capped. In the Prince William Sound salmon and herring fisheries it was

observed that "Those guys who buy their permits are really out there pushing" (Adasiak, 1979). This provides evidence that more efficient fishermen replaced the less efficient fishermen who sold their permits.

In 1969, a program of license limitation was introduced in the B.C. salmon fishery. According to Fraser (1979) the program reflected the near desperation of fisheries managers and the apparent failure of more traditional management measures. This program also represents a significant break in the traditional management philosophy because the goals of management were broadened beyond stock conservation to include the idea of providing economic and social benefits for both full time commercial fishermen as well as part time commercial and recreational fishermen. Unfortunately, the conservation and social/economic goals were not met. In spite of a buyback program for full timers and subsidies for part timers if they would retire their vessels, there was continued growth in fishing costs, fishing capacity and capital investment. Although the total number of vessels in the fleet declined, all classes of vessels - trollers, gillnetters and seiners - increased in length, tonnage, and horsepower between 1968 and 1977 and most of the potential benefits of the program did not materialize.

The B.C. salmon program also featured license fees to help finance the purchase or retirement of vessels but the amount collected did not recover the full costs of management. The only clear winners were the initial license holders who received a windfall when they sold their licenses and while it is true that some of the windfall gains are probably captured by society via capital gains or other taxes, these amounts would still be small relative to the total cost of the program. When it was realized that the program was not working as well as had been hoped, the management authority made adjustments to address these problems. The least politically attractive change, but apparently the most practical and effective, was a system of landings royalties or taxes on output.

Pearse and Wilen (1979) analyzed the available statistical data to appraise the success of Canada's efforts to manage the Pacific salmon fleet in terms of whether or not it prevented fishing costs from rising in pace with the value of the catch. Their analysis shows that the fleet's revenues increased at about the same rate before and after the program's introduction in 1969 and that increases in capital (one component of fishing costs) were slowed from 5.7% to 3.7% following the introduction of the controls. Even with a continued, although slower, increase in the amount of capital in the fleet, there was a decline in fleet size and employment between 1966 and 1974. While this evidence suggests that the program was partially successful in checking the expansion of capital in the fishery, the growth in redundant capital was not stopped. Before the program was instituted, the fleet's capacity was far in excess of that required to harvest the available fish and continued to grow after the program was adopted. An additional result is that since the fleet's revenues continued to grow, some resource rents may have been captured under the higher license prices.

The Alaskan salmon permit limitation program affected other Alaskan fisheries through a transfer of effort (Adasiak, 1979). This type of effect, the size of which will be governed by the availability of alternate resources, the cost of entry, the price of fish, the availability of markets and other factors, is an important consideration that should be fully addressed before any limited entry program is put into effect. There is evidence that even the anticipation of a limited entry program for one fishery can affect other fisheries. For example, fishermen in Alaska's shellfish fisheries appeared to be making efforts to achieve enhanced positions in other fisheries (Adasiak, 1979). For several years these fishermen purchased interim use permits for other fisheries and although some of them entered the other fisheries by acquiring vessels, others made token landings or simply acquired permits in hopes of qualifying for some kind of "rights".

In the case of a multi-species fishery, a successful management program must recognize and account for the special characteristics of the fishery. For these very important reasons, it cannot be assumed that a management strategy which proves successful in a specific single species fishery is appropriate for a much more complex, multi-purpose fishery. Meany (1977) studied the implications of license limitation for the Australian rock lobster fishery. Participants in this fishery operated in up to five other fisheries, some of which required the use of different gear types. His approach was to assume that a license program was put into effect for one fishery first and then for succeeding fisheries until a total of four fisheries were being managed by license limitation. His analysis involved a fleet which initially had 130 vessels. After the four programs were implemented, the analysis showed that the fleet would grow to 152 vessels that acquired a total of 15 different

license combinations. Meany concluded that this result indicates the need to treat a multi-purpose fishery as a unit rather than having each component treated as an entity.

The presence of a large recreational fishery for red snapper should also be considered in the process of developing a license limitation approach. While no applied research has been done to determine the outcome of a commercial license limitation program in the presence of a large recreational fishery component, Sutinen (1993), McConnell and Sutinen (1979), and Anderson (1993) all indicate that the impact would be felt through a stock effect. In simple terms, both groups take fish from the same stock and fishing mortality caused by one group is felt by the other. Consider the case of an overfished fishery in which a transferable license limitation program was instituted. License values would exist and the value would reflect a portion of the rent generated by the fishery resource. If stocks began to recover as a result of a restrictive overall TAC, catch per unit effort would increase leading to an increase in profits and a portion of these profits would be captured in higher license prices. If recreational fishermen were not barred from entering or exiting the fishery at will, the increased abundance of fish would attract additional recreational anglers to the fishery and stock size would either not recover or not improve as much. As a result, the price of a commercial license would increase less or remain the same. Recalling that the fishery rents are reflected in the price of a license, the result is that the rents would be dissipated as recreational fishing effort increased. The management body would probably note the increase in recreational catch and effort and would probably act in an attempt to reduce the recreational catch. Even if this effort were successful, release mortality would still impact the recovery rate of the stock and affect license prices. An additional effect is that if the new price reflects a true equilibrium, then new entrants could more easily buy a license from an existing fisherman. This should slow the growth in capital invested by vessels already in the fishery but not by the new entrants.

13.6.5 Individual Transferable Quota Management

Individual transferable quotas (ITQs) as a management system are similar to license limitation in that both systems would create marketable fishing rights or privileges. In the case of the proposal for a red snapper ITQ, each certificate would represent the right to catch a certain poundage of fish and the poundage would be determined by a fixed percentage of the commercial portion of the total allowable catch (TAC). Annual revisions of TAC would offer direct control over the total catch as well as the poundage quotas for individual fishermen.

13.6.5.1 ITQs and Rents Derived from the Fishery

The rent generated by harvesting the fish stock is captured when the total supply of ITQs is fixed and transferable. When ITQs can be transferred in a competitive marketplace, the value which the fisherman could realize from the sale of the ITQ will affect the production decisions of the firm and can be considered to be a cost of staying in the fishery. In some cases, this "cost" will result in a decision to sell the ITQ and particular firms will leave while more efficient existing or new entrants will purchase the ITQ. In general, total effort should drop and those firms that remain in the fishery will reduce their individual fishing effort levels as their catch per unit effort increases. There should also be a net decline in the number of active participants in the fishery.

The "rent capture" feature of ITQ programs is well documented. Muse reported on rent values for the Mid-Atlantic ocean surf clam and quahog fisheries (Muse, 1991). During May, 1991 the exvessel surf clam price was \$8 to \$9 per bushel while that year's right to harvest (termed a lease in the fishery) was worth \$3 to \$4.25 per bushel. At the same time, surf clam quota rights (the right to harvest in perpetuity) were selling for \$15 to \$18 per bushel. In the case of ocean quahogs, ex-vessel price was \$3 to \$3.75 per bushel and that year's right to harvest quahog was worth \$0.40 to \$0.50 per bushel. During that period quahog quota was selling for \$3.50 to \$5.00 per bushel. In the South Atlantic wreck fish fishery, quota sold for \$0.50 per pound in 1992 while coupons (the right to land in the current fishing year) were bringing \$0.30 per pound. During the same period, the average price of wreckfish was \$1.85 per pound (Gauvin, Ward, and Burgess, 1994).

As is the case for all marketable products, ITQ prices are determined in competitive markets that depend on the forces of supply and demand. The higher the TAC that determines total supply of ITQ, the lower will be

the ITQ market price. For example, consider the case of a fishery which has been managed successfully in terms of biological recovery. If the total supply of ITQ is set equal to maximum sustainable yield (MSY) and firms in the fishery produce at a profit maximizing level of fishing effort (this gives a yield which is less than MSY) then the TAC will not constrain production and ITQ prices will be slightly lower than if the TAC was set at a lower yield such as the point of maximum economic yield (MEY). In this specialized example of a fully recovered fishery where all fishing vessels are operating at their profit-maximizing levels, entry into the fishery via the purchase of annual quota is relatively inexpensive and fishermen would not press managers to expand TACs since this would further reduce ITQ prices and fishermen's equity if they desired to sell excess quota. Furthermore, fishermen would not want more quota for themselves because they are presumed to be harvesting at a level which maximizes their individual profits.

ITQs offer advantages to fishermen by enabling them to plan investment and harvesting strategies more efficiently. Since a known portion of the fish stock would be reserved for each fisherman with ITQs, individual fishermen would know how many pounds of fish they could harvest during the fishing year. Hence, fishermen would not be compelled to invest in extra fishing power (capital stuffing) to compete for fish on a first-come-first-serve basis. They could invest in the fishing power required to minimize rather than maximize the cost of harvesting a given quantity of fish. Furthermore, in cases where ITQs were issued in relatively small denominations, the investment in ITQs would not necessarily be prohibitive for small operators, part-time fishermen, or fishermen who participate in several fisheries throughout the year. Another advantage of ITQs is that the harvesting season should last longer and temporary market gluts that could reduce fish prices and quality should be lessened. Factors that would tend to lengthen the season include a reduced need to fish in poor weather and the individual fishermen's ability to postpone part of their catches to take advantage of higher prices later in the season. Nevertheless, most fishing would probably still occur when fish are most abundant because harvesting during such periods would tend to minimize the costs of locating and catching fish.

Some recent examples support the notion that ITQs lead to a reduction in the amount of capital invested in the fishery. According to Muse (1991), when a herring ITQ program was implemented in Canada, the Bay of Fundy fleet declined from 49 to 39 vessels while the St. Lawrence fleet declined from 16 to 13 vessels. In the British Columbian black cod fishery, quota sales resulted in about 25% of the quota being fished by a single boat. For the Mid-Atlantic surf clam and quahog fishery, the number of vessels reporting landings during the January to May period dropped from 115 in 1990 to 72 in 1991. Another example involves the wreckfish fishery. In this case the fleet size declined from the 49 fishermen who received the initial allocation to 31 a year and half after the adoption of the ITQ program with 23 shareholders selling their shares and 5 new shareholders entering the fishery (Gauvin, Ward, and Burgess, 1993). Although concerns over the existence of monopoly power were raised, an examination of one measure of competition (the Herfindahl concentration index) for the fishery indicated that the fishery remained highly competitive.

With reduced capital investment in the fleet and the elimination of the race for fish, landings of fish can better match market forces creating stable exvessel prices for fishermen and ensuring a good quality, fresher product for dealers, processors and consumers over a longer period of time. According to the reported price data in the wreckfish fishery, average monthly prices varied from \$0.90 to \$1.55 per pound dressed weight before the ITQ program was implemented (SAFMC, 1991). Since the implementation of the ITQ program, exvessel prices have increased to approximately \$1.85 per pound dressed weight while variation around this mean price has declined (Gauvin, Ward, and Burgess, 1993). The latter finding is quite important because it provides a key indication that the fishery has stabilized since the ITQ program was introduced.

13.6.5.2 Conservation Incentives and ITQs

One of the more difficult determinations to make in evaluating ITQ programs is whether or not conservation incentives have been created. If fishermen have a vested interest in the long run viability of the resource, conservation is essentially in their long run economic interest. Although the wreckfish ITQ has been in place for a relatively short period of time, anecdotal evidence suggests that a change in perspective of fishermen may have already occurred in that fishery. Before ITQs, some wreckfish fishermen repeatedly requested the Council to set TACs as high as six or eight million pounds (SAFMC 1990, SAFMC 1991). These fishermen consistently argued that there was no good biological evidence that wreckfish were being overfished or that the stock could not support higher rates of removal. Since ITQs were adopted, similar requests for higher TACs did not occur at hearings held in February, 1992 and January, 1993. This indicates that the fishermen either changed their opinion about the accuracy of the biological information or that their personal quotas (or ability to purchase additional quota) were about right for profit maximization on an individual basis.

Another indication of the existence of conservation incentives is the level of compliance with the regulations. It has been suggested that in the absence of adequate enforcement, fishermen would not be willing to pay for something they could obtain for free simply by cheating with impunity (Peacock and MacFarlane, 1986). However, for fishermen who qualify under an ITQ program, it is to their advantage to protect their investments by voluntarily reporting those who attempt to cheat because widespread cheating will reduce and eventually eliminate the market value of their individual ITQs. Again using the wreckfish ITQ program as an example, compliance with gear prohibitions is thought to have improved. Before the ITQ program was implemented, and since enforcement of the regulations was difficult because of the location of the fishing grounds, reports of the continued use of illegal longline gear were widespread. Since the ITQ program, conservation incentives have been observed by Coast Guard and NMFS law enforcement officers who have repeatedly commented on the increased willingness of fishermen to cooperate and provide information on the activities of other fishermen (personal communication, Paul Raymond, NMFS). In addition, enforcement officials report very good compliance regarding the requirement to fill out coupons showing the amount of catch prior to landing. Another example of compliance is reported from Australia where divers are an important source of information on violations in the abalone fisheries (Muse, 1991). The implication of these examples is that if fishermen support the ITQ program, they are more likely to report violations and in such cases the level of compliance should rise.

Another type of compliance problem which may or may not exist is commonly termed "quota busting". This problem can take the form of exceeding individual quotas or high grading and if this happens, there is a suggestion that fishermen are not embracing the conservation incentives created by an ITQ program (Copes, 1986). In the wreckfish fishery, no evidence exists that quota busting is widespread (Gauvin, Ward, and Burgess, 1994). Muse (1991) reported that in the Bay of Fundy and Gulf of St. Lawrence herring fishery, quota busting was a problem as evidenced by actual catches exceeding TACs by 63 to 77 percent. Even though the TACs were being exceeded, the fishery began to recover because the TACs had been set at conservative levels. As this recovery proceeded, there is evidence that the TAC eventually increased to the point where many fishermen were unable to take their quotas, cheating ceased and enforcement became less of a problem.

While costs are minimized and TACs observed if compliance is good, there is an additional benefit that can occur. If fishermen recognize that ITQs truly represent a limit on each fisherman's ability to land and sell fish, fishermen will be willing to buy or sell ITQ to adjust their holdings of ITQs to match their actual annual catches. This behavior will allow the ITQ market to function properly and help lead to the good results which can be theoretically expected from ITQ programs.

13.6.5.3 Enforcement Costs Under ITQs

In general, the level of enforcement costs is a function of the number of fishermen, landing sites, and regulated species (Copes, 1986). However, whether enforcement costs will increase under an ITQ program relative to the costs associated with an open access fishery is open to question. The experience with an

apparent increase in compliance with wreckfish regulations (discussed in the previous section) suggests that enforcement costs decline.

For New Zealand fishery management, Boyd and Dewees (1992) examined a number of concerns raised by Copes (1986) and found no major difference in the success of enforcement and hence no change in the associated cost of enforcement after the ITQ program was implemented. They concluded that New Zealand's geographical isolation and quota monitoring program were important factors in this result. In British Columbia's abalone fishery, it was determined that high ex-vessel prices created an incentive to poach and this incentive may have been related to the fact that individual quotas could be leased but not traded (Muse, 1991). In this case, an increase in enforcement cost is indicated.

It is important to recognize that although self-enforcement and increased levels of enforcement (higher costs of enforcement) generate better compliance, the managers can also reduce enforcement costs via suitable regulations. For example, dockside enforcement for surf clams and ocean quahogs is facilitated by issuing cage tags to fishermen in proportion to their individual quotas (U.S. Department of Commerce, 1990). Tags must be affixed to the cages when they are filled at the harvest site and cannot be removed until emptied at the processing site. Double-entry systems whereby harvesters and dealers/processors record the catch also seem to work well and have been used successfully in New Zealand (Muse and Schelle, 1988) and in the South Atlantic wreckfish fishery (Gauvin, Ward, and Burgess, 1994).

There is a possibility that the implementation of an ITQ program can lead to a long term decrease in total enforcement costs even if the costs of enforcing the ITQ rules per se are relatively high. The long term savings would come about if the implementation of the ITQ program leads to a reduction or simplification of other regulations which govern harvest. While there may be overriding conservation reasons to maintain some or most of the regulations originally in effect, it may be possible to eliminate certain regulations if the implementation of an ITQ program resolves the problems that created the need for the original regulations. To the extent that some regulations are eliminated, there should be some level of savings in enforcement costs.

13.6.5.4 ITQs in a Multi-Species Fishery

As has previously been described, ITQs can lead to efficiencies via the transfer of ITQs from less to more profitable operators and can have additional positive effects. However, an ITQ program may also lead to additional unforeseen problems. For example, when Australia instituted an ITQ program for bluefin tuna, a bycatch allowance was given to non-ITQ fishermen. Coincident with the allowance for bycatch, Australia took increasing advantage of the Japanese tuna sashimi markets and ex-vessel prices increased. As a result, the bycatch rose enough to pose a threat to efforts directed at controlling the total harvest (Muse and Schelle, 1989).

Some researchers have provided general comments on the likelihood of success of ITQ programs in a multi-species fishery. Copes (1986) simply asserts that it is impractical to use individual quotas for multispecies fisheries. Squires and Kirkley (1991) claim that part of the species mix is likely to be overfished and excessive discards of fish catches above the allowable quota will occur.

The ITQ programs in New Zealand provide some of the most extensive experiments for mixed species fisheries (Boyd and Dewees, 1992). The New Zealand system initially incorporated 26 species and the average trawler caught about 5 to 10 of these species. Because so many different species were caught during the course of trawling, the fishermen initially had difficulty matching their actual catch to their ITQ allowances. The problems were somewhat resolved by using "fishing on behalf" agreements, by trading quota, by a change in regulations to allow an annual 10 percent over and under fishing provision and by instituting other changes in the system. However, the bycatch problems persisted and TACs for several species were exceeded in the 1987-88 season. Despite the remaining bycatch problems, Boyd and Dewees (1992) believe that making sure that ITQs are indeed fully transferable and instituting other measures to allow a balance between quota holdings and catch at the end of each month are essential features that allow individuals to overcome their particular bycatch problems.

When a single species ITQ program is part of a multispecies fishing operation, the ITQ does not provide an incentive to cease harvesting other species unless their total available effort is exhausted in the profitable and exclusive harvest of the ITQ species. In other words, just as with open access or license limitation management, effort is likely to shift to other species when TAC has been caught. In fact, this switching behavior can even be enhanced by the presence of an ITQ program because the ITQ holders are free to catch their individual quota whenever they please. For example, two uncomplicated options they could choose would be to 1) harvest their ITQ first and then move into another fishery or 2) fish in an open access fishery controlled by quota until that fishery closes and then start on their ITQ. Other options they may choose could include pursuing an open access fishery that had a large bycatch of the ITQ species. In this case they could land their total catch as long as the quota for the open access species was not met and their ITQ was not filled. In this latter example, it is clear that at some point they would have to either cease fishing or begin to discard some of the catch. Actual fishing strategies would undoubtedly be more complicated than indicated by these simple examples, but the examples serve to demonstrate that ITQ fishermen have a higher degree of flexibility (and hence an economic advantage) relative to other fishermen. More importantly, the examples indicate that the ITQ program can potentially exacerbate overfishing problems in related fisheries.

One actual example of effort reallocation which can occur when an ITQ program for one species is initiated can be seen in the Canadian roe herring fishery. In this case, there was an increase in crab fishing by holders of herring ITQ. The increased effort on the crab fishery came at a cost to the existing crab fishermen and the crab fishery in general. A similar situation may be developing in the wreckfish fishery. Since the adoption of ITQs, the TAC has not been filled (Gauvin, Ward, and Burgess, 1993) and it is possible that the fishermen are turning to other species when it is to their benefit. For example, it is clear that some of the wreckfish fishermen entered the general reef fish fisheries. One of the many possible reasons for this observed behavior include the possibility that these fishermen wanted to create or enhance their history of catch rights in case ITQ programs are established for other reef fish species. If they took this action even though their overall profits declined for the year, then they hold a belief that the long run discounted net benefits from future ITQ rights are greater than the short-term losses they would incur by fishing for reef fish instead of wreckfish.

13.6.5.5 Effect of Release Mortality/Discards on ITQ Benefits

The potential net economic benefits which can be achieved by an ITQ program are likely to be reduced unless the total effort in the fishery is managed effectively. Particular examples are cases where the fishery has an open access recreational sector or where the commercial reef fish harvesting sector has a bycatch of red snapper which are discarded.

Attempts to control recreational harvest typically involve direct or implied quotas which feature bag limits and other regulations designed to achieve a target recreational harvest, but not necessarily the recreational catch. When considering recreational fishing, there is an important distinction between catch and harvest because recreational anglers receive benefits from catching fish, keeping fish and in some cases from releasing fish. To the extent that all three sources of recreational benefits are present, the implication is that fishing effort by particular anglers may continue after the bag limit is reached. Since recreational quota in the U.S. is typically counted in terms of total catch minus that portion of the catch reported to be released alive, any release mortality is not counted.

If a management program is successful in the sense of leading toward stock recovery, catch and release fishing should increase as fish abundance rises and bag limits are reached a greater proportion of the time. When that happens, there will be an associated increase in release mortality which cannot be controlled (Milon, 1991). Also, as the stocks recover, there may be new entrants into the recreational fishery for the ITQ species and the resulting additional recreational effort would also raise the level of mortality associated with catch and release fishing.

Similar effects will occur if the discarded bycatch of the managed species is significant. Since red snapper occur on the same grounds as other reef fish, it can be expected that some will be caught and discarded by harvesters who do not own ITQ. Depending on the mortality rate which applies to these discards, the

problem could become important as the stock continues to rebuild and the abundance of red snapper continues to rise.

To the extent that mortality from catch and release fishing or commercial discards occurs, an increase in recreational catch per unit effort (CPUE) or the level of commercial discards will reduce the biological and economic benefits from the fishery because total fishing mortality will have increased even though the official TAC levels will not have been exceeded. If either of the recreational or commercial circumstances exist, one result will be that the market prices for ITQs will be adversely affected because the CPUE (and hence overall profits) for harvesters who possess ITQ will fall.

Note: Although an ITQ program for recreational fishermen could be established to control overall recreational fishing effort, that possibility is not discussed since the Council is not considering such a program.

13.6.5.6 The Issue of "Highgrading" under an ITQ Program

Highgrading refers to the practice of discarding fish when more valuable fish are caught. The term valuable in association with highgrading will have different meanings under different management rules. For example, highgrading can mean substituting a larger fish for a smaller fish as might occur in a recreational fishery when bag limits are in effect. In this case, it may logically be assumed that a large fish adds more to the overall consumer surplus derived from the fishing trip than does a small fish and if fishing does not cease after the bag limit is reached (catch-and-release fishing commences), there may be an incentive for the recreational angler to discard one of the smaller fish if a larger fish is caught. For a commercial fishery, highgrading may be encouraged if the exvessel price of fish varies for fish of different sizes. For example, if small red snapper are more valuable in terms of price per pound, then a fisherman with a poundage constraint would clearly attempt to harvest smaller fish assuming that the increased cost of catching a given poundage of small versus large fish is smaller than the expected gain in revenue (Anderson, 1993). Particularly in the case of daily trip limits, an incentive to continue fishing after the trip limit is reached can exist if the fisherman can catch additional small fish and discard large, less valuable fish.

Boyd and Dewees (1992) report that large price differentials existed in the New Zealand fishery and that highgrading was a problem at the time the ITQ program was implemented. However, the highgrading is believed to have declined after ITQs were traded, fishing methods were adjusted, the industry better understood the program and enforcement was improved. They did not specifically report on the extent of highgrading under the ITQ program versus other management methods.

In the specific case of ITQs for red snapper, it is not clear whether or not highgrading would be a problem. In particular, if adoption of an ITQ program means that all daily trip limits are dropped, then it would appear that the incentives for highgrading on particular trips would be lessened. However, since the individual harvester is still faced with an overall poundage constraint in terms of annual catch, and if CPUE is sufficiently large, there may be a tendency to keep small red snapper and "release" large red snapper. Then, release mortality would constitute a form of highgrading and the extent of the highgrading would depend on the level of release mortality. Without additional data, it is not possible to determine the extent of highgrading under an ITQ program versus the no action or a license limitation program.

13.6.5.7 Costs of Management under an ITQ Program

ITQs are generally regarded as a costly method of fisheries management. This thought applies especially with regard to startup costs, enforcement costs and continuing costs associated with issuing ITQ certificates and tracking individual quota transactions. Startup costs include expenses incurred in making determinations regarding who will receive initial amounts of ITQ, designing the coupon or electronic ITQ distribution system and implementing a tracking and monitoring system. These costs are largely unavoidable but will obviously vary according to the complexity of the ITQ system.

Enforcement costs can range from being not very costly to extremely costly and the previous compliance and enforcement discussions indicate that if the ITQ holders tend to support the system, then there is a greater

chance that the program will be largely self-enforcing. In this case, enforcement costs for an ITQ program could be on the same order or even less than the costs under a non-ITQ system. As mentioned previously, the overall cost of enforcement may be lessened if the ITQ program results in the elimination of other regulations which are no longer needed.

The continuing costs of dividing the annual total commercial quota among the current holders of ITQ shares and the routine tracking and monitoring of the program clearly have to be incurred, but like the startup costs associated with designing the systems, will vary according to the complexity of whatever specific mechanisms are developed.

There is some possibility that the long run administrative costs of the FMP for a species managed by an ITQ system could be reduced and this possibility is related to the idea that some existing regulations can be removed under an ITQ program. With an ITQ program in place, the need to amend the FMP on a frequent basis may disappear and a lesser number of amendments means that some of the otherwise necessary costs associated with amending FMPs would be avoided.

13.6.5.8 ITQ Management for Red Snapper

The benefits in terms of a reduced cost of harvest, less effort and capital, elimination of the derby fishery and other positive effects which have been previously discussed can be expected if some form of an ITQ program is implemented in the red snapper fishery. If the red snapper fishery was the only alternative for the red snapper fishermen, and if there was an absence of other complicating circumstances, the decision to implement the ITQ program would be straightforward. However, some complicating factors are that the red snapper fishery is actually one part of a complex reef fish fishery, red snapper fishermen engage in other fisheries such as the shark and mackerel fisheries, there is a large recreational effort directed at red snapper and there is a bycatch of red snapper by shrimp vessels. All these circumstances make the actual economic outcome of an ITQ program much less certain.

Alternate fisheries: The fishing craft used in the harvest of red snapper are similar in size and most use similar types of gear when harvesting other reef fish. As a result, the costs of switching fisheries are relatively minor when compared with the total costs of operating in the respective fisheries (Thomas, et al., 1993). Recalling the general discussion about the increased flexibility afforded a holder of ITQ, this flexibility is especially large in the case of red snapper fishermen holding ITQ because of the ease of switching effort to other reef fish species (in particular).

The fishermen who purchase ITQ and remain in the red snapper fishery will control that fishery resource and within certain seasonal time constraints can decide when to take their quota. In short, they have the flexibility to harvest the fish under the best biological and economic circumstances, i.e., when catch per unit effort is high (harvesting costs are low) or market prices are favorable. This flexibility allows them to enter other open access fisheries at certain times during the year. They will do this when they have filled their ITQ or when they believe that the opportunity cost of harvesting fish in the ITQ fishery becomes too high. This opportunity cost is the foregone net revenue that could have been earned in the open access fishery. If this foregone net revenue is greater than the discounted value of the net revenue earned in the ITQ fishery, then fishermen will switch fisheries. In such cases they will switch back to the ITQ fishery when the opportunity cost of the foregone net revenue in that fishery is greater than the net revenue earned in the open access fishery. The net result of these decisions will be an increase in fishing effort directed at other reef fish species (and some non-reef species such as mackerel or sharks) if an ITQ program is adopted for red snapper. As an example of this scenario in the Southeast, an ITQ program was instituted for the wreckfish fishery in part because the wreckfish fishery was described as a single species fishery (SAFMC, 1991). Nonetheless, the fishermen who own wreckfish ITQ appear to have developed a pattern of switching between the wreckfish fishery and other fisheries and have not utilized their entire ITQ in a number of cases.

This scenario of red snapper fishermen being able to switch fisheries easily and at various times even before their ITQ is exhausted means that benefits to other fishermen, along with the net value of the alternative fisheries, will decrease by some amount. If the switching behavior occurs, and if an ITQ fishery eventually

develops for the alternative fishery or fisheries, red snapper fishermen would establish ITQ rights which they might not otherwise have in the absence of an ITQ program for red snapper. This potential situation is one of the reasons that those who study ITQ programs advocate that managers consider ITQ programs for an entire fishery complex rather than setting up a series of ITQ programs on a species-by species basis (Meany, 1977; Moloney and Pearce, 1979; and Boyd and Dewees, 1992).

Enforcement and compliance: The level of compliance in a red snapper ITQ program will depend partly on the extent to which fishermen support the program. In a study of red snapper fishermen who hold endorsements and therefore are most likely to be among those who would hold relatively large amounts of ITQ, 21.3 to 30.7 percent (two sets of options were offered) of those surveyed felt that ITQs were the preferred management option (Thomas, et al., 1993). Even though the fishermen picked the ITQ option more often than any other single option, the implication is that over two-thirds of the fishermen preferred a non-ITQ option. This may indicate a lack of faith in ITQs and could lead to low compliance rates and a resulting high level of enforcement costs.

Shrimp bycatch reduction devices: The potential adoption of bycatch reduction devices (BRDs) in the shrimp fishery has implications for a red snapper fishery under ITQ management. Under an ITQ system, the benefits that could accrue to the finfish fishermen are captured in the value of the ITQ that is traded in a competitive market. If the adoption of BRDs leads to an increase in the abundance of red snapper, then the ITQ values would rise. A greater abundance of red snapper would also mean that the ABC for red snapper would become less of a production constraint, incentives for cheating would be reduced and enforcement costs would be expected to fall. However, since the ITQ is being considered for only one species in a multispecies fishery, then significant misallocations of fishing effort could occur when bycatch levels are reduced in the shrimp fishery. The value of the open access finfish fisheries would increase in the short run, attract new fishermen, and result in substantial increases in fishing effort. If a bycatch of red snapper results from fishing effort directed at other reef fish species, there could be a substantial reduction in red snapper stocks and this would adversely affect red snapper ITQ prices.

13.6.6 Summary of General Impacts of No Action, License Limitation, and ITQ

The general impacts of no action, license limitation, and ITQ management options are presented in the summary table at the end of this section. While definitive estimates of the costs and benefits under each fishery management scenario cannot be made at this time, tentative rankings of expected economic impacts relative to the no action case can be determined based on experiences with each of the fishery management options in other fisheries.

Traditional methods of regulating common property fisheries will not significantly improve the economic performance of the fishery or the fishermen. The typical result of management with unrestricted access to the fishery is additional, more costly, and increasingly complex regulations as competition increases for available fishery resources. Under the no action scenario, similar results have been seen in the red snapper fishery and it is this circumstance which has led the Council and some fishermen to support the investigation a limited access management regime.

The open access fishery is characterized by economic overfishing, excess capacity in the fishing fleet and excessive fishing effort levels that dissipate potential economic rents. While biological overfishing is being successfully addressed through the establishment of TACs, economic overfishing will intensify under the no action fishery management scenario. As the fish stocks continue to recover, these problems will persist and the derby fishery will intensify even if the moratorium on permits is extended.

The license limitation management scenario assumes that red snapper is the only licensed fishery in the reef fish complex and that the commercial and recreational quotas will prevent biological overfishing. The impact on economic overfishing relative to the no action is positive since fleet size is fixed by the number of licenses and may even be reduced if licenses are retired or bought back by the management agency. However, with license limitation, qualifying red snapper fishermen would receive a license for the right to fish, but the allowable catch of each fisherman would be unrestricted. Townsend (1990) concluded that license limitation

slows the derby fishery but cannot prevent it because individual fishermen are able to expand their personal effort a substantial amount over short periods of time. The combined effect of limiting fleet size while not constraining effort by individual boats means that total fishing effort will be lower under a license limitation program than under the no action fishery. Further, to the extent that effort is reduced compared to the no action, the rational behavior of fishermen will lead them to devote increased fishing effort in other open access fisheries, so some of the apparent gains would be lost.

Despite deficiencies in a license limitation form of management, it is likely that license limitation will generate positive net benefits that are larger than under the no action situation, but the gains will not be large. An additional consideration is that even though the no action does not include the present endorsement system, the endorsement system (perhaps in modified form) would likely be extended if the no action management program is maintained. In this case, the license limitation program would resemble the no action with endorsements, but could have the added feature of less restricted transfer.

Regarding the basic outcome of some form of ITQ system for red snapper, this approach has the most promise in terms of an objective to maximize economic returns, but major cautions exist. Ideally, ITQs are determined to have certain desirable characteristics to facilitate attainment of economic efficiency and biological conservation and economic and biological overfishing cease to be a concern. Since overcapitalization and excess capacity in the fleet are eliminated as fishermen voluntarily exit the fishery, rents generated by the resource are captured in the value of the ITQ that is traded in a competitive market instead of being dissipated by additional effort.

An extensive review of experiences in other nations that have implemented ITQ management indicates that the success of the program depend on the rate of compliance and if the system is not self-enforcing, additional enforcement effort are implied. Since the red snapper fishery operates in the context of a larger multi-species fishery, the compliance/enforcement concerns are increased. One sign that enhanced enforcement may be necessary is that according to the Thomas, et.al. study, only 20 to 30 percent of the participants preferred this management option. Another obstacle to a successful ITQ program for the red snapper fishery includes resolving the problems which will occur when fishing effort previously directed at red snapper is applied to other open access fishery stocks. Bycatch mortality resulting from red snapper discards by fishermen who do not possess enough ITQ rights to land their total red snapper catch will also need to be fully evaluated. Another problem can be expected because of the existence of a major open access recreational component which has an unknown, but perhaps substantial, release mortality which will increase as the abundance of red snapper increases.

In addition to the potential for increased direct enforcement costs, the ITQ program will result in increased administrative costs associated with designing the program and issuing and tracking ITQ shares and coupons. However, if an ITQ program is adopted, the possibility exists that other regulations can be modified or eliminated and since the need for amendments to the FMP may lessen, the overall long run cost of the ITQ program may actually be less than the projected cost of the no action management regime. If the potential problems with ITQ programs in the special case of the red snapper resource are found to be very serious, it is conceivable that the change in net benefits from the adoption of an ITQ management program for the commercial red snapper fishery could be negative relative to the no action or license limitation cases.

SUMMARY OF GENERAL IMPACTS

Impacts	No Action	License Transferable Limitation	Individual Quota
Economic Overfishing	YES	NOT AS SEVERE	NO
Biological Overfishing	NO	NO	NO
Vessels Larger Than Necessary	YES	YES	NO
Excess Number of Vessels	YES	NO	NO
Excessive Red Snapper Fishing Effort	YES	NOT AS SEVERE	NO
Rent Dissipation In Red Snapper Fishery	YES	NOT AS SEVERE	NO
Derby Fishing	YES	YES	NO
Administrative Costs of Program	CURRENT COSTS INCREASE	SLIGHT	MORE COSTLY*
Enforcement Costs	STANDARD	STANDARD	MORE COSTLY**
Change in Net Benefits Relative to No Action Base Line	NONE	SLIGHTLY BETTER	SIGNIFICANTLY POSITIVE

* If some existing regulations are removed and the FMP requires amending on a less frequent basis, the long run cost may fall.

** If the ITQ program is self-regulating, and some existing regulations are removed, the long run cost may fall.

13.7 Analysis of Specific License Limitation Management Measures

The economic implications of specific license limitation management measures are presented in this section of the regulatory impact review. The proposed alternatives concern the initial allocation of licenses, their transferability, and duration. The proposed license limitation alternatives are for a single species (red snapper) in a multispecies fishery (reef fish). Economic implications are complicated by the existence of commercial and recreational harvesting sectors. The commercial fishery consists of a fleet of small and large fishing craft that are owner and nonowner operated using at least two gear types (hand lines and long lines) that fish in at least two distinct areas of the Gulf of Mexico (northern and western Gulf). The recreational fishery is equally complex with a fleet consisting of private craft, headboats, and charterboats. The fishery is managed under state and federal jurisdictions, further complicating the discussion of the proposed license limitation alternatives.

Sections 10.1, 10.2, and 10.3 in this amendment deal with the initial allocation of licenses in the red snapper fishery. They are based on issues of equity or fairness and not economic considerations. As a result, the RIR has little advice to offer to those wishing to choose the best license allocation system. However, a license limitation system that encourages fishermen to cooperate could substantially reduce fishing effort, improve stock conditions, and lead to improved income levels for fishermen in the fishery. These cooperative conditions are generally improved as the number of fishermen licensed to operate in the fishery declines.

13.7.1 Basic Initial Allocation and Bycatch Provisions

The alternative license allocation schemes presented in section 10.1, alternatives 1 to 6 and their associated level of restrictiveness are not based on economic criteria. Instead, the alternatives are concerned with what is fair to the fishermen in the reef fish and red snapper fishery. Generally, the less restrictive the license, the easier it will be for fishermen to evade the limits on access to the resource. For example, if a bycatch allowance is included for fishermen without red snapper licenses, then as red snapper stocks improve, catch per unit effort will increase, and fishermen will have an incentive to enter the reef fish fishery causing the level of red snapper bycatch to increase.

Alternative 1: Two classes of red snapper licenses will be issued. A Class (1) license will be issued to an owner or income qualifying operator of a currently permitted vessel who qualified for the red snapper endorsement, and to qualifying historical captains (See Section 10.3). In the event of the death or disability of such owner or income qualifying operator, the Class (1) licensee will be issued to the owner or operator to whom the red snapper endorsement is currently issued. Each Class (1) license will entitle a permitted vessel using it to an initial trip limit of 2,000 pounds. A Class (2) license will be issued to the current owner or income qualifying operator whose vessel(s) landed at least 500 pounds in each of two of the years 1990 through 1992, as determined by the data collected under Amendment 9. Each Class (2) license will entitle a permitted vessel using it to an initial trip limit of 200 pounds. There will be no bycatch allowance and no commercial harvest will be allowed for vessels without a red snapper license.

The number of licenses issued under alternative 1, based on landings records collected under Amendment 9, would be between 225 and 266. The number of Class (1) licenses issued would be between 125 and 137, of which 4 to 6 would be historical captains. Class (2) licenses issued would be between 100 and 129 (James Davis-Martin, NMFS, personal communication).

Alternative 2: Adopt Alternative 1 above, but provide that the qualifying criteria for Class (2) licenses be "at least 500 pounds in any one of the three years, 1990-1992".

The number of licenses issued under this alternative is estimated at 522 including Class (1) licenses.

Establishing a two tier vessel license program with extremely limited transferability as proposed in the preferred alternative cited above violates the spirit of the amendment's objectives 2 (To avoid to the extent

practicable the "derby" type fishing season), 4 (To provide for cost-effective and enforceable management of the fishery), and 5 (To optimize net benefits from the fishery). Two groups of commercial fishermen will be established that have different objectives and goals. Under the class 1 license will be 'full time' fishermen who only harvest red snapper. The class 2 license will consist of part time fishermen who harvest red snapper as a bycatch or who harvest red snapper but will maximize trips in the red snapper fishery. It is unlikely that these two groups will be able to reach agreements on harvest rates or fishing patterns that will result in stock conservation and improved economic performance because their harvesting objectives are so different. That is, the transaction costs of reaching an agreement are too large to overcome requiring additional costly governmental regulation. Since transferability is extremely restricted, it is unlikely that resource rents will be captured by the license price. This means that the derby fishery for red snapper will continue unabated by the preferred alternative.

Alternative 3: Issue the class (1) license to endorsees as above, but issue the class (2) license to all other persons holding a reef fish vessel permit (approximately 1430 additional persons) who will get an initial vessel trip limit of 200 pounds.

This alternative only serves to exacerbate the problems cited above in the preferred alternative by increasing the number of fishermen in the red snapper fishery who would have to reach agreement on management strategies. The transaction costs of reaching an agreement are higher under this alternative than under the preferred alternative.

Alternative 4: Red snapper licenses will be issued to the current holders of red snapper endorsements (endorsees). Trip limits and other framework measures for red snapper license holders will be set through the framework procedure for setting TAC. There will be no bycatch allowance and no commercial harvest of red snapper will be allowed for vessels without a red snapper license.

This is the most restrictive license arrangement for the red snapper fishery. It promises to capture the most resource rent in terms of a transferable license price or value. Stocks can only be landed by a licensed vessel or fisherman. However, any redundant capital remaining in the red snapper fishery will not exit the fishery and capital investment will probably continue in the fishery unless fishermen can cooperate in reducing capital.

Alternative 5: Red snapper licenses will be issued to the current red snapper endorsees. Trip limits and other framework measures for both red snapper license holders and a bycatch allowance for permitted reef fish vessels without a red snapper license will be set through the framework procedure for setting TAC.

While allowing more fishermen to participate in the fishery through the bycatch provision, fewer resource rents will be captured in the value of the transferable license. Instead, improvements in stock size will be captured by increased reef fish fishing trips by unlicensed fishermen who land red snapper bycatch. This effect will be more severe if red snapper prices increase in the marketplace.

Alternative 6: Red snapper licenses will be issued for permitted reef fish vessels where the vessel (or its predecessor operating under the same permit, if the permit was transferred) had landings of at least 1,000 pounds in one of the three years 1990, 1991 or 1992. Trip limits and other framework measures for red snapper license holders will be set through the framework procedure for setting TAC. During the commercial season a possession and daily landing limit of 50 pounds of red snapper will be allowed as a bycatch for permitted reef fish vessels without a red snapper license.

The greatest number of fishermen will be allowed in the fishery under this alternative license limitation program. The bycatch provisions which allow reef fish fishermen to land red snapper will not prevent the effective entry of new red snapper fishermen.

Alternative 7: If the Council changes the vessel trip limits in setting TAC, the ratio between trip limits for persons with a class (1) license and other licensed persons will remain 10 to 1; for example 3,000 to 300 pounds.

There is no economic rational to support this 10 to 1 TAC alternative.

Alternative 8: Issue Class (2) licenses to all eligible applicants who, based on the historical catch records of vessels they owned or operated, had red snapper landings between 1990 and 1992, and who had the requisite eligibility status on:

- a. November 17, 1994, or**
- b. Upon implementation of the amendment (fall of 1995)**
- c. Upon date of publication of the proposed rule for this amendment.**

The alternatives of Section 10.1 defines persons who will be eligible as current owners or operators of permitted reef fish vessels whose income was used to qualify for the permit. Current is defined to mean upon implementation of this amendment. Alternative 6 would provide, as does the preferred alternative under Section 10.1 that the eligible persons must have had landings in 1990-1992 on their vessels but current owners, operators would mean as of November 17, 1994, or upon implementation of the amendment (fall of 1995) or on date proposed rule is published. Note: Section 10.8 provides for transfer of landing records from 1990-1992 with transfer of the vessel permit.

Note: If landing records are used as a basis for determining eligibility under a license limitation system only landings in the years 1990 through 1992 will be used. The preferred alternatives under Section 11.2.5 or 10.8 shall govern transfer of such records related to eligibility.

Licenses Initially Issued to Persons or Vessels

Alternative 1: It is the intent of the Council that licenses be issued to persons. (In the event that a license is issued to a vessel owner, the term "person" specifically includes a corporation or partnership.) A license issued to a vessel owner may be used by any permitted vessel owned by the owner, without regard to who operates the vessel. A license issued to an operator is valid only aboard a permitted vessel when the named operator is aboard and in charge of the vessel. In any case, a license must be aboard the vessel. Historical captains are included persons.

Alternative 2: A red snapper license is issued to a person. That person (or a designated operator) must be aboard any federally permitted reef fish vessel in order to harvest red snapper under the license.

- a. Person is defined as the vessel owner, or
- b. Person is defined as the person (vessel owner or operator) whose income was used to qualify for the vessel permit, or
- c. Person is defined as the person (vessel owner or operator) whose income was used to qualify for the vessel permit, and historical captains⁴.

Alternative 3: A red snapper license is a vessel license issued to a federally permitted reef fish vessel, and may be renewed, transferred or revoked separately from the reef fish permit.

Whether a person defined under alternative 1, alternative 2 (a), (b), or (c) or a vessel as in alternative 3 receives the license is irrelevant from an economic standpoint. The value of the license is dependent on the net revenue generating capability of the fishery discounted over time, not on who or what owns the license. Rather than this rent generating behavior, these alternatives represent rent seeking behavior by individuals in the fishery. That is, they are trying to capture the existing resource rents by ownership of licenses rather than generating new resource rents through the conservation of the red snapper stocks. Alternative 3 will allow a greater number of licenses than under any of the options in alternative 2. As a result, license values will be lower under alternative 3 because the supply of licenses is greater with a fixed fish stock. The lower license value will allow more of the resource rent to be dissipated by the fishery which still acts as if it were a common property resource. Capital growth will occur faster under alternative 3 than alternative 2, but will still be slower than under the no action management option.

Allocations of Multiple Fishing Privileges

If historical captains are selected to participate (10.2, Alternative 1.c.) the following alternatives would apply: Such licenses would be fully transferable and could be traded or sold.

⁴ Historical captains are classified as captains operating continuously in the red snapper fishery under a verbal or written share agreement with an owner to lease a vessel from prior to the control date of November 7, 1989 set for the reef fish fishery, who have landed at least 5,000 pounds of red snapper in two of the three years 1990, 1991, and 1992 and who can meet the more than 50 percent earned income requirement from the year of the control date (1989) to present. The agreement must provide that the captain is responsible for hiring the crew who are paid from the share under his control.

1. In instances where the catch records of the historical captain⁴ were used to qualify a vessel for a license alternatives are as follows:
 - a. The historical captain and owner each would be issued a separate Class (1) license, or
 - b. The license would be shared between the owner and historical captain based on the shares in their vessel agreement, or
 - c. The historical captain and owner each would be issued a separate license equivalent to one-half a vessel license, or
 - d. A single license would be issued in names of both the owner and historical captain.
 - e. Qualifying historical captains will be issued a separate license but can only use the license on a vessel he buys and operates.
2. If licenses are shared between historical captain and owners alternatives are as follows:
 - a. For a vessel to land red snapper, the equivalent of 100 percent of a license must be aboard, or
 - b. The owner and historical captain may fish for and land red snapper from separate vessels, but the trip limit each is allowed will be equivalent to their respective share of the license.

No Action Alternative - Licenses are not subdivided, each vessel gets a single license issued to the vessel permit holder whose income was used to qualify for the permit.

These alternatives again deal with the initial allocation of licenses to operate in the fishery. The issue is the fairness of the initial allocation. Whatever initial allocation is deemed fair by industry will be the best alternative to adopt. However, the number of licenses will affect the market price. With larger numbers of licenses resulting in lower license prices than smaller numbers of licenses in the marketplace. The lower the price of the license, the faster investment in redundant capital will occur in the fishery. However, the growth in capital and the effect this will have on the length of the fishing season will have less of an impact than under the no action management scheme. Therefore, the no action alternative will result in fewer licenses, higher license prices, and slower growth in redundant capital in the fishery. As a result, the fishing season will not collapse as fast.

⁴ Historical captains are classified as captains operating continuously in the red snapper fishery under a verbal or written share agreement with an owner to lease a vessel from prior to the control date of November 7, 1989 set for the reef fish fishery, who have landed at least 5,000 pounds of red snapper in two of the three years 1990, 1991, and 1992 and who can meet the more than 50 percent earned income requirement from the year of the control date (1989) to present. The agreement must provide that the captain is responsible for hiring the crew who are paid from the share under his control.

13.7.2 Transferability, Lease, Sale, and Duration of Licenses

Sections 10.4, 10.5, 10.7, 10.8, and 10.9 deal with the sale, lease, or ownership of licenses in the red snapper fishery. Generally, the deeper the market, the more likely licenses will be optimally priced. Perfectly competitive markets are characterized by complete and perfect information, large numbers of buyers and sellers, homogeneous products, and free mobility of resources. The closer this theoretical ideal is achieved in the actual marketplace for licenses, the closer prices will reflect the social value of the fish stock.

Transferability of Licenses

Section 10.4 deals with the transferability of licenses between fishery participants.

Alternative 1: Licenses may be transferred without restrictions.

Among the proposed alternatives, this alternative would cause licenses to most closely reflect the value society places on the red snapper fishery resource. The increased value of the license would capture most if not all of the resource rent. While investment in redundant capital would not be substantially reduced, its rate of growth over time would be much slower than under the no action management alternative or the other alternatives in this section.

Under this alternative licenses to fish commercially for red snapper can be freely traded in the marketplace with the only requirement that such transfers must be registered by NMFS. Under the provisions of the FMP such fishing must be upon a vessel with a reef fish vessel permit and rules for such permits will apply to the fishing operation. For example, operators whose income was used to qualify for the permit must be on board the vessel. However, upon transfer of a license issued to such an operator or historical captain, the new owner of the license may use any other operator provided that either the owner or the operator selected qualify for the reef fish vessel permit.

Alternative 2: Licenses may not be transferred, except under the hardship transfer provisions of Amendment 7.

Licenses could be transferred only if the holder died or became disabled. The number of licenses would decline over time under this alternative as fishermen voluntarily left the fishery, lost their vessels, or went bankrupt. Fleet size would slowly decline. However, fishermen who remained in the fishery would continue to behave as if a common property fishery were in effect. Capital investment would continue, fishing seasons would be shortened under TAC or trip limit regulations, as vessels became larger and faster. Since new entrants would be essentially eliminated, the growth in redundant capital would be slower than under the no action management alternative, but without the license capturing a portion of the resource rent by its trading in an unfettered competitive market, resource rents would be invested entirely in harvesting capacity.

Alternative 3:

- a. If licenses are issued to persons, they may be transferred only to owners or operators of permitted reef fish vessels.**
- b. If licenses are issued to vessels, they may be transferred only to other vessels with valid reef fish permits.**

This alternative would restrict the market for licenses relative to alternative 1. Fewer individuals would be able to bid for licenses in the marketplace. The fewer the number of buyers, the less likely market prices for licenses will be socially optimal. Distortions in market prices (either too high or too low) will have impacts on the subsequent capital investment levels and the length of the fishing season.

Alternative 4: If licenses are issued to vessels, they may only be transferred to other vessels of the same owner.

Alternative 4 essentially eliminates the license marketplace as does alternative 2. However, the growth in redundant capital is enhanced under alternative 4, since vessels that had to be rebuilt under alternative 2 could now be replaced with new vessels. This reduces the time the vessel is out of production being refitted and allows fast entry of larger more powerful fishing vessels into the fishery. Capital growth should be fastest under this management alternative among the four alternative cited in this section, but will still be slower than under the no action management alternative.

Number of Licenses That Can Be Owned by One Entity

Section 10.5 deals with market concentration in the license market. The alternatives reflect the concern that individuals may gain control of the license market and eventually control the supply of red snapper delivered to the fresh fish marketplace. This would give monopolistic or oligopolistic power to the producers of fish and create market inefficiencies. However, given the large numbers of substitute products in the fresh and frozen fish market, it is unlikely that even a sole producer of red snapper or even reef fish would have market power over prices.

Alternative 1: Place no limitation on ownership.

With a heterogeneous fleet generating inframarginal rents, market concentration could occur as the most efficient producers buy the licenses from less efficient fishermen. Since the fishery is overdeveloped, some concentration of the harvesting sector would be economically efficient. However, none of the applied literature cites a case where the number of fishing entities declined as a result of the purchase of licenses by existing license holders. Without limitations on ownership, the greatest number of buyers would be allowed into the market for licenses, license prices would reflect the socially optimal value of the red snapper resource, redundant capital growth would be slowed the most, and administrative costs would be minimized relative to the other alternatives.

Alternative 2: Limit the percentage of red snapper licenses (or red snapper licensed vessels) owned by a single entity to 5 (or some other) percent.

Alternative 3: Limit the percentage of Class (1) red snapper licenses (or red snapper Class (1) licensed vessels) owned by a single entity to 10 percent of the Class (1) licenses, and place no restriction on ownership of Class (2) licenses.

These alternatives would limit the red snapper harvesting sector to at least 20 or 10 firms. Vertical integration, however, would not be prevented.

Alternative 4: Reserve 30 or 40 (or some other) percent of red snapper licenses for individually owned single vessel operations.

This alternative would ensure that the harvesting sector remains a competitive industry. However, the costs of ensuring that 30 to 40 percent of the firms were actually individually owned single vessel operations could be high, if market concentration incentives exist. Harvesting operations could become vertically integrated, subsidiary corporations could be established, etc., to legally avoid the ownership prohibitions. However, without the potential of market power, incentives to concentration would not exist in the marketplace. With the large number of substitute products for red snapper and the imports of snappers and substitute species, the ability to control market prices through production controls is remote.

Leasing Licenses

If ownership of licenses is conferred upon the licensee, the issue arises whether he should be allowed to lease the license to owners of other vessels. The value of a lease would be determined by the resource rent the fisherman could generate in the fishery over the time period of the lease. The lease would go to the most efficient fisherman and resource rents over and above those that accrue to the license would not be dissipated by the purchase of redundant capital. For example, if you own a house that appreciated in value over time, you could take a home equity loan and reinvest the equity in the real estate by adding a pool, landscaping the yard, or building an addition to the house that would further increase the value of the home. If you rent a house, your rental payments increase each year as the house appreciates in value and there would not be an incentive to increase investment in the rented real estate.

Alternative 1: Allow leasing to other owners or operators of permitted reef fish vessels and require registration of such lease with NMFS.

This alternative would allow market concentration that contradicts concerns raised earlier in the RIR since it would allow multivessel fishing operations. However, the leasing of licenses would allow the inactive license holder to extract the resource rents from the fishery and slow or stop the increased investment in redundant capital in the fishery.

Alternative 2: Prohibit leasing of the license by the licensee.

This alternative would restrict the size of the market for licenses. The value of the license would not perfectly reflect the social value of the resource, but the impact would probably be minor.

Alternative 3: Allow leasing with no restrictions.

This could generate substantial benefits for the fishing industry. Capital investment might actually decline as rents are extracted from the industry by the inactive license owner. At worst, it would broaden and deepen the market for licenses allowing it to better capture the value society places on the fishery resource.

Duration of Licenses

The value of transferable licenses depends on the rents generated by the harvesting of fish over the lifetime of the license discounted to a present value. The size of the fish stock, the ex-vessel price received by fishermen for red snapper, and the costs of harvesting the fish as well as the applicable discount rate determine the value of the license. Since the MFCMA precludes collecting more than the administrative cost of issuing a license, the annual, biennial, or longer period license fee would be deducted from the sale price of a license. These rents would be used to support the administering agency that renews and issues the licenses or would reimburse the general treasury for those administrative costs. No net benefit to society would be gained.

Alternative 1: Require annual renewal of licenses.

This alternative would generate the highest administrative costs since compliance with fishery statistic reporting regulations would be required before a renewal could be granted.

Alternative 2: Require annual renewal of licenses but provide NMFS authority, after consultation with the Council, to modify the time period.

Alternative 3: Require renewal of licenses biennially (or longer period).

Under alternatives 2 and 3, administrative costs would be reduced since renewals would not occur each year and the determination of compliance with reporting regulations would not have to be done annually.

Note: NMFS will charge an administrative fee for renewal of licenses.

Transferability of Landings Records Related to Eligibility of Class (2) Licenses

Alternative 1. The landings records for the 1990-1992 period are retained by the permittee if the permit was transferred to additional vessels owned by the permittee.

Alternative 2. The landings records for the 1990-1992 period will be transferred to the new permit holder if the vessel permit was transferred through sale of the vessel or transferred due to death or disability.

Alternative 3. The landings records for the 1990-1992 period will be transferred to the new permit holder if the vessel permit was transferred through sale of the vessel or transferred due to death or disability, unless there is a legally binding agreement under which the original permit holder retained such landing records.

Alternative 4. The landings records for the 1990-1992 can be transferred to the new permit holder if the vessel permit was transferred through sale of the vessel or transferred due to death or disability.

Alternative 5. The landing records for the 1990-1992 period will not be transferred to the new permit holder, if the vessel permit was transferred through sale of the vessel or transferred due to death or disability, unless there is a legally binding agreement for such transfer, i.e., the permit holder of record in 1990-1992 will retain such records for ITQ eligibility in the absence of an agreement.

Alternative 6. Landings records (for eligibility purposes) cannot be transferred, except in cases of vessel replacement by the permittee of record in 1990-1994.

Alternative 7: Notwithstanding other alternatives of this section that may be selected, an owner of a currently permitted vessel will retain the landings record for a vessel that was substantively controlled by him even though the ownership of such vessel was in the name of a different legal entity. **Substantively controlled** means that the same entity had at least a 50 percent interest in the vessel immediately before and after the change of ownership or the change of ownership was from one to another of the following: husband, wife, son, daughter, brother, sister, mother or father. The owner of a currently permitted vessel has the burden of proof of substantive control.

Discussion: Alternative 1 would allow the permittee who replaced a vessel to retain the landings record for eligibility purposes. The Council originally allowed replacing vessels under a permit because it would have created an undue hardship, if a vessel sank or became inoperable. Similarly, preventing transfer of the landings records from the previous vessels would create an unnecessary hardship. Alternatives 2 through 5 relate to transfer of landings records for ITQ eligibility for vessel transferred through sale with the vessel permit or transfers due to death or disability. Since the vessel permit may have enhanced the sale price of the vessel it seems equitable that the landing record for ITQ eligibility be included with the sale. Some purchasers have indicated that this was a major consideration in purchasing a vessel with a permit. Alternative 2 provides that such records will be transferred. Alternative 3 provides that the records will be transferred unless a legal agreement existed whereby the original permittee retained the right to use such records for ITQ eligibility. Alternative 4 provides such records may be transferred, leaving the original and new permittees to resolve the issue (in court if necessary). Alternative 5 provides that such records will be retained by the original permit holder of record in 1990, 1991 and 1992, unless a legal agreement existed whereby the original permit transferred the record on sale of the vessel. Alternative 6 provides such records cannot be transferred except in cases where the permittee of record in 1990, 1991 and 1992 replaced the vessel with an additional vessel owned by that permittee.

Alternatives 1 to 7 deal with equity in determining who should receive a class 2 license. The more restrictive the alternative toward increasing the number of licenses and the more transferable the licenses, the higher will be the license price. The higher the price, the less resource rent will be invested in redundant capital and the less severe will be the derby fishery.

13.8 Specific Implementation Alternatives-Individual Transferable Quota System.

This section discusses alternatives for implementing an individual transferable quota system for the commercial red snapper fishery. Under this system, there would be an overall commercial quota which would be split into individual shares. Initially, allocations would be distributed based on historical participation and/or other eligibility criteria. Thereafter, participants could enter and leave the fishery or adjust their individual quotas by buying and selling all or portions of their quota shares. In this section, the implementation options are divided into four general categories: (1) ITQ structure, (2) initial allocation, (3) ownership and transfer controls, and (4) monitoring procedures.

13.8.1 ITQ Structure

These alternatives deal with the units in which ITQs are measured, their duration, a set aside for non-ITQ catches, and a bycatch provision.

ITQ Units of Measure

Preferred Alternative 1: Denominate ITQ certificates in percentage terms the commercial quota set under TAC, but translate the percentages into pounds of red snapper at the start of the season or at such time when TAC adjustments are made.

This alternative reduces the costs of adjusting TAC. If TAC has to be reduced as a result of stock conservation concerns, then the administering agency does not have to purchase ITQ coupons from fishermen in the ITQ market to reduce pounds landed. Increases in TAC do not have to be allocated to new entrants or to existing fishermen. The increases in TAC immediately translate into larger holdings of ITQ pounds. The marketplace for ITQ will reallocate these pound certificates at no cost to the administering agency whenever TAC is adjusted in response to stock assessments.

Alternative 2: Denominate ITQ certificates in terms of pounds of red snapper.

Without the ability to sell ITQ certificates, the administering agency would have to allocate ITQ poundage coupons to existing or new fishermen whenever red snapper TAC is increased based on some criteria. When TAC is reduced in response to a stock assessment, the ITQ certificates would have to be purchased by the administering agency at considerable cost to the government. The 2 million pound wreckfish ITQ, for example, is worth nearly \$1 million.

Duration of ITQ

A harvest privilege that has an indefinite duration is more easily marketable at a higher premium than a temporary harvest privilege. Aside from its legal ramifications, the choice of ITQ duration has management and economic implications. A harvest privilege is tied to the species under consideration, and is therefore coterminous with the viability of the stock. In addition, the value of a catch right directly correlates with the value of the species. An owner of a harvest privilege may be deemed to optimize the use value of his right over its life span while taking into account profitability through sale or lease of the privilege. Under this condition, the owner has an interest to conserve the stock over a longer period with a harvest privilege of indefinite duration than with a privilege that terminates in some specified date. As a consequence, the privilege with indefinite duration effects a strong interest in a more stable stock level and thereby a more stable fishery. This differentiation may be rendered immaterial by a choice of a longer period for a temporary harvest privilege.

Preferred Alternative 1: Confer on an ITQ share certificate holder the privilege to harvest the specified amount for four years after inception of the program after which the program may be extended.

In the general case, economic values under an ITQ system tend toward maximum when the current or potential shareholders believe that the ITQ share is a long-term asset. In such cases the participants can be expected to adjust their shares (if necessary) with regard to the most efficient size of their individual operations. In the case of this alternative, there is the potential for the value of shares to be reduced according to how the participants view the possibility that the ITQ program might be terminated after four years. For example, if current or potential shareholders strongly believe that the program will terminate, then they will have much lower incentives to make adjustments in their operations to match the size of their shares.

However, if they firmly believe that the ITQ program will indeed work and be extended indefinitely, then the alternative does not affect the overall economic outcome. There is really no way to predict the attitude of the participants, but a reasonable outcome is that values will decline at least a small amount. While it is not predicted that the effect of the alternative will be to render the ITQ program unworkable, the RIR finding is that the Council's preferred alternative is not expected to yield the highest level of net economic benefits.

Alternative 2: Confer on an ITQ share certificate holder the privilege to harvest the specified amount indefinitely. It is the intent of this provision that the ITQ harvest privilege will be retained as long as the objectives of the FMP are met.

This alternative reduces the costs of the ITQ program to society and is superior to the preferred alternative. As explained above, the ITQ holder has a long term interest in conserving the stock of fish so that the ITQ has value when he wishes to leave the fishery by selling his ITQ to a new entrant. This alternative will avoid the costs to society incurred by creating some possible doubt about the duration of the ITQ program as will occur under the preferred alternative or by setting fixed termination date as would occur under alternative 3. Hence, the RIR finding is that alternative 2 should provide the highest level of economic benefits.

Alternative 3: Confer on an ITQ share certificate holder the privilege to harvest the specified amount for _____ number of years.

As the termination date for the ITQ is approached, the value of the ITQ share will decrease. The value of each ITQ is proportional to the discounted present value of the resource rent generated by the fishery. As the termination date approaches, this net revenue stream becomes shorter and the ITQ value becomes less. As the ITQ value declines, the cost of fishing declines, and fishing effort increases. With the increase in fishing effort it is conceivable that incentives will exist to over harvest the resource. As a result, increased compliance monitoring and enforcement of the fishery may be required. Fishing seasons will become shorter and effort will be diverted to other common property fisheries as the termination date of the ITQ approaches. This reallocation of effort will create increased costs to society in these other fisheries. Unless the specified number of years is quite large, say 10 or more, then this alternative is inferior to the other alternatives which define the duration of the ITQ program.

Set-aside for non-ITQ Catches

Under an ITQ system, there will still be some commercial harvest of red snapper outside of the ITQ system. Red snapper harvested in state waters and sold to non-federally permitted dealers will not be in the ITQ system unless states adopt regulations requiring federal permits or ITQ coupons to harvest red snapper in state waters. Red snapper harvested illegally will be included in the commercial allocation if dealer records reflect the sale of these fish or when confiscated fish are subsequently sold by NMFS. To assure that the commercial sector does not exceed its allocation of TAC, it may be necessary to set aside a small portion for non-ITQ catches.

Preferred Alternative 1: 100% of the commercial red snapper allocation is to be assigned to ITQ.

Alternative 2: A fixed percentage of the commercial red snapper allocation is to be set aside for non-ITQ harvest.

Under either alternative, the adoption of an ITQ program in federal waters without including state jurisdictions will lead to a reallocation of fishing effort of an unknown magnitude in the red snapper fishery. If state waters

are excluded from the program, then fishermen with and without ITQs can enter the fishery in state waters. If the amount of effort and catch in state waters is significant, then there could be an effect on the stock in state waters and the stock in federal waters. The value of the ITQ may decline in the marketplace as catch per unit effort declines in federal waters. Enforcement and compliance monitoring costs would increase since fishermen with ITQs could report that their landings came from state waters and are therefore exempt from the ITQ TAC. Similarly, fishermen without ITQs could harvest fish from federal waters and claim that it was taken from the exempt state waters. Over time, the fixed percent of exempt ITQ landings would have to be increased if stocks recover or ex-vessel prices improved since fishing effort in state waters would increase under a common property management regime.

The problem cited above will occur principally if persons catch red snapper in the EEZ and claim they were caught in state waters and if the states do not adopt compatible rules implementing the ITQ system. Historic catches of red snapper from state waters averaged 2.2 percent for the years prior to regulation of the fishery (prior to Amendment 1) (see Section 11.1.3). These were predominately from Florida waters for which the state jurisdiction extends to nine nautical miles. The Council feels that the states will adopt compatible rules for the system as they have for the red snapper endorsement system (Texas is constrained from adopting compatible rule due to lack of legislative authority; the legislature of that state is considering a bill in the 1995 session to provide that authority to the department).

Bycatch Provision

The following alternatives deal with equity in the allocation of ITQs to fishermen who have landed red snapper in the past as part of the red snapper fishery, the reef fish fishery, or as a bycatch in some alternative fishery. These alternatives deal with the equity or fairness to fishery participants and economic analysis has little to offer in the way of advice. However, once the allocation is made, the ITQ market, if it is competitive, will reallocate the ITQ shares and coupons efficiently. In short, no matter what the initial allocation, the equilibrium allocation will be optimal.

Whether this general result will hold in the red snapper fishery with its large, common property recreational sector and the red snapper bycatch in the shrimp fishery is another question. These two effects could distort the ITQ market, leading to a suboptimal allocation of ITQs and subsequently the allocation of fishing effort in the commercial red snapper fishery. It is possible that a large recreational sector would dissipate rents in the fishery as the stock recovered. Catch per unit effort in the commercial fishery would not improve or could decline. The value of the ITQ would remain the same or decline. Commercial fishermen would increase their fishing effort levels relative to higher valued ITQs. This could result in a misallocation of effort and the fish stock between the commercial and recreational fishery sectors. Unfortunately, little empirical or theoretical evidence exists that would allow us to draw inferences about the red snapper fishery.

Preferred Alternative 1: If an ITQ system is implemented, a minimum par allocation serves as the bycatch allowance.

This alternative provides for all red snapper commercially harvested by federally permitted fishermen to be included in the ITQ system. Implicit in this alternative is no bycatch allowance for snapper landed outside of the ITQ system. Providing a minimum initial allocation (Section 11.2.5) and an initial ownership eligibility level broad enough to include fisherman who may only land red snapper as bycatch (Section 11.2.1) assures that the ITQ system will be able to account for bycatch red snapper at start up. After the initial start up, fishermen who wish to land red snapper as bycatch who do not have an ITQ share can do so by purchasing ITQ shares or quota coupons on the open market, subject to any ownership restrictions. **Red snapper taken as bycatch can be retained aboard the vessel only to the extent that ITQ coupons are aboard the vessel.**

Alternative 2: Provide for a bycatch of _____ pounds per trip or _____ pounds per year to those excluded from the system.

These alternatives would complicate any limited entry system that may be adopted. An estimate of bycatch fish would have to be made and deducted from the ITQ allocations, and a trip limit allowance that is set too high could provide a means for fishermen to circumvent the ITQ system. However, it can address the partial inequity introduced by the system if the subject fishermen had been excluded from the system due to imposition of stringent eligibility criteria. For example, if 5,000 pounds of landings were made the basis for inclusion in the ITQ system these fishermen could be excluded from the system. This alternative could add the additional cost of a bycatch fishery as occurred in the Australian bluefin tuna fishery. As the stocks recover or the ex-vessel price improves, the number of fishermen who participate in this bycatch fishery would increase. Landings of red snapper bycatch would grow over time. This increased fishing effort and landings level would act to undermine the value of the ITQs and distort the allocation of fishing effort in the fishery. The costs of compliance monitoring, enforcement, and stock assessment would increase under this alternative relative to the other alternatives where the bycatch is explicitly incorporated into the ITQ program.

Alternative 3: No bycatch allowance.

This alternative is identical to alternative 1 for years following the initial start up. However, unlike alternative 1, this alternative does not presume that there will be minimum allocations for bycatch in the initial distribution of shares. Fishermen who land small amounts of red snapper as bycatch and are not included in the initial allocation would need to purchase quota coupons on the open market or discard their incidentally caught red snapper.

13.8.2 Initial Allocation of ITQ Shares and Coupons

This subsection of the RIR deals with the criteria for the initial allocation of the ITQ shares and subsequently the poundage coupons, if such a system is adopted, to fishermen in the red snapper fishery. As with the license limitation alternatives for initial allocation, economics can offer little advice as to what is considered a fair or equitable allocation. However, whatever the allocation, the market for ITQs will result in an economically efficient allocation once ITQs begin trading in a competitive ITQ market. Fishing effort levels should decline, fishing seasons should expand, and stocks of fish should be conserved. The influence of a common property recreational sector may distort this process in that the market will not reallocate the initial allocation of ITQs in the most efficient manner.

Who is Eligible to Receive an Initial Red Snapper ITQ Allocation?

Preferred Alternative 1: Either the current owners or operators of permitted vessels depending on whose earned income qualified for the permit (i.e., only the income qualifier is eligible) and historical captains⁴.

Alternative 2: Owners of permitted reef fish vessels are eligible to receive initial allocations

⁴ Historical captains are classified as captains operating continuously in the red snapper fishery under a verbal or written share agreement with an owner to lease a vessel from prior to the control date of November 7, 1989 set for the reef fish fishery, who have landed at least 5,000 pounds of red snapper in two of the three years 1990, 1991, and 1992 and who can meet the more than 50 percent earned income requirement from the year of the control date (1989) to present. The agreement must provide that the captain is responsible for hiring the crew who were paid from the share under his control.

Alternative 3: Owners of permitted reef fish vessels and operators who are the income qualifiers are eligible to receive initial allocations, or

Alternative 4: Owners of permitted reef fish vessels, operators who are the income qualifiers, and other qualifying operators who have worked continuously on a permitted vessel in the red snapper fishery during 1990, 1991, and 1992 and meet all historical landings and income requirements other than having been the income qualifier on a reef fish permit, or

Alternative 5: Only income qualifiers are eligible to receive initial allocations.

Alternative 6: Only permit holders of record (income qualifiers) during 1990-1992 are eligible to receive initial allocations.

Alternative 7: Current owners of permitted reef fish vessels and operators who are the income qualifiers for the permit and historical captains⁴.

These eligibility criteria alternatives affect only who wins and loses under an initial allocation of ITQs. If all participants are allocated an ITQ share, then those who leave the fishery are compensated by those who remain in the fishery. Net benefits to society increase and the winners compensate the losers. Under the other alternatives, net benefits to society increase, but the winners do not compensate all the losers. The latter criteria is acceptable in cost benefit analysis under the compensation criteria where compensation does not have to occur. **The sharing of ITQ shares between historical captains and owners of their vessels is discussed in the next section.**

Allocation of Multiple Fishing Privileges

This section addresses the issue of sharing between historical captains and owners if such captains are selected to participate in the ITQ system (see 11.2.1, alternative 1).

Preferred Alternative 1: Prorate the allocation of ITQ shares between historical captains⁴ and owners based on the percentage of the value of the landings each would get under the vessel share agreements between owners and captains that were in effect in 1990, 1991, and 1992, or

Alternative 2: 100 percent of the allocation of ITQ shares goes to the owner and 0 percent to the historical captain, or

Alternative 3: 50 percent of the allocation of ITQ shares goes to the owner and 50 percent to the historical captain, or

Alternative 4: Double count the vessel's 1990-1992 landings record for purposes of arriving at a grand total for the fishery and issue the captain and owner each a 100 percent allocation, or

Alternative 5: Prorate the allocation of ITQ shares between historical captains⁴ and owners or between qualifying operators and owners based on the percentage of the value of the landings each would get under the vessel share agreements between owners and captains or qualifying operators that was in effect in 1990, 1991, and 1992.

⁴ Historical captains are classified as captains operating continuously in the red snapper fishery under a verbal or written share agreement with an owner to lease a vessel from prior to the control date of November 7, 1989 set for the reef fish fishery, who have landed at least 5,000 pounds of red snapper in two of the three years 1990, 1991, and 1992 and who can meet the more than 50 percent earned income requirement from the year of the control date (1989) to present. The agreement must provide that the captain is responsible for hiring the crew who are paid from the share under his control.

Since rents accrue to both capital and labor in a common property fishery, the adoption of ITQ as a management instrument causes the reallocation of those rents to the value of the ITQ. These alternatives deal with this concept of rent reallocation between labor and the owners of capital. The historical captains represent skilled labor while the owners of the vessels represent the owners of the capital equipment. Equity calls for the sharing of the resource rents between capital and labor under the ITQ program as they were shared under the no action management regime; i.e. the preferred alternative. However, this is not an economic question. Regardless of how the initial allocation of ITQs is made, the market for ITQs will reallocate them to their best use.

Eligibility Criteria for Initial Allocation

Alternative 1: Issue ITQ share certificates to all eligible applicants who, based on their historical catch records of vessels they owned or operated, had red snapper landings between 1990 and 1992. Valid catch records will be based on the same criteria used for the red snapper endorsement, i.e., logbook records first, then Florida trip tickets, then fish house receipts.

Preferred Alternative 2: Issue ITQ shares to all eligible applicants who, based on the historical catch records of vessels they owned or operated, had red snapper landings between 1990 and 1992, and who had the requisite eligibility status on:

- a. November 17, 1994, or
- b. Upon implementation of the amendment (fall of 1995)
- c. **Preferred Alternative:** Date of publication of proposed rule for this amendment.

Valid catch records are defined as in Alternative 1 above.

Alternative 3: Issue a minimum allocation ITQ share certificate to all eligible applicants.

Alternative 4: Issue ITQ share certificates to all eligible applicants who have red snapper landings over a certain threshold in one of the years 1990, 1991 or 1992. The threshold criteria is (select 1):

- a. any red snapper landings
- b. 500 pounds
- c. 1,000 pounds
- d. 5,000 pounds
- e. other

Alternative 5: Issue ITQ share certificates as in one of the above alternatives with the additional requirement that the applicants must have had red snapper landings in at least X number of years.

Alternative 6: Issue ITQ share certificates to all eligible applicants who, based on their historical catch records of vessels they owned or operated, had red snapper landings of at least 500 pounds in two of three years between 1990 and 1992 and who were in the fishery prior to November 7, 1989 (control date).

These alternatives concern who should receive the initial allocation. The intent is to limit the ITQ shares to those who have been involved in the fishery. As the level of involvement becomes more restrictive, fewer fishermen receive an initial allocation. However, from an economic perspective, the market will allow some fishermen to sell their shares and allow new fishermen to enter the fishery once ITQ begin trading until an optimal allocation is achieved given the constraints in the fishery. The end result is the same under any initial allocation based on landings histories. The only difference is that some fishermen who are active in the fishery under the no action management regime, will not be compensated by the sale of ITQ if they are excluded from the initial allocation.

Initial Apportionment of ITQ Shares

Preferred Alternative 1: Allocate proportionately based on the average of the highest two out of three years landings from 1990 to 1992.

Alternative 2: Allocate proportionately based on average landings record during the eligibility qualifying period from 1990 to 1992.

Alternative 3: Allocate proportionately based on highest year landings during the eligibility qualifying period from 1990 to 1992.

These alternatives concern how much each participant in the ITQ program will receive. This is a question of equity or fairness and not an economic efficiency question. Whatever alternative is chosen will result in a reallocation of ITQ shares from those who received the initial allocation to those who wish to enter the fishery or who are in the fishery but wish to increase their holdings of ITQ.

Transferability of Landing Records Related to Eligibility

The FMP, as amended, provides for transfer of reef fish vessel permits under the following conditions:

- (1) Transfer of permits between vessels owned by the permittee is allowed, and
- (2) Transfer of permits between individuals is allowed only with the transfer of the permitted vessel (e.g. by sale), and
- (3) In the event of death or disability of a permit holder, the Regional Director shall have the authority to transfer, either permanently or temporarily, the permit to a person specified by the permit holder, their legal guardian or the estate.

These transfer conditions became effective on May 7, 1992 (Conditions 1 and 2) and January 7, 1994 (Condition 3). Prior to the initiation of the vessel permit moratorium on May 7, 1992 anyone with more than 50 percent of earned income from commercial or charter fishing could obtain a permit for any vessel. Since May 1992, vessels have been transferred under these conditions. This section addresses the issue of transferability of the landing records for these vessels during the 1990-1992 period upon which ITQ shares would be based under Section 11.2.4.

Preferred Alternative 1: The landings records for the 1990-1992 period are retained by the permitted owner if the permit was transferred to additional vessels owned by the income qualifying owner.

Alternative 2: The landings records for the 1990-1992 period will be transferred to the new permitted owner if the vessel permit was transferred through sale of the vessel or transferred due to death or disability.

Alternative 3: The landings records for the 1990-1992 period will be transferred to the new permitted owner if the vessel permit was transferred through sale of the vessel or transferred due to death or disability, unless there is a legally binding agreement under which the original permitholder retained such landing records.

Alternative 4: The landings records for the 1990-1992 can be transferred to the new permitted owner if the vessel permit was transferred through sale of the vessel or transferred due to death or disability.

Preferred Alternative 5: The landing records for the 1990-1992 period will not be transferred to the new permitted owner, if the vessel permit was transferred through sale of the vessel or transferred due to death or disability, unless there is a legally binding agreement for such transfer, i.e., the permitholder of record in 1990-1992 will retain such records for ITQ eligibility in the absence of an agreement.

Alternative 6: Landings records (for eligibility purposes) cannot be transferred, except in cases of vessel replacement by the permittee of record in 1990-1994.

Preferred Alternative 7. Notwithstanding other alternatives of this section that may be selected, an owner of a currently permitted vessel will retain the landings record for a vessel that was substantively controlled by him even though the ownership of such vessel was in the name of a different legal entity. "Substantively controlled" means that the same entity had at least a 50 percent interest in the vessel immediately before and after the change of ownership or the change of ownership was from one to another of the following: husband, wife, son, daughter, brother, sister, mother or father. The owner of a currently permitted vessel has the burden of proof of substantive control.

These alternatives concern how much of another fisherman's landing record should be used to determine how many ITQ shares the present owner of the vessel should receive. Once this initial allocation is made, the market will reallocate the ITQ shares efficiently. **Minimum Initial Allocation of ITQ Shares**

Preferred Alternative 1: Minimum allocation - Allocate as in one of the alternatives for initial allocation of ITQ shares with the additional provision that all eligible fishermen will receive a minimum quota share equivalent to 100 pounds.

Alternative 2: Do not set a minimum quota allocation. All eligible ITQ share recipients will receive a straight percentage allocation.

This is again a question of what is equitable or fair rather than a question concerning economic efficiency.

Fairness or equity is an important consideration in the establishment of an ITQ program. If the fishermen feel that a fair initial allocation has been made, they will be more willing to abide by it. The costs of enforcing the management program will be reduced and fishermen may begin to self-enforce the program. The compliance monitoring costs will decline if fishermen are not actively seeking means to subvert or evade the program as has been noted in individual vessel quotas (nontransferable).

13.8.3 Ownership and Transfer Controls

This section deals with the conditions pertaining to the possession of ITQ share certificates after the initial allocation. Certain features relative to initial ITQ share ownership may need to be modified to accommodate changes in fishing conditions that may hinder the achievement of an economically efficient red snapper industry. Generally, the deeper the market, the more likely the license prices will be optimally valued. Perfectly competitive markets are characterized by complete and perfect information, large numbers of buyers and sellers, homogeneous products, and free mobility of resources. The closer this theoretical ideal is achieved in the actual marketplace for ITQs, the closer ITQ prices will reflect the social value of the fish stock.

Timing of First Transfer of ITQ Share Certificates

The market for an ITQ share serves as a mechanism for ITQ participants to develop the most efficient operational fishing scale. Transferability (sale or lease) of quota certificates promotes the development of such a market. The initial eligibility requirements for holding ITQ shares may be very liberal as to include persons who may no longer be actively involved in red snapper fishing operations. It is possible that some ITQ holders are mere speculative participants. Although speculation has an economic role to play, it may mar the effective implementation of the ITQ program. The timing of ITQ share transfer coupled with some retention conditions (discussed below) offers potential for addressing these issues. Mainly due to the nature of any allocation method that is based on historical participation or on some measures of equity, the initial ITQ share distribution does not usually promote economic efficiency. The timing of ITQ share certificate transfer can either accelerate or retard the speed of achieving economic efficiency in the red snapper industry.

Preferred Alternative 1: Allow transfer of ITQ shares starting 6 months after the beginning of the program.

Alternative 2: Allow transfer of ITQ shares starting on the first year of the program.

Preferred Alternative 1 would delay the transfer for six months to provide NMFS time to prepare for that activity. NMFS will have just completed the initial allocation of ITQs by the beginning of the program which will be a significant administrative burden, requiring determination of eligibility, assessing ITQ levels and hearing and resolving disputes. Transfer through sale or lease would be permitted after the first six months. This would immediately open up avenues for the development of more efficient operating scale for each participant assuming that competitive ITQ markets exist. A delay in the trading of shares in the red snapper fishery would allow market participants time to determine the value of ITQs before trading began in the ITQ market. These alternatives provide time for fishermen to acquire better information on the value of ITQs.

Time prior to trading is particularly important in the case where the red snapper bycatch in the shrimp fishery is concerned. With the adoption of bycatch reduction devices by shrimp fishermen, substantial improvements in the stock of red snapper should occur. This increase in stock size in conjunction with an ITQ management program could result in substantial increases in ITQ value assuming perfect compliance with recreational TAC through the adjustment of recreational bag limits. This improvement in stock size and any subsequent increases in TAC that cause ITQ values to increase could be considered to be a windfall gain to holders of ITQs. Fishermen who sell out of the red snapper commercial fishery before the adoption of BRDs by shrimp fishermen would not receive their fair value in the ITQ marketplace if they do not know that such a regulation is being planned. If this information is known, then the ITQ market will appropriately discount it into the equilibrium, market price of the ITQs.

Persons Eligible to Transfer ITQ Shares After the Initial Allocation

The eligibility requirements discussed above pertain only to the determination of participants for initial distribution of ITQ shares. The following alternatives relate to subsequent ownership of ITQ share certificates and composition of program participants. When an ITQ share transfer is coursed through the market, ownership becomes largely a matter of financial savvy and could become unrelated to the exploitation of the red snapper resource. For reasons of equity or conservation, the Council may opt to restrict ownership.¹⁰

Preferred Alternative 1⁶: For the first one and a half years, transfers of ITQ share certificates can only occur among those who were eligible to receive a red snapper ITQ allocation at the start of the ITQ program. Thereafter, provide no eligibility requirements on the transfer of ITQ shares, except as those provided under ownership restrictions or rule violations. Transfer of ITQ shares is limited to natural persons who are U.S. citizens or permanent resident aliens.

Perfectly competitive markets are characterized by complete and perfect information, large numbers of buyers and sellers, homogeneous products, and free mobility of resources. This alternative allows fishermen who are initially allocated the ITQ and those wishing to enter the fishery to become familiar with the ITQ market. Better information about the value of ITQs can be gained by waiting a period of time before trading begins. Better information means that the ITQ prices will better reflect the social value of the red snapper fish stock. Because no eligibility requirements exist after the time period expires, the ITQ market will consist of a large number of buyers and sellers as required by a competitive market. This also will lead to an ITQ price that reflects the social value of the resource stock. One drawback of this alternative is that fishermen who initially received ITQ may sellout before the ITQ market is allowed to open to all parties interested in purchasing ITQs. These fishermen may receive an ITQ price that is distorted too high or too low. Distorted ITQ prices give

¹⁰ These alternatives refer to ownership and transfer of the ITQ share certificates. They do not pertain to ownership and transfer of the quota coupons, which are valid only for the year in which they are issued.

⁶ Eligibility for this alternative is defined as meeting the eligibility requirements of the preferred alternative in section 11.2.1 at the start of the ITQ program, regardless of whether the person received an initial allocation.

fishermen the wrong market signals or incentives for the use of fishing effort in the fishery and subsequently for stock conservation.

Alternative 2: Allow the transfer of ITQ share certificates only among the original but currently active participants of the program. Transfer of ITQ shares is limited to natural persons who are U.S. citizens or permanent resident aliens.

Alternative 3: Allow the transfer of ITQ share certificates only among the original participants of the program. Transfer of ITQ shares is limited to natural persons who are U.S. citizens or permanent resident aliens.

Alternative 4⁷: Allow the transfer of ITQ share certificates among all those who are eligible to receive a red snapper ITQ allocation at the time of the transfer. Transfer of ITQ shares is limited to natural persons who are U.S. citizens or permanent resident aliens.

Alternative 5: Provide no eligibility requirements on the transfer of ITQ share certificates, except as those provided under the section on ownership restrictions or rule violations.

Alternatives 2 to 5 describe ITQ markets that are the most restrictive to the least restrictive. The fewer buyers and sellers who are allowed to operate in the ITQ market, the less likely the ITQ price will accurately reflect the value society places on the red snapper stock. Economic efficiency requires that resources (fish stocks, labor, capital) be allocated to their best use. If a group of buyers or sellers are restricted from entering the ITQ market, their demand for the ITQ shares will not be included in the total market demand for ITQs. ITQ prices will as a result be less than they should be in the marketplace. Fishermen will not receive a fair price for their ITQ shares even when traded with other fishermen. Fish stocks will not be properly conserved, and capital and labor invested in the harvest of red snapper will not be properly allocated. That is, other goods and services that could have been produced will not be produced and society will not be better off as a result of using ITQs to manage red snapper. In short, the more restrictive the market, the greater the costs to society and the less benefits will be produced.

Concerns about recreational or environmental interest groups purchasing ITQs are quite real. If these groups value the fish resource higher than the fishermen, then they will offer prices for ITQs that are higher than other fishermen will offer and the ITQ ownership may revert to nonconsumptive red snapper user groups. However, it is the decision of the ITQ holder, the commercial fisherman, whether he wants to sell his ITQ shares to these groups. He can reserve the ITQ shares for future generations of his family if he so desires. He can sell to other fishermen at a lower price if he so chooses. The decision to sell ITQ is based on the same criteria as the sale of any marketable asset the fisherman holds. Once ITQs are allocated, outside authorities will no longer have the option of reallocating the ITQ to other entities.

Continuing Ownership of ITQ Shares (Use It or Lose It)

The following alternatives presuppose that ownership of ITQ shares are validated annually or any such period necessary to ensure that conditions for valid ITQ shares are satisfied. These alternatives should be taken without prejudice to the choice on the duration of ITQ share certificates (Section 11.1.2). That is, if ITQ share certificates carry the weight of a perpetual right, they may be revoked any time conditions set forth under this section are not met.

Preferred Alternative 1: No ITQ share certificate or any portion thereof shall revert to the management program, except in pursuance to sanctions on rule violations [See 50 CFR 904(d)].

⁷ Eligibility for this alternative is defined as meeting the eligibility requirements of the preferred alternative in section 11.2.1 at the time of the transfer.

Alternative 2: If for any one fishing year 50 % (or some other percentage) of a person's holdings of ITQ shares are not fished, sold or leased, his entire holdings of ITQ shares (less that portion sold) shall revert to the management program.

Alternative 3: If 50 % (or some other percentage) of a person's holdings of ITQ shares are not fished, sold or leased for 2 (or some other time period) consecutive years, his entire holdings of ITQ shares (less that portion sold) shall revert to the management program.

Alternative 4: If for any one fishing year 50 % (or some other percentage) of a person's holdings of ITQ shares are not fished, sold or leased, his holdings of ITQ shares shall be proportionately reduced.

Alternative 5: If 75 % (or some other percentage) of a person's holdings of ITQ shares are not fished, sold or leased for 2 (or some other time period) consecutive years, his holdings of ITQ shares shall be proportionately reduced.

These are difficult alternatives to evaluate without empirical data or sophisticated bioeconomic models. First, the use or lose restriction is very liberal in that the certificate can be fished, sold, or traded before it reverts to the management program or the individual ITQ share is reduced. In this sense, the use or lose restriction can be easily evaded by certificate holders. Two certificate holders can agree to sell each other equal amounts of certificates that have not been fished for the specified time period. In this way the certificates are used and ownership remains with the individual. Second, this use or lose restriction requires NMFS to set a TAC based on economic criteria rather than exclusively on biological criteria. That is, maximum economic yield (MEY) rather than maximum sustainable yield (MSY) determines the TAC. At MSY, excess supply of ITQs could be created since fishing firms would not wish to produce beyond their profit maximizing level of production. Since this point is MEY, the appropriate number of ITQ certificates would be allocated to the fishery at the beginning of the program. While the administrative costs of such a shift in the research program would be trivial, it would represent a major shift in program orientation. Third, use or loss restrictions reduce the number of individuals who can participate in the ITQ market. It also increases the information necessary to operate in the market and in a sense it increases the heterogeneity of the product (unused certificates are now different from used certificates). As a result, it could cause the market for ITQs to act less like a perfectly competitive market, cause prices to be distorted which would affect the levels of fishing effort applied to the red snapper fishery and adversely affect stock conservation goals. Thus, preferred alternative 1 should generate the most net benefits.

Disposition of ITQ Shares That Revert to Management

Preferred Alternative 1: ITQ shares that revert to management will be proportionately reissued to shareholders in the following and subsequent years.

Alternative 2: ITQ shares that revert to management will not be reissued during the red snapper rebuilding period. Thereafter, they will be proportionately reissued.

From an economic efficiency perspective alternative 2 is superior to preferred alternative 1. By reserving the revoked shares, the stock will recover faster, catch per unit effort will increase, cost per fish landed will decline, profits will increase, and the ITQ shares held by active fishermen will increase in value. Reallocating the confiscated shares after the rebuilding period will provide existing fishermen with a ITQ that has a higher value than if it were allocated immediately after it was confiscated. However, the final decision would rest on whether the discounted value of an ITQ share issued at some future date is worth more than its value today. This would require an involved bioeconomic analysis of the red snapper fishery and the determination of a fair rate of discount. However, as a rule of thumb, if the stock growth rate exceeds the market rate of interest, then alternative 2 would be preferred.

This conclusion is clouded by the existence of a recreational fishery for red snapper and shrimp bycatch. If recreational TAC is enforced, then the conclusion should hold. If, however, the recreational TAC is overrun

and the rebuilding of the stock requires more time than presently expected, this conclusion may not hold. The rate of growth of the stock may fall below the market rate of interest making reallocation of the confiscated ITQ shares immediately a better alternative. Also, if the correction of the red snapper bycatch in the shrimp fishery problem does not proceed as expected, then the stock growth rate may again fall below the market rate of interest and confiscated ITQ shares should be immediately reallocated.

Maximum Ownership or Use⁸

Due to the transferability of ITQs, the Council may opt to restrict the cumulative amount of ITQ owned or used by any single person within a single fishing year or certain period of years. Although there are existing anti-trust laws that could be invoked with respect to ownership of ITQs, the Council may need to introduce additional provisions in order to meet certain objectives, like avoidance of costly anti-trust litigations, preservation of equitable access to the use of a common resource, etc.

Preferred Alternative 1: No maximum shall be imposed on the possession of ITQ shares and fishing of ITQ coupons for any single fishing year.

Without market power, consolidation of ITQ coupons or shares will not affect ex-vessel red snapper prices. Allowing no maximum will not prevent the market coming to an economically efficient allocation of resources and the conservation of the fish stock. This result assumes that market demand for red snapper is perfectly elastic as it is for many fish species in the empirical literature. A demand analysis should be conducted specifically for this fish species before a decision is made. However, given the large number of substitute species and products for red snapper facing consumers it is unlikely that the demand will be inelastic.

Alternative 2: For any single fishing year, no person shall possess ITQ shares and fish ITQ coupons that are more than 10 percent (or other percent) of the total quota allocated to the ITQ system.

Alternative 3: For 2 consecutive years, no person shall possess ITQ shares and fish ITQ coupons that are more than 20 percent of the total quota allocated to the ITQ system.

Alternatives 2 and 3 would ensure that at least 10 fishing firms operated in the red snapper fishery. Ten firms could behave competitively or oligopolistically depending on the costs of cooperation in the industry (transaction costs).

Alternative 4: No person shall possess more than the maximum percent of ITQ shares that was initially issued to any one person at the start of the ITQ program.

This alternative would prevent the economically efficient reallocation of ITQ shares and could prevent the reduction in fishing effort and the conservation of the stock that is expected to occur with the adoption of ITQ management programs. This alternative could generate negative net benefits relative to the preferred alternative.

13.8.4 Monitoring Procedures

The ITQ system requires frequent monitoring of activities to ensure that the over harvesting of individual allocations does not materialize and that the market for ITQs is working properly. Information flow is vital to the success of the ITQ program. While not affecting the economically efficient allocation of resources in the red snapper fishery, the administrative costs of monitoring and tracking quota could exceed the net benefits

⁸ In this set of alternatives, possession of ITQs means ownership of permanent ITQ shares while fishing of ITQs means possession and fishing of annual individual quota coupons.

generated by the ITQ program. When these costs are factored into the cost benefit analysis, the program could generate a net loss to society and should not be adopted.

Quota Tracking

Timeliness of harvest information from individual participants of the program is extremely important to avoid exceeding individual and overall quotas.

Preferred Alternative 1: Utilize a quota tracking system similar to the one adopted in the South Atlantic wreckfish fishery (See discussion for provisions of this tracking system).

This approach would reduce enforcement and compliance monitoring costs once the program is set up and operational. NMFS has experience working with this system in the wreckfish fishery and the costs are well known. It also has the potential to be upgraded to an electronic "credit card" system managed by an outside entity at some future date in time.

Alternative 2: Use the existing method of collecting harvest data to monitor harvest under the ITQ program.

This alternative utilizes the current system of data collection. Although it has been relatively effective in monitoring the commercial quota for red snapper, it has several flaws as an ITQ monitoring system and as is explained later, would also be more costly. Currently, landings information to monitor the quota is collected from dealers by NMFS and the states. Beginning in 1993, all commercial reef fish vessels were required to submit logbook sheets for each trip listing species and poundage landed. Beginning in 1994, reef fish dealers (first purchasers) who received fish from the EEZ were issued permits and required to keep a record of fish received from each vessel. This record must be retained for one year and be available for inspection by authorized officers or designees of the SEFSC director (port agents). The dealer is required to report only aggregate landings of a species for a prescribed period (usually weekly for the derby fishery). This system has the necessary data and could be modified to provide the information to cross-check data submitted by fishermen by logbook and be used to monitor ITQ landings. However, permitted vessels are not required to sell to a permitted dealer and dealers purchasing reef fish from state waters are not required to obtain a permit or keep records of individual landings by vessels by trip. As a result, the costs of enforcement and compliance monitoring would increase relative to the preferred alternative. Fishermen and dealers would not have ITQ records pertaining to their sale of red snapper. This could lead to confusion over how much ITQ remained to be landed by the fisherman and how much red snapper can be purchased by the dealer from fishermen legally.

While potentially this system could be used to monitor landings by revising the reporting requirements, it does not provide the flexibility to the industry that the coupon system does. Under the coupon system, persons can buy, sell, trade or lease the coupons, without transfer registration by NMFS. Without the coupons, ITQ shares (or portions thereof) must be bought, sold, traded, or leased. This creates problems for persons who may have used the ITQ share as collateral for a loan, as the lending institution may hold the share. It also involves registration of each transfer by NMFS and the inherent delays and costs in that system. Persons, to meet landing obligations, may need to temporarily transfer part of their share, due to incapacitation of vessel or operator and resume their operation later in the season. Some of the flexibility in consolidating annual shares for more efficient vessel operations is lost without the coupon system. This reduced flexibility results in increased operating costs due to lost opportunities and increased administrative costs relative to the preferred alternative.

Alternative 3: Establish a reporting system requiring the following persons to file reports regarding landings and other information covered by ITQ holdings: a) vessel/boat captains, b) red snapper dealer or first buyer, and c) all holders of ITQ share certificates.

Although this system is costly on both the ITQ participants and the administering agency, the cost to participants may be deemed as part of the resource rental for the limited right to exploit the fishery resource.

The additional cost to the administering agency may be substantial depending on how much of current data collection and management cost is shifted to the new system. Under this system, an ITQ certificate holder would continue to be responsible for monitoring the use of any ITQ coupons which he has sold to others. It may be noted that current regulations affecting the red snapper fishery do not appear to incur a substantial cost.

Monitoring Transfers of ITQ Shares

In addition to monitoring the use of individual quotas, there is a need to monitor the market for ITQ certificates. It is possible that the type of individual quota monitoring adopted could incorporate additional features specifically designed to monitor the ITQ share market. While not affecting the economically efficient allocation of resources in the red snapper fishery, the administrative costs of monitoring and tracking quota could exceed the net benefits generated by the ITQ program. When these costs are factored into the cost benefit analysis, the program could generate a net loss to society and should not be adopted. The following alternatives, then, may be incorporated in the design of a system for monitoring individual quota share certificates.

Preferred Alternative 1: Require all sales and leases of ITQ share certificates to be registered with and approved by the National Marine Fisheries Service. An administrative fee will be charged to handle the cost of registering the share transfers. Such transfers are allowed only during the months of January through October each year.

Transfer, i.e. sales and leases, of ITQs is an integral part of the ITQ program. This alternative recognizes the fact that the program's administering agency must exercise some control over such transfer, in order to issue the annual ITQ coupons to the current owner/lessee of the ITQ share. Under this alternative, approval by NMFS of ITQ share transfer serves to ensure that the transaction itself and the transacting parties do not violate any applicable regulations on the possession and use of ITQ share certificates. The criteria for approval may be broadened to include any violation by the transacting parties of any fishery regulations. The negotiation for sale or lease of ITQ share certificates is mainly the responsibility of the transacting parties. The development of the market for ITQ shares is left solely in private hands. The transfer of ITQ shares will require reissuing a new share certificate in the name of the recipient. The Magnuson Act provides that the fee for such action shall not exceed the administrative cost of issuing such a certificate (i.e., currently approximately \$50). Each year after the Council sets TAC and the quota (usually September) NMFS must compute the value of each ITQ share in terms of poundage and issue ITQ coupons in denominations of pounds to each share holder before the start of the fishing season (January 1). In order to do this, transfers of ITQ certificates is prohibited during the months of November and December. This does not prevent persons from legally transferring shares during these months but only in registering the transfer.

This alternative will reduce the costs of enforcement and compliance monitoring relative to the other alternatives.

Alternative 2: Establish a "clearing house" which administers the transfer of ITQ shares. This shall be composed of representatives from the industry and state and federal fishery agencies.

Under this alternative, the bonded clearing house may be conferred limited or broad functions. If limited, it functions mainly as a facilitator of all ITQ share transfers. Negotiations are performed by the owners and buyers/lessees of ITQ certificates among themselves with minimal involvement of this body. It thus merely serves as the "meeting place" for transactors and keeps records of only the final transactions. In its broader version, this body could render binding decisions on the contracts involving the transfer of ITQ share certificates. It could have the right to enforce rules regarding ITQ share certificate possession and transfer, including the setting of maximum or minimum price. It could even set rules outlawing any ITQ certificate transactions not properly coursed through it. Buyers and sellers of ITQ share certificates do not have to meet or know one another to effect the transfer. This alternative provides broader avenues for the full development of the ITQ share market than the first alternative. So long as government agencies have effective control over this body, particularly its broader version, the ITQ share market may achieve its intended objective of accommodating stock and market conditions for red snapper.

The administrative costs of this alternative would be borne by the individuals who trade the ITQ share certificates as is the case with the preferred alternative. If this clearing house also issued the poundage coupons after TAC was determined, then the costs to the government in administering the ITQ program would be negligible.

Alternative 3: Allow the transfer of ITQ shares to transpire under the usual procedures for the transfer of private properties.

This alternative leaves the development of the ITQ share market entirely to private entities. Depending on the frequency of transfer and necessity to adjust the operating scale for red snapper fishing, this alternative could be more costly than the second alternative, since individuals may have to spend more money and time finding the right buyers or sellers. There also will be extreme difficulty keeping track of the owners or users of ITQ certificates, especially for the purpose of enforcing certain regulations like maximum ownership, reporting requirement, and determining if the ITQ program produces the desired effects of reducing fishing effort in the red snapper fishery and improving the condition of the stock.

Monitoring and Transfers of ITQ Coupons

The previous section presented alternatives for monitoring ownership of share certificates. This section presents alternatives for monitoring the use and transfer of individual coupons. Unlike the share certificates, which retain value year after year, quota coupons are valid only for the fishing season in which they are issued.

Preferred Alternative 1: Annual coupons issued in denominations of pounds to the shareholders would be freely sold, leased or traded with no agency registration.

This alternative allows the transfer of ITQ coupons to transpire under the usual procedures for the transfer of private properties. It provides the greatest flexibility to fishermen. Coupons may be sold or traded to anyone. This may include persons who do not own share certificates but are otherwise eligible to fish for red snapper (i.e., hold reef fish permits), and persons who are not eligible to fish commercially for red snapper but are obtaining the coupons on speculation for later resale to an eligible red snapper fisherman. With no agency registration, the coupon transfer would occur immediately upon agreement between buyer and seller.

This alternative might lead to increased enforcement costs since coupon holders who violate the law do not risk the loss of their ITQ shares. While substantial fines for violating the harvest or ITQ regulations may act as a deterrent to fishermen who hold ITQ shares, fines are not a deterrent to those who enter the fishery using ITQ coupons. Nevertheless, unrestricted trading of ITQ coupons would lead to coupon prices that best reflect the social value of the red snapper resource.

Even with this preferred alternative, the administering agency may have to incur costs of monitoring the coupon market. ITQ program evaluation is particularly important in the red snapper fishery which is part of a multispecies fishing operation (reef fish), has a large recreational harvesting sector, and has a substantial bycatch in the shrimp fishery. Further, the preferred alternative on the duration of the ITQ program requires a review of the effectiveness of the program. The costs of the study to evaluate the program have not been estimated.

Alternative 2: Annual coupons issued in denominations of pounds to the shareholders would be sold, leased or traded with no agency registration, provided that coupons may be transferred only to red snapper ITQ shareholders.

This would limit transfer of coupons to holders of ITQ share certificates. It would therefore limit entry into the red snapper fishery to those eligible to own share certificates. The requirement that a purchaser must first own a share certificate restricts entry into the red snapper fishery by increasing the cost for a fisherman who is not included in the initial allocation. Without agency registration, there will be no monitoring of coupon transactions, making enforcement of transfer restrictions difficult.

This alternative might lead to reduced enforcement costs since coupon holders who violate the law risk the loss of their ITQ shares. This substantial fine for violating the harvest or ITQ regulations acts as a deterrent to fishermen who hold ITQ shares, but is not a deterrent to those who enter the fishery using ITQ coupons. However, restricting the ITQ coupon market to only those who possess ITQ shares would reduce the ability of the ITQ coupon market to value the coupons at their socially optimal price.

However, this alternative would cause the administering agency to incur costs of monitoring the coupon market. ITQ program evaluation is particularly important in the red snapper fishery which is part of a multispecies fishing operation (reef fish), has a large recreational harvesting sector, and has a substantial bycatch in the shrimp fishery. The failure to record ITQ coupon sale prices and quantities would require extensive and expensive specialized surveys to collect the information for a bioeconomic analysis of the red snapper fishery.

Alternative 3: Annual coupons issued in denominations of pounds to the shareholders would be sold, leased or traded with no agency registration, provided that coupons may be transferred only to federal reef fish permit holders.

This is similar to the previous alternative, but would limit transfer of coupons to holders of reef fish permits and thus provide a larger base of eligible purchasers. Speculators who do not hold reef fish permits would be prohibited from obtaining quota coupons. This alternative would expand the ITQ coupon market relative to the previous alternative and lead to coupon prices that better reflected the value of the red snapper resource to society. Fishermen who want to become eligible to obtain red snapper quota coupons would not need a share certificate, but would need a reef fish permit. Since they need the reef fish permit in any event to harvest red snapper, this alternative imposes no additional cost on entry into the red snapper fishery. However, as with the previous alternative, with no agency registration, there will be no monitoring of coupon transaction, making enforcement of transfer restrictions difficult.

This alternative might lead to increased enforcement costs since coupon holders who violate the law do not risk the loss of their ITQ shares. This substantial fine for violating the harvest or ITQ regulations acts as a deterrent to fishermen who hold ITQ shares, but is not a deterrent to those who enter the fishery using ITQ coupons. However, unrestricted trading of ITQ coupons would lead to coupon prices that best reflect the social value of the red snapper resource.

However, this alternative would cause the administering agency to incur costs of monitoring the coupon market. ITQ program evaluation is particularly important in the red snapper fishery which is part of a multispecies fishing operation (reef fish), has a large recreational harvesting sector, and has a substantial bycatch in the shrimp fishery. The failure to record ITQ coupon sale prices and quantities would require extensive and expensive specialized surveys to collect the information for a bioeconomic analysis of the red snapper fishery.

Alternative 4: Require all sales and leases of ITQ coupons to be registered with and approved by the National Marine Fisheries Service.

This alternative would require that all coupon transactions be submitted to NMFS for approval. If restrictions on ownership of ITQ coupons are established, this would allow NMFS to determine whether a transaction is allowable. However, it would slow down the actual transfer of coupons and prevent any transfers from occurring on weekends or federal holidays, when NMFS offices are closed. Thus it would limit the flexibility of coupon transfers.

However, this alternative would eliminate the costs to the administering agency of monitoring the coupon market. ITQ program evaluation is particularly important in the red snapper fishery. These unknown costs could be avoided with this alternative, but the alternative itself would create additional costs of monitoring which are not currently reflected in Section 13.11 (costs of management).

Alternative 5: Establish a "clearing house" which administers the transfer of ITQ coupons. This shall be composed of representatives from the industry and state and federal fishery agencies.

This alternative is identical to the previous alternative, except that transfers would be monitored through a clearing house rather than through NMFS. This alternative would have the same benefits since NMFS could collect coupon price and quantity traded information from the clearing house, costs associated with enforcement and compliance monitoring should be reduced, and market information should be improved due to the central location for transfers.

Alternatives 3 and 4 may be the low cost alternatives for monitoring and transferring ITQ coupons. When the complications of a large recreational harvesting sector, shrimp fishery bycatch, and the costs of independently collecting the coupon market data are included, these alternatives may provide the lowest cost approach to ensuring that the objectives of ITQ management are being met by this program.

13.9 Analysis of Appeals and Hardships Procedures

In general, the provisions for handling appeals and hardships will not have a noticeable effect on the benefits associated with the proposed change in management for red snapper. This is because an appeals board or other chosen alternative for handling appeals and hardships would only marginally affect the number of persons or vessels receiving licenses or ITQ shares, and economic changes would only be evident if the number of successful appeals and hardship cases was large compared to the number of qualifying persons or vessels. It is apparent that any of the alternatives considered would result in only a small number of successful cases. Hence, from the viewpoint of the overall effect in terms of economic benefits, the RIR cannot differentiate between the alternatives.

Administrative costs would vary according to the number of members and meeting schedule for the six alternatives versions of an appeals board. For all alternatives, the Council and NMFS support costs would likely be very similar. Therefore, the RIR finding is that costs will not vary significantly regardless of which alternative is chosen.

Considering the expected small change in both benefits and costs for the various alternatives, the conclusion of the RIR is that no significant differences can be determined in terms of net benefits which would be associated with alternative mechanisms designed to deal with appeals and hardships.

13.10 Extent to Which Actions Meet Objectives

One of the purposes of an RIR is to determine the extent to which the set of preferred and alternative measures contributes to meeting the objectives and hence resolving the problems which created the need for management action.

Table 3 shows the entire set of objectives which have been formulated for the Reef Fish Fishery Management Plan. All plan objectives, including the original plan objectives and objectives associated with Amendment 1, are covered in the table. It is necessary to include all objectives and not just the most recently added objectives because cases may arise where attempts to meet current objectives result in an unintended negative result regarding existing, and still valid, objectives which were formulated at an earlier stage of the management process. It is also true that any particular pair of objectives may conflict in the sense that meeting one objective may preclude reaching another objective or may make it more difficult to satisfy some other objective.

Along with the array of existing and new plan objectives are columns labeled as no action, license limitation and individual transferable quota. The text contained within the table is a qualitative summary of the extent to which the three basic management regimes will or will not contribute to meeting the plan objectives. These qualitative statements can be viewed as a summary of a great deal of the preceding language of the RIR but do not necessarily have the same meaning as a summary of benefits and costs which constitutes the primary output of the regulatory impact review. For example, objective FMP-4 (minimize user conflicts), could lead to management actions which accomplish the objective but lead to lower overall net economic benefits through the introduction of inefficiencies in the harvesting sectors. Fortunately, such occurrences did not seem to appear in this set of objectives and measures; hence, when the objectives are indicated as being met, there will be associated increases in net benefits. Conversely, if the management approach does not help accomplish objectives, this outcome is accompanied by an expected decline in overall net benefits. The only difference is a matter of degree, i.e., a management style may meet an objective to the fullest extent, but make only a relatively small contribution to net economic benefits. It can be noted that some of the objectives are accompanied by "not relevant" statements for obvious reasons.

When viewing Table 3 it is important to recognize that the "no action" management style is not status quo in the usual sense. This is because the FMP has sunset provisions for the permit moratorium and endorsement system and no action implies that the sunset provisions will automatically be invoked. This "quirk" in the FMP is very important because the RIR proceeded on the basis that the actual status quo could not be analyzed because the Council did not elect to include the actual status quo as one of the basic alternatives. The outcome of the ability of the license limitation versus no action scenarios to meet objectives is quite different than a comparison of license limitation versus status quo (the same conclusion applies to a comparison of changes in net benefits - see later summary). The basic reason is that license limitation is essentially the true status quo with endorsement transferability added and an implied reduction in vessels participating. In that case, it would turn out that license limitation would still be superior to the real status quo in terms of meeting objectives (and not coincidentally in increasing net benefits), but only to a relatively small degree.

Although the text of Table 3 speaks for itself, some of the major findings in the table can be summarized in the following manner. None of the management styles will change the biological recovery of stocks (necessary for major increases in economic benefits over a longer period of time) to a great degree because all three basic actions include the original quotas and it is the overall quota which contributes most of the biological benefit. It is noted that the rate of increase in fishing effort will be reduced by the license limitation system. Further, the total level of fishing effort will be reduced by the ITQ system and this should lead to some degree of additional biological benefits. This occurs because less total effort tends to automatically lead to lower bycatch and in addition there is the potential for a stock conservation ethic which benefits the participants of an ITQ system). Reporting and monitoring of overall catch should be improved under the ITQ system because of the absolute necessity to track individual catches. It should be noted that this is another case where the objective could be fully met, but because the gains come at the expense of additional costs, an increase in net economic benefits is not assured unless resulting benefits exceed the additional costs. It is clear from the table that the ITQ system has the greatest potential for meeting objectives related to net benefits and this is related to a

resolution of the derby fishery and increased harvesting flexibility. If the a derby fishery is resolved, it is virtually certain that total harvesting costs will decline while the total revenue derived from a given quota will be increased (the exact dollar amounts of the reduction in harvesting costs and increase in total revenue can certainly be debated, but they will exist).

The objective which addresses enforcement (A8-4) deserves further discussion than appears in Table 3. A critical assumption is that for all scenarios, an additional \$450,000 in costs of law enforcement has been added. This was predicated on previous discussions of the Council wherein the current (actual) level of enforcement cost of \$400,000 was deemed insufficient for full compliance with the status quo. It is presumed that an additional expenditure of \$450,000 would not only lead to relatively full compliance under the actual status quo (recall the importance difference between status quo and no action), but would also lead to relatively full compliance under no action, relatively full compliance under license limitation and significant but not full compliance under an ITQ system. Full compliance under the ITQ system was deemed to be possible only with a further expenditure for law enforcement effort. Had the RIR analysis proceeded under the assumption of no increase in baseline law enforcement expenditures, there would be an obvious change in the baseline and all of the outcomes would be changed in terms of the degree to which objectives would (or would not be) met. However, the relative outcomes of the comparisons among the three basic management styles would not change. Another point regarding the assumption of an addition to the existing baseline costs of enforcement is that benefits in terms of meeting objectives for fisheries managed under other FMPs or even to state-managed fisheries would be created. This is recognized but does not affect the outcome of the analysis because the better outcome (for other fisheries) would be the same under all scenarios being considered in Amendment 8 (same argument holds for net benefits analyses conducted as a part of the RIR process).

The overall summary of the degree to which plan objectives can be met by the three basic alternatives is that no action leads to no further realization of objectives. License limitation certainly helps to meet some of the objectives and the ITQ system should provide the greatest opportunity to meet the objectives of the plan and in particular is superior to the other two basic management systems in terms of the new objectives (A8-1 through A8-5) created by Amendment 8.

TABLE 3
EXTENT TO WHICH NO ACTION , LICENSE LIMITATION
AND ITQ CONTRIBUTE TO MANAGEMENT OBJECTIVES

Note: It is extremely important to recognize that the Council has defined the status quo as open access without a permit moratorium or endorsement system (see text).

<u>OBJECTIVES IN ORIGINAL FMP</u>	<u>NO ACTION</u>	<u>LL</u>	<u>ITQ</u>
FMP-1. To rebuild the declining fish stocks wherever they occur within the fishery.	Quotas rebuild stocks	Not much extra effect	Fishery operates at maximum economic yield with some positive effect on stocks
FMP-2. To establish a fishery reporting system for monitoring the reef fish fishery.	Basically accomplished	Some improvement	Some improvement
FMP-3. To conserve and increase reef fish habitats in appropriate areas and to provide protection for juveniles while protecting existing and new habitats.	Not relevant to this amendment	Not relevant to this amendment	Not relevant to this amendment
FMP-4. To minimize conflicts between user groups of the resource and conflicts for space.	Positive via stressed areas	Helps through a cap on number of commercial participants	Superior to LL because number of participants expected to decline over time

Amendment 1 added the following objectives:

<u>OBJECTIVE</u>	<u>NO ACTION</u>	<u>LL</u>	<u>ITQ</u>
A1-1. The primary objective of the FMP shall be to stabilize long term population levels of all reef fish species by establishing a certain survival rate of biomass into the stock of spawning age to achieve at least 20 percent spawning stock biomass per recruit.	Quotas rebuild and maintain stocks	Not much extra effect	Creates market incentive to conserve stocks and could lead to larger stock sizes

A1-2.	To reduce user conflicts and nearshore fishing mortality.	Positive via stressed areas	Helps through a cap on number of commercial participants	Superior to LL because number of participants expected to decline over time
A1-3.	To respecify the reporting requirements necessary to establish a database for monitoring the reef fish fishery and evaluating management actions.	Quota monitoring achieved most of objective	Not much change to better monitoring of individual catches	Positive due to better monitoring of individual catches
A1-4.	To revise the definitions of the fishery management unit and fishery to reflect the current species composition of the reef fish fishery.	Not relevant to this amendment	Not relevant to this amendment	Not relevant to this amendment
A1-5.	To revise the definition of optimum yield to allow specification at the species level.	Not relevant to this amendment	Not relevant to this amendment	Not relevant to this amendment
A1-6.	To encourage research on the effects of artificial reefs.	Not relevant to this amendment	Not relevant to this amendment	Not relevant to this amendment
A1-7.	To maximize net economic benefits from the reef fish fishery.	Open access leads to lower net benefits	Some small contribution to provide	Has potential maximum net economic benefits via increases in total revenues and decreases in total cost of effort

This amendment broadens and extends the above objectives as follows:

<u>OBJECTIVE</u>	<u>NO ACTION</u>	<u>LL</u>	<u>ITQ</u>
A8-1. To increase the stability of the red snapper fishery in terms of fishing patterns and markets.	Open access derby has opposite effect	Provides for minor increase in stability	Provides greatest level of stability and enhances market situation
A8-2. To avoid to the extent practicable the "derby" type fishing season.	Perpetuates derby	Perpetuates derby	Should eliminate derby fishery

A8-3.	To promote flexibility for the fishermen in their fishing operations.	Continuing derby creates opposite effect	Continuing derby creates opposite effect	Provides greatest flexibility possible
A8-4.	To provide for cost-effective and enforceable management of the fishery.	Increase in budget should provide effective level of compliance but not cost-effective because most benefits are lost in the open access fishery	Increase in budget may be cost effective and will provide for effective enforcement	If law enforcement benefits are expected to exceed costs and compliance will be acceptable
A8-5.	To optimize net benefits from the fishery.	Open access leads to lower net benefits	Some small contribution provide	Has potential to maximum net economic benefits via increases in total revenues and decreases in total cost of effort

13.11 Costs of Management

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. Regarding the future management of red snapper, this particular action will result in the a return to an open access style of fishery (result of the no action alternative, implementing a license limitation program or implementing a system of ITQ management. Depending on which major alternative is chosen, the accompanying costs will differ. However, there are certain costs which are encumbered regardless of the basic management method chosen and these include:

Council costs of document preparation, meetings, public hearings, and information dissemination	\$311,684
NMFS administrative costs of document preparation, meetings and review	\$ <u>28,200</u>
TOTAL	\$339,884

Other costs will be involved depending on the basic style of management chosen. These other costs will include public burden costs in terms of dollars paid for permits, coupons or other documents, the dollar value of the public's time required for filling out applications or complying with reporting rules, the costs of law enforcement and NMFS costs to administer and track whatever system of management is chosen. Refer to the table following the discussion of costs associated with no action, license limitation and ITQ management.

Costs associated with no action

No action is defined as open access management without a permit moratorium and without an endorsement system, but with trip limits and size limits. Hence, no action is actually a departure from the current management structure and additional costs are expected largely due to the expectation of issuance of about 700 new reef fish permits. Additional enforcement efforts costing an estimated \$450,000 will be necessary to bring compliance up to an acceptable level. This is in addition to the estimated \$400,000 currently being spent by NMFS to enforce the Reef Fish FMP (memorandum from Suzanne Horn to Robert Sadler). The initial public burden costs, which include the value of time to complete applications or reports will be \$2,000 and

public burden and annual permit fees for the new permits will total \$28,000. There will be NMFS costs of maintaining records and tracking the permits and that cost is estimated to be \$30,000. The annual cost for no action management, which includes the Council and NMFS administrative costs previously described, is \$849,884 for the first year and \$508,000 annually thereafter.

Costs associated with license limitation

License limitation as envisioned under this amendment would be very similar to the current endorsement system with the exception that participants would be reduced and the licenses would be more readily transferable than at present. Additional enforcement efforts costing an estimated \$450,000 will be necessary to bring compliance up to an acceptable level. This is in addition to the estimated \$400,000 currently being spent by NMFS to enforce the Reef Fish FMP. The initial public burden costs, which include the value of time to complete applications or reports will be \$3,000 the first year and \$32,000 (public burden plus fees) thereafter. There will be NMFS costs of maintaining records and tracking the licenses and that cost is estimated to be \$20,000 to design the system and \$42,000 annually to maintain the system. The total cost for license limitation management, which includes the Council and NMFS administrative costs previously described, is \$886,884 for the first year and \$524,000 annually thereafter.

Cost associated with ITQ management

Costs under ITQ management will be higher than under the other systems largely due to the need for increased enforcement and the extensive records and tracking system for coupons (or similar accounting devices) and ITQ shares. If law enforcement can be increased only to the level necessary to enforce regulations for the no action or license limitation systems, then the additional cost is estimated at \$450,000. However, for "full" compliance, defined to be a compliance level of about 90-95 percent, the cost will be \$1,540,000. Therefore, depending on the level of compliance desired or necessary to realize a substantial portion of the benefits which are possible under an ITQ program, the enforcement costs will be covered by the range just described. The public burden costs will be \$3,000 to apply for permits and then the continuing annual costs will be \$64,000 which includes fees to offset administrative costs of issuing ITQ shares/coupons plus the value of time required to maintain records. NMFS costs to design and maintain the ITQ system are estimated to be \$85,000 and then \$145,000 annually. The estimate of total costs for the ITQ program, which includes the Council and NMFS administrative costs previously described, will be \$1,086,884 the first year and \$659,000 annually with the minimal law enforcement scenario and will be \$2,176,000 the first year and \$1,749,000 annually under the high enforcement scenario.

Start-Up Plus First Year
Costs Associated with Different Management Regimes
for Red Snapper **(Minimum Enforcement Level)**

<u>Start-Up Costs</u>	<u>No Action</u>	<u>License Limitation</u>	<u>ITQ*</u>
Council/NMFS Administrative Costs	\$339,884	\$339,884	\$339,884
Initial Public Burden Cost to Apply for Permits	2,000	3,000	3,000
Initial NMFS Costs to Design and Implement Management System	0	20,000	85,000
<u>Annual Costs</u>			
Annual Public Burden Costs to Maintain Management System	28,000	32,000	64,000
Annual NMFS Costs to Maintain Management System	30,000	42,000	145,000
NMFS Law Enforcement Costs to Achieve Minimum Acceptable Compliance**	<u>450,000</u>	<u>450,000</u>	<u>450,000</u>
Start-up plus first year costs	849,884	886,884	1,086,884

Continuing Annual Costs Associated with
Different Management Regimes for Red Snapper
(Minimum Enforcement Level)

Annual Public Burden Costs to Maintain Management System	28,000	32,000	64,000
Annual NMFS Costs to Maintain Management System	30,000	42,000	145,000
NMFS Law Enforcement Costs to Achieve Acceptable Compliance Level	<u>450,000</u>	<u>450,000</u>	<u>450,000</u>
Continuing Annual Costs	508,000	524,000	659,000

* ITQ - Individual Transferable Quota

** Current level of expenditure is estimated at \$400,000. Additional \$450,000 is required for all the major alternatives. Does not include an estimate of U.S. Coast Guard costs which may be additional, but which are expected to be minor.

Start-Up Plus First Year
Costs Associated with Different Management Regimes
for Red Snapper (**High Enforcement Level**)

<u>Start-Up Costs</u>	<u>No Action</u>	<u>License Limitation</u>	<u>ITQ*</u>
Council/NMFS Administrative Costs	\$339,884	\$339,884	\$339,884
Initial Public Burden Cost to Apply for Permits	2,000	3,000	3,000
Initial NMFS Costs to Design and Implement Management System	0	20,000	85,000
<u>Annual Costs</u>			
Annual Public Burden Costs to Maintain Management System	28,000	32,000	64,000
Annual NMFS Costs to Maintain Management System	30,000	42,000	145,000
NMFS Law Enforcement Costs to Achieve High Acceptable Compliance**	<u>450,000</u>	<u>450,000</u>	<u>1,540,000</u>
Start-up plus first year costs	849,884	886,884	2,176,884

Continuing Annual Costs Associated with
Different Management Regimes for Red Snapper
(**High Enforcement Level**)

Annual Public Burden Costs to Maintain Management System	28,000	32,000	64,000
Annual NMFS Costs to Maintain Management System	30,000	42,000	145,000
NMFS Law Enforcement Costs to Achieve High Compliance Level	<u>450,000</u>	<u>450,000</u>	<u>1,540,000</u>
Continuing Annual Costs	508,000	524,000	1,749,000

* ITQ - Individual Transferable Quota

** Current level of expenditure is estimated at \$400,000. Additional \$450,000 is required for no action and license limitation. Additional expenditures are required for full compliance under the law enforcement program. Does not include an estimate of U.S. Coast Guard costs which may be additional, but which are expected to be minor.

13.12 Summary of Specific Outcomes of No Action, License Limitation, and ITQ

Under the current management system, fishermen are compelled to harvest red snapper as quickly as possible to maximize their shares of the overall catch before the quota is reached and the fishery is closed. The result has been the application of a large pulse of fishing effort as soon as the commercial fishery is opened, large landings during a relatively short time period, and depressed ex-vessel prices due to the large volume of landings. These effects are likely to be amplified over time if regulation is effective in increasing stock abundance. In this event, greater fish abundance would lead to higher catch rates, lower prices, and even shorter fishing seasons.

The current management system includes a two-tiered system of trip limits and a moratorium on the issuance of new fishing permits. These restrictions probably alleviate some of the adverse market-related consequences of a fishing derby by restricting the amount of fishing effort that can be expended at any time. If the moratorium on issuance of new permits were rescinded, and if the two-tiered system of trips limits reverted to a single limit such as 2,000 pounds per trip, then there would be fewer restrictions on the ability of the industry to harvest its quota and the derby will continue. Larger numbers of fishing craft would expend a greater total number of fishing days in an even shorter amount of time, prices would decline even further and the fishing season would become even shorter. A relaxation of current regulations in favor of an exaggerated derby fishery would continue to have adverse consequences on the safety and harvesting costs of fishermen. Fishermen would continue to skimp on routine maintenance and repair of their boats and equipment until after the fishery has been closed. In addition, they would continue to feel compelled to fish in foul weather as a means of staying on the water while the fishery is still open. As can be noted in the summary table of benefits and costs, the data which are necessary to calculate increased harvesting costs were delayed and the cost of harvesting analysis (for all these basic management options) could not be completed. Nonetheless, the qualitative outcomes are still predictable with virtual certainty.

The proposed license limitation program is not unlike the regulations presently controlling harvest in the reef fish fishery. Rents generated in the fishery from increasing stock abundance accrue to the value of the transferable license¹¹ rather than being invested in new fishing craft and crews by new entrants to the fishery. An individual entering the fishery must purchase a license from an existing fisherman. Since the seller of the license can no longer fish, he expects a license price that reflects the present value of his foregone earnings. The buyer is willing to pay an amount that reflects the present value of his expected earnings from fishing. In this way, more efficient fishermen replace less efficient fishermen (since expected earnings are greater than foregone earnings) and license prices capture the rents generated in the fishery. While fishing effort will still increase under a license limitation program, it will increase at a much slower rate than in an open access fishery. Since total fishing effort increases at a slower rate, the increasing abundance of fish should not lead to a decline in the length of the fishing season. If this is the case, the fresh fish market should not become more glutted than that which presently occurs. As a result, current exvessel prices should not be affected much by a license limitation management regulation program, although they can be expected to rise slightly.

The success of an ITQ system of management depends on adequate levels of compliance by fishermen and enforcement by government. If government demonstrates that it can successfully enforce the rules, then fishermen will recognize that ITQs truly represent a limit on the ability to land and sell red snapper. Fishermen would then be willing to buy ITQ shares to expand their scales of operation, to enter the fishery, or to adjust their holdings of ITQs to match their actual annual catches. The value of ITQs per pound would be determined by the capitalized value of additional profits expected to be earned over time with an extra unit of ITQ. More important, fishermen will have an incentive to cooperate in the use of conservative harvesting strategies, including peer pressure to discourage noncompliance with the provisions of the ITQ program.

¹¹ Vessels with permits in the reef fish fishery presently sell at \$5,000 to \$10,000 more than vessels without permits. Ed Burgess, personal communication, Southeast Regional Office, National Marine Fisheries Service, St. Petersburg, FL.

Enforcement could be accomplished at dockside but still may be costly because many individual quotas landed at many different ports would have to be monitored. Fishermen could underreport landings by failing to report the correct quantities, by landing fish surreptitiously at secret or existing landing sites, or by incorrect identification of species. Regulated red snappers might be reported as unregulated vermilion snappers, for example. Enforcement becomes more difficult and costly as the numbers of fishermen and landings sites increases. However, under ITQ management fishermen also have an incentive to self-enforce the rules. As self-enforcement increases under ITQ management, as it allegedly did in the wreckfish fishery, then enforcement costs would decline substantially.

Excessive cheating in the form of quota-busting would undermine the potential benefits of ITQs. If enough fishermen are known to cheat, then others would be compelled to cheat also or else risk losing their shares of the overall catch. The fishery would revert to a fishing derby in which the entire year's quota would be landed within a relatively short period of time, ex-vessel prices would decline, and the value per pound of each ITQ would approach zero. Quota-busting would not necessarily infringe on the ability of the resource to recover as long as the fishery was closed when the overall, industry-wide quota was reached. However, if individual quota-busting occurred surreptitiously, then the long-term recovery of the red snapper resource would likely be impaired, or at least postponed, because the government would no longer be able to adequately monitor industry landings.

The question of what constitutes adequate levels of enforcement and compliance of ITQs for the red snapper fishery is unresolved. Ideally, a high level of enforcement would occur initially, and it could diminish over time as the "self-enforcement" aspects of ITQs begin to take hold. A second unresolved issue is whether or not these enforcement costs are lower and compliance levels are higher under the other forms of fisheries management in the long term. Without market incentives to encourage compliance, these costs could turn out to be substantially higher under license limitation or no action fishery management. At this time the available evidence suggests that enforcement costs for the ITQ program will be higher if a higher level of compliance is to be realized.

Under the proposed ITQ fishery management regulations, rents generated by the increase in stock abundance from the setting of restrictive TACs accrue to the value of the ITQ. Efficient fishermen will use their higher level of profits (inframarginal rents) to bid ITQ shares and coupons away from the inefficient fishermen who are earning just enough to remain in the fishery (meeting their opportunity costs) and are not earning any inframarginal rents. The inefficient fisherman has an incentive to sell his ITQ shares or coupons and exit the fishery if the efficient fishermen are willing to pay more for the ITQ coupons than the inefficient fishermen can generate in net revenues from fishing with the ITQ coupons. For example, if an individual fisherman, who is just meeting his opportunity costs of remaining in the fishery (the marginal fisherman) is earning \$10,000 per year from fishing, and is offered \$10,000 or more for his ITQ coupons, then he has an incentive to exit the fishery. This individual will earn at least as much by not fishing as he earned from fishing and he now can enter his next best opportunity and earn an additional income. As these marginal fishermen exit the fishery in response to the increasing value of ITQs as stocks become more abundant, total fishing effort will decline. With the decline in total fishing effort and a fixed TAC, the length of the fishing season should increase. This spreads the harvest of fresh fish out over longer periods of time. If consumers prefer fresh domestic fish over frozen imported fish, then a fresh fish price premium will develop. Exvessel prices will increase as a result of ITQ management assuming that competitive markets exist. This is what is believed to have happened under the wreckfish ITQ program.

According to Ward, et al. (1994)¹², TAC was not reached after the adoption of the ITQ program in the

¹² Ward, John M., Theophilus R. Brainerd, and John R. Gauvin (1994). "A Description and Evaluation of the Individual Transferable Quota (ITQ) Fishery Management Program for the south Atlantic Wreckfish (*Polyprius Americanus*) Fishery." C.M. 1994/T:22, Theme Session on Improving the Link Between Fisheries Science and Management: Biological, Social, and Economic Considerations, International Council for the Exploration of the Sea, 82nd Statutory Meeting, St. John's, Newfoundland, Canada, September.

wreckfish fishery. Prior to the adoption of this management program, trip limits had to be adopted to control harvest levels and increasing pressure was being applied to the Council to increase the TAC level to 4 million pounds. Total effort levels declined after the adoption of the ITQ program. Number of trips, number of vessels reported harvesting wreckfish, and the number of permitted vessels declined. Total shareholders declined from 49 at the time of the initial allocation to 26 by May, 1994. Wreckfish prices increased from between \$1.00 and a \$1.50 in the 1991-92 fishing season prior to the adoption of ITQs to nearly \$2.00 during the 1993-94 fishing season after the adoption of ITQs as a management program.

In brief, no action (a return to pure open access) is expected to result in an overall price decline of from \$.15 to \$.40 per pound, the license limitation program is not expected to have much effect on current prices, and the ITQ system can be expected to generate price increases ranging from \$.85 to \$1.35 per pound based on the level of law enforcement. It is noted that the higher level of law enforcement is expected to generate benefits which are greater than the higher associated costs. However, the variability in both expected benefits and costs means that there is no significant difference in the outcomes of ITQ management under minimal enforcement versus high enforcement. In other words, the analysis indicates that increases in benefits tend to be roughly offset by increases in law enforcement costs as enforcement is raised from the minimal to high level.

The following summary table shows the major categories of economic changes in terms of revenue changes, cost of harvesting and the cost of management under two levels of law enforcement. The table concludes with an overall determination which indicates that the proposed ITQ system provides the highest overall level of net benefits, the license limitation system provides not much change and no action should result in a significantly negative outcome.

COSTS AND BENEFITS FROM ALTERNATIVE
FORMS OF MANAGEMENT FOR RED SNAPPER
(BASELINE IS CURRENT MANAGEMENT SYSTEM)

<u>Cost or Benefit</u>	<u>No Action</u>	<u>License Limitation</u>	<u>ITQ - Minimum Enforcement</u>	<u>ITQ - High Enforcement</u>
Change in expected annual revenue based on quota of three million pounds	Decrease of \$450,000 to \$1,200,000*	Some increase (not quantified)	Increase of \$2,550,000**	Increase of \$4,050,000**
Change in cost of harvesting***	Significantly higher	Some reduction	Significantly lower	Significantly lower
Start-up costs of implementation	\$341,884	\$362,884	\$427,884	\$427,884
Continuing annual public and private costs	\$508,000	\$524,000	\$659,000	\$1,749,000
Estimated overall change in net economic benefits in years after start-up costs have been incurred	Loss of \$958,000 to \$1,708,000	Qualitative increase in net economic benefits which will be significantly smaller than increase expected with ITQ program	\$1,891,000 plus gains from lower harvesting costs	\$2,301,000 plus gains from lower harvesting costs

* Wide range based on uncertainty of estimates.

** Point estimate of a range which is not specified.

*** It was not possible to estimate changes in the cost of harvesting because data collections necessary to do the calculations were delayed. However, the qualitative outcomes are virtually certain.

13.13 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. The determinations for this amendment are based largely on the RIR and partially on information in the FMP, both of which can be referenced for additional information.

The substantial number criterion is that 20% of the businesses engaged in the fishery must be affected by the action. The outcome of "significant impact" can be triggered if any of the following conditions are met:

- The regulations are likely to result in a reduction in annual gross revenues by more than 5 percent.
- Annual compliance costs (annualized capital, operating, reporting, etc.) increase total costs of production for small entities by more than 5 percent.

- 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.
- Capital costs of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities.
- 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 Small Business Administration (SBA) defines a small business in the commercial fishing activity as a firm with receipts of up to \$2.0 million annually. SBA also defines a small business in the charter boat activity as a firm with receipts up to \$3.5 million per year. Practically all current participants of the reef fish fishery readily fall within such definition of small business. In general, a "substantial number" of small entities is more than 20 percent of those small entities engaged in the fishery (NMFS, 1992). In 1992, a total of 2,214 permits were issued to qualifying individuals and attached to vessels, and are deemed to comprise the reef fish fishery in the U.S. Gulf of Mexico. In 1995 there are about 700 vessels participating in the commercial red snapper fishery. With the adoption the species endorsement system for red snapper, 131 of these have been granted the endorsement and have been harvesting red snapper up to 2,000 pounds per trip, with the rest (including those that did not fish for red snapper in 1992 but have valid reef fish permits) limited to 200 pounds per trip. In addition, the specific provisions of the proposed ITQ program provide the potential for other reef fish permit holders to join the fishery via the purchase of shares or coupons. Since the proposed action will affect at least 700 (or 32%) of the 2,214 current small businesses permitted to operate in the reef fish fishery, the "substantial number" criterion will be met.

Economic impacts on small business entities are considered to be "significant" if the proposed action would result in any of the following: a) reduction in annual gross revenues by more than 5 percent; b) increase in total costs of production by more than 5 percent as a result of an increase in compliance costs; c) compliance costs as a percent of sales for small entities are at least 10 percent higher than compliance costs as a percent of sales for large entities; d) capital costs of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities; or e) as a rule of thumb, 2 percent of small business entities being forced to cease business operations.

As is shown in detail in the accompanying RIR, the provisions of the ITQ program have clear implications which relate to changes in the gross revenues of small entities. In particular, those small businesses that initially participate in the ITQ program are expected to receive a substantial increase in revenues due to an expected increase in the ex-vessel price for red snapper. For the industry at large, the gross revenues are expected to rise by over 20%. If comparisons are made between the "No Action" alternative and the proposed ITQ program, no action would result in a return to a pure open access form of management and harvesters not currently in the reef fish fishery would have the ability to harvest red snapper. In the case of some of those small harvesting businesses that would be involved in the harvest of red snapper under the no action scenario, they might have the ability to increase their personal revenues by more than 5% relative to their harvests at the present time. As shown in the RIR, production costs for those small businesses involved in the harvest of red snapper will decrease by a significant but unquantified amount under the preferred alternative of an ITQ management system.

Regarding the competitive situation between large and small businesses following the adoption of the proposed management regime, the ITQ system does not have disproportionate effects on small versus large business entities simply because all entities affected by the regulations are determined to be small. It is noted that under an ITQ system larger vessels may get larger shares than smaller vessels (recall that all the vessels constitute small businesses) because the share allocation will be based on catch history. Although initially no capital cost increases to vessel owners may be expected as a direct result of the ITQ system, those small businesses that enter the fishery by purchasing shares or coupons will have to incur those additional fixed costs.

No small businesses are expected to cease operations as a result of this action because the system recognizes historical participation in the red snapper fishery. Furthermore, fishermen who do not have a recent history of catches will have the ability to enter the fishery through the purchase of red snapper ITQ shares or coupons.

Since a large proportion of the small businesses in the reef fish fishery will be affected by this action and since some of these are expected to experience a rise in income of over 5% and others are expected to forgo a greater than 5% increase in income from the preferred ITQ action versus the no action alternative, it is concluded that the proposed action would impose a significant economic impact on a substantial number of the identified small business entities. Hence, an Initial Regulatory Flexibility Analysis is required. The following summary and the accompanying RIR constitute the information required for the IRFA.

Explanation of Why the Action is Being Considered

Refer to the Section 5: Purpose and Need for Action of the amendment document.

Objectives and Legal Basis for the Rule

Refer to the Section 8: Management Objectives of the FMP of the amendment document. The Magnuson Fishery Conservation and Management Act of 1976 provides the legal basis for the rule.

Demographic Analysis

Refer to the Human Environment and Social Impact Assessment subsection of Section 14: Environment Consequences of the amendment document and to the Fishery Management Plan for the Reef Fish Fishery of the Gulf of Mexico United States Waters, as amended.

Cost Analysis

Refer to other subsections of this amendment package. In particular see subsection 13.11 (Costs of Management) and subsection 13.12 (Summary of Specific Outcomes of No Action, License Limitation, and ITQ). The major summary determination is that considering all benefits and costs, the No Action alternative is expected to result in a net loss of \$958,000 to \$1,708,000, the License Limitation alternative is expected to have a small but not quantified increase in net benefits and the ITQ alternative is expected to lead to an estimate of revenue increases ranging from \$1,891,000 to \$2,301,000 plus an unquantified but large decrease in overall harvesting costs.

Competitive Effects Analysis

The industry is composed entirely of small businesses. Hence, the impacts of the measures considered under this amendment will not involve disproportional effects on small versus large businesses.

Identification of Overlapping Regulations

The proposed action does not create overlapping regulations with any state regulations or other federal laws. For further discussion, refer to Section 16.5 (Federalism).

Conclusion

The foregoing information and pertinent portions of the RIR are deemed to satisfy the analysis required under the RFA.

14. ENVIRONMENTAL CONSEQUENCES

14.1 Physical Environment

The actions presented in this amendment will have no impact on the physical environment since it is primarily an administrative system of controlled fishery access.

14.2 Fishery Resources

No Action Alternative: Fishing mortality rates under a short derby fishing season may be higher than under an extended open season even if the same number of pounds are harvested. This is because fish may be caught before they have a chance to grow (particularly at the smaller end of the allowable size range), resulting in a greater number of fish being harvested to achieve the same poundage. Once the red snapper quota is reached and the commercial fishery is closed, fishing pressure on alternative species such as vermilion snapper will increase. The existing framework provisions can extend the season, positive and negative biological impacts of each framework measure are summarized in Table 4.

License Limitation Alternative: When fishing capacity of the red snapper fishing fleet is reduced, harvest will be spread over a longer time period. Since some fish will have a longer time to grow before being caught, the average size of the red snapper in a given year class will be larger. For example, the expected mean size and weight of an age 3 red snapper in January is 13.1 inches total length and 1.1 pounds. If that fish is caught in July instead of January, its expected mean size and weight will increase to 15.7 inches and 2.0 pounds (Goodyear 1992b).

However, under a license limitation system, a phenomenon known as effort drift (Edness 1983) may occur. This occurs when fishermen become more effective with their limited number of participants and are able to utilize unused potential to increase their catches. Morgan (1980), reporting on the western Australia rock lobster fishery, noted that limits on the number of participants and the amount of gear (lobster pots) per participant implemented in 1963 resulted in an immediate reduction in effort. However, as fishermen became more effective, total effort increased and by 1976 had surpassed the levels that existed prior to implementation of license limitation. As evidence that there is unused potential in the red snapper fishery, 2.67 million pounds of red snapper were landed by an estimated 800 vessels (with no quota closure) in 1990, according to NMFS. In 1992, 3.1 million pounds of red snapper were landed¹³ by an estimated 700 vessels¹⁴ in just a 53 day regular season plus 42 day emergency reopening. Unused potential in the red snapper fishery could exist in the form of licenses being transferred to larger vessels, installing more fishing gear on vessels, making more trips or longer trips, targeting fishing areas closer to port to reduce nonfishing travel time, concentrating fishing operations in more experienced and effective operators, and using advanced technology to more quickly and precisely locate red snapper concentrations.

Fishermen who are excluded from the red snapper fishery are likely to target other reef fish species. In a recent report on vermilion snapper (Schirripa 1992), NMFS reported that the directed fishery for vermilion snapper has expanded in the past three years in the waters off Louisiana and Texas. Furthermore, sharp

¹³ The 1992 regular season opened on January 1 and closed on February 22, with approximately 2.5 million pounds of red snapper harvested. By emergency action, the red snapper season was reopened with a 1,000 pound vessel trip limit from April 3 to May 14, resulting in an additional 600,000 pounds of red snapper landed.

¹⁴ Source: Data analysis presented by NMFS to the Gulf Council at its November, 1992 meeting.

increases in commercial vermillion snapper catch from directed trips were seen in the months following the closure of the red snapper fishery.

The SEIS of Amendment 5 examined the effects of the fishery on the environment. In addition to the discussion below, refer to Section 5 (Purpose and Need for Action) and the discussions accompanying the specific alternatives.

ITQ Alternative: ITQ systems have succeeded in preventing derby fishing and extending the fishing season in other fisheries, including Wisconsin's Great Lakes fisheries and British Columbia's black cod fishery (Wilson 1991).

Excess capacity in a directed fishery can result in large incidental catches, and has been considered part of the reason for high bycatch levels in the Gulf of Mexico shrimp trawl fishery (Griffin et. al 1992). The freedom for fishermen to use more efficient gear under an ITQ system may result in less gear being used or the gear being in the water for a shorter period of time, which should reduce bycatch in the directed red snapper fishery.

Since an ITQ system distributes the full commercial allocation of the red snapper TAC, there should theoretically be neither over nor underharvesting of the resource. Milon et. al (1992) stated that since the value of ITQ shares is based on expected harvests in the future, there is incentive for shareholders to insure that quota-busting and overharvesting does not occur. However, discards and high-grading have been reported in numerous ITQ fisheries including the New Zealand, Wisconsin lake trout and Ontario walleye fisheries, and may occur if there is a significant price differential between sizes of red snapper. High-grading and discarding are problems in many management systems, but particularly so in ITQ programs where the integrity of the system relies on catches not exceeding quota levels (Anderson 1992, Wilson 1991). Inaccurate reporting can also contribute to increased fishing mortality. Matlock (1986), discussing non-ITQ annual quotas, found that quotas in the Texas red drum fishery failed to achieve the desired result due to inaccurate and incomplete landings reports. Since a fisherman must stop fishing (or purchase additional quota) once his quota is reached, it is not in his short-term financial interest to report his landings accurately. To the extent that discards and underreporting exists, fishing mortality will exceed desired levels and slow the recovery.

In addition to impacts that ITQ systems may create, it is also worth noting some impacts that ITQ's may fail to address. ITQ's do not necessarily eliminate the need to protect the fish during spawning, to prohibit destructive gear, or to restrict the size of fish caught (Anderson 1992).

The effort limitation actions presented in this amendment are intended to reduce the harvest rate of red snapper and extend the quota season. To the extent that they succeed, management's ability to control fishing mortality will be enhanced. Extending the season will also allow some red snapper, particularly younger age groups, a chance to grow before being caught, resulting in the commercial allocation being filled with a smaller number of fish. If harvest is extended past the spawning season (May to September), spawning success of the red snapper stocks may be slightly improved. However, any such impact is considered insignificant to the long term recovery program. Failure to reduce the harvest rate could lead to quota overruns which would negatively impact the red snapper resource, and may create short term disruptions in reef ecosystems. Any such disruptions are considered negligible, however.

Framework Measure	Positive Impacts	Negative Impacts
bag limits	Applicable to recreational fishery. Controls the rate at which the recreational allocation is harvested and spreads out the allocation among a large user base for a longer period.	As size and abundance of red snapper increases, reduced bag limits may be needed to keep the recreational sector within it's poundage allocation. Discard mortality may result from fish caught in excess of the bag limit, and fishing pressure on alternative species may increase.
size limits	Increases yield-per-recruit (YPR), up to the size which maximizes YPR. This is a function of growth rate, natural mortality and release mortality. For red snapper, with a 33 percent release mortality, maximum YPR occurs at 16 inches.	Provides only a temporary reduction in harvest rate, until undersized fish grow into the new minimum size. If release mortality is underestimated, too high a minimum size may decrease YPR. There may be differential impacts with distance from shore, since average size increases with depth.
vessel trip limits	Controls the rate at which the commercial allocation is harvested and spreads out harvest among a moderately large user base.	May result in increased fishing pressure and localized depletions on nearshore reefs as fishermen attempt to minimize expenses and travel time. Encourages increased fishing pressure on alternative species.
closed seasons	Spreads out the harvest within a year by limiting the times when harvest can occur. May prevent disruption of spawning activity if implemented during spawning season.	Creates mini-derbies, and does not reduce the daily fishing pressure during open seasons. Increases fishing pressure on alternative species during red snapper closed periods.
closed areas	Reduces fishing pressure on selected areas. Red snapper display specific reef residency behavior, thus, this action would protect specific individuals within the stock. May prevent disruption of spawning activity if implemented on spawning grounds, or may protect juveniles if implemented on juvenile nursery grounds.	Intensifies fishing pressure on the remaining open areas. If fishing is allowed for other species in the closed areas, increased red snapper release mortality may occur.
gear restrictions	May reduce fishing pressure by reducing the efficiency of fishing gear or restricting highly efficient gear. Less gear reduces the potential for gear loss and ghost fishing.	Gear restrictions may provide only temporary reductions in fishing pressure until fishermen learn to adjust to the restrictions.
quotas	Prevents overharvest by closing the season when the allocation is reached.	Creates derby fishing. Quota overruns are likely to occur. Requires periodic adjustments to maintain a desired level of fishing mortality.

Actions to extend the reef fish permit moratorium will stabilize participation in the reef fish fishery for an additional period of time if the Council decides to consider effort management programs for other reef fish species. Even with the moratorium, effort and harvest rates on reef fish other than red snapper may increase in speculation of additional effort limitation programs. This can occur as the result of permitted fishermen increasing their targeting of reef fish over non-reef fish species and additional pressure from fishermen who are partially or totally displaced from the red snapper fishery. In the absence of a moratorium, this increased harvest may be further intensified by new fishermen entering the reef fish fishery on speculation or as a result of regulations to reduce harvest in other fisheries, such as sharks. If the Council chooses not to consider effort management for reef fish species other than red snapper, speculative participation in these fisheries may not materialize. In this case, terminating the moratorium when the red snapper effort management measures are implemented or allowing it to expire in May, 1995 (No Action alternative) may result in little or no significant increase in harvest rates of reef fish.

14.3 Human Environment and Social Impact Assessment

No Action Alternative: Reverting to full open access system will bring back, possibly in a more intense manner, the many economic and social problems in the fishery. If an overall quota and good enforcement are sufficient to conserve the resource, the biological gains from management will not translate to economic gains. A rebuilding stock which either leads to less fishing cost per vessel or to increased quota will inevitably invite more effort into the fishery, resulting essentially in a wasteful allocation of resources. This problem will only be exacerbated by the increasing demand for snappers. In addition, if domestic supply for red snapper becomes unstable, wholesalers will turn to imports. The competitive status of the red snapper industry will thus be jeopardized in the long run. Over a longer horizon, the net effects of the license moratorium and the endorsement may be considered economically negative.

A combination of trip limits and monthly season openings may initially slow down the rate of harvest of red snapper depending on the amount of trip limit chosen, but will still leave entry into the fishery open to other vessels with reef fish permits. If the chosen trip limit leads to quota underrun in one year, there will result a strong clamor for higher trip limits in the following year. With such quota underrun, vessels not currently targeting red snapper could shift their effort to catch red snapper. This will particularly heighten if the following year's trip limits are increased. Monthly season openings even with trip limits will eventually create mini-derbies as more vessels enter the fishery. Management of the commercial fishery through input controls without quota closures would likely have similar effects as management with quota closures and input controls. In this situation, though, the likelihood to impose more input controls is relatively higher.

Thomas et.al. (1993) conducted a survey of red snapper fishermen who own and operate their own boats (owner/operators) and who were issued a red snapper endorsement, allowing trip limits of 2,000 pounds. Owner/operators consisted 72 percent of all persons holding red snapper endorsements (131). Of these, 79 percent (75 fishermen) were interviewed. The survey determined the salient attitudes, practices and beliefs the fishermen held about the fishery and regulatory effects applied to the fishery, as well as demographic information. The survey asked fishermen to contrast several social and economic indicators for periods of pre-regulation (1986- 1989) and post-regulation (after the quotas established were taken annually and the fishery closed); therefore, for purposes of this amendment most of the information is more relevant to the no action alternative (status quo) and is included here. Information relevant to other amendment alternatives is included in subsequent sections. The survey also utilized a social theoretical model to describe, explain and empirically test the decision-making processes used by the fishermen in their efforts to pursue a livelihood.

The following subsections for the No Action Alternative are based on Thomas et.al. (1993). A discussion of present participation in the fishery is presented under alternatives for license limitation and ITQs.

Fishing Practices in and Dependence on the Fishery: Almost all of the fishermen (70 percent) surveyed by Thomas et.al. (1993) used bandit rigs to target red snapper and other reef fish. In addition to bandit rigs, nearly half (45.9 percent) used rods and reels. Approximately 19 percent used longlines for species other than red snapper.

A comparison of fishing behavior prior to the implementation of closures in 1992 and 1993, with that after the closures, reveals that the fishery is now closed for three of the six primary months for red snapper fishing. This is a source of frustration for many fishermen.

Prior to implementation of restrictive quotas, fishermen surveyed by Thomas et.al. (1993) exercised a greater degree of diversity in fishing behavior. Only 77.3 percent fished all year long for red snapper. Nearly 23 percent fished for red snapper during specific months with this period being predominantly October through March. After implementation of the quotas all fishermen target red snapper only in the months of the open season.

A consequence of the short season and derby fishery has raised concern among surveyed fishermen over safety issues. Fishermen feel that they are being forced to fish in weather they normally would avoid. Nearly half (49.2 percent) indicated weather they normally would have avoided occurred in 6 to 15 of their trips, while only 12.3 percent did not fish in such weather.

Since the implementation of regulations in the red snapper industry, a significant number of fishermen report increases in their effort directed at the harvest of triggerfish, silk snapper, vermillion snapper, and king mackerel. One of the unintended effects of regulations on red snapper may be increased stress on the stocks of these other species. This suggests that fisheries managers need to conceptualize policy not along the lines of a single fishery, but in terms of a more general fisheries management program.

Typically those fishermen that in the pre-regulation period (1986-1989) targeted red snapper all year also targeted (or caught) a greater diversity of finfish species than fishermen who targeted red snapper in certain months (Thomas et.al. 1993 - Tables 10 and 11). In the post-regulation period and after red snapper season was closed a significantly greater effort was applied targeting vermillion snapper and king mackerel, with more modest increases directed at other species. Fishermen that targeted red snapper only during certain months in the pre-regulation period directed significantly greater effort at triggerfish, silk snapper, scamp, and tuna in the post-regulation period.

The great majority of respondents (over 80 percent) intend to continue fishing commercially for red snapper for the next two to three years. This is so despite the fact that most are pessimistic about the future price of fish (84 percent), many are concerned about their ability to make payments or buy supplies (58 percent), and slightly less than half (49 percent) are confident they will earn enough to support their families.

A model for decision making behavior, derived from the Fishbein-Azjen theory of reasoned action, was developed for explaining labor intentions of fishermen. The intention to remain in the fishery was found to be related to the following factors: (a) relative economic optimism for the fishery; (b) the willingness among fishermen to change fishing behavior in order to persist in the industry; (c) support of significant others for remaining in fishing; (d) confidence that one's sons will be able to have a future in fishing; and (e) an unwillingness to move away from one's hometown.

Thomas et.al. (1993) predicted that these fishermen are likely to continue fishing for red snapper long after it would appear economically rational for them to do so. Furthermore, when fishermen do decide to leave that particular fishery, it is reasonable that they will opt for other fisheries before pursuing work options on land. These social analysis indicate a major degree of dependency on the fishery.

Income and Labor Effects of Management: Thomas et.al. (1993) examined economic trends and perceptions in their survey of owner/operators holding red snapper endorsements. These were examined for pre-regulation (1986-1989) and post-regulation periods and are summarized below.

Several social and economic indicators show declines for fishermen from the period of 1986-89 to the present. Fishermen report an average fall in income from the late 1980's to 1993 of \$15,836, a decline of 40 percent. During the same time period, they report an average depreciation in the value of their boats of \$29,556, a

decline of 31 percent. The number of crew reported for an average trip declined by 1 crew member, a decline of 26 percent in this labor segment of the fishery. Focus group data suggest that family members are increasingly relied upon to supplement crews. Most fishermen report changes in the amount of money available for boat maintenance.

Owner/operators sampled reported that average income in the pre-regulation period was \$39,554, after regulations was \$30,768, and projected 1993 average income to be \$23,718, i.e., a significantly different change for each period. In addition to reporting an average reduction of crew from 3.8 to 2.8, 40.5 percent of them reported the effect of regulation had a large effect on their ability to maintain a steady crew. They reported a decrease in both the number of trips and length of trips after regulation. Although, the percentage of income derived from red snapper did not change materially, (i.e., from 64.0 to 59.1 percent), the value of red snapper declined.

Fishermen's beliefs about their future over the next 2 to 3 years were largely pessimistic. A fairly high percentage felt it was unlikely that they would make enough to support their family (38 percent), get a higher price for red snapper (84 percent), be able to make boat payment and buy supplies (33 percent), or have sons enter the fishery (89 percent). They believed it likely that they would fish more often for other species (64 percent) and would have to spend more time away from home (65 percent).

Despite recent economic hardship, and pessimism for the future of the industry, it appears that the majority of these fishermen will continue to fish for red snapper for as long as they possibly can. Many will adapt to stressed conditions by increasing effort in fishing for other species. Few are likely to pursue successfully non-fishing employment, at least in the near future.

Demographic and Social Information Relevant to the Fishery: Endorsed owner operators tend to be fairly old (49 years), have considerable experience as commercial fishermen (19.5 years), have paid off their boats (67 percent), and have another source of family income (51 percent). Most have no experience working on land or in fishing not involving hooks and line. This profile suggests that these men have financial and personal investments in red snapper fishing which preclude an easy movement to other lines of work.

Thomas et.al. (1993) found that typically the fishermen had fished for red snapper for 16.9 years, utilizing boats averaging 46.2 feet (24-85) and had 11.4 years of education. Eighty-five percent were married. More than half (58.1 percent) had no experience working on land and more than 80 percent (83.8) lacked experience in fisheries not involving hook-and-line gear.

The majority of respondents reported increased conflict among fishermen, and a significant fraction (42 percent) reported decreased cooperation. Self ratings of quality of life show a 37 percent decline over the last five years, and most fishermen anticipate further declines in the next five years.

The decline in cooperation between fishermen was largely attributed to the red snapper endorsement system where some vessels received 2,000 pound trip limits and all others 200 pound trip limits. Thomas et.al. (1993) summarized that the increased conflict serves to retard the ability of fishermen to act collectively in addressing management issues. This likely results in much testimony on issues being self-serving statements of fragmented segments of the industry.

License Limitation Alternative (Magnuson Act Considerations for Limited Access):

(A) Present Participation in the Fishery: The Gulf reef fishery is a multispecies fishery with two major user groups, namely, the recreational and commercial sectors. In 1991, the recreational sector caught about 52 million pounds (MP) of fish (Type A) in the Gulf, of which no less than 13 MP may be considered reef fish species under the management unit of the fishery plan. For this same year, about 1.6 million individuals (coastal and non-coastal) participated in marine recreational fishing in the Gulf region, and about 15.5 million fishing trips were made by the recreational fishermen (NMFS-MRFSS, 1992). There are no current estimates on the economic value of the recreational reef fishery in the Gulf.

In 1991, the commercial sector landed approximately 21.1 MP of reef fish with an ex-vessel value of \$34.6 million (Waters, 1992a). In 1992, the commercial reef fish sector was composed of about 2,214 reef fish permitted vessels. Due to the moratorium on issuance of additional commercial permits implemented in May 1992, the number of permitted vessels could not significantly be more than the 1992 number. This moratorium is intended to remain in effect through 1995 unless earlier supplanted with a comprehensive limited access management system or extended by the Secretary of Commerce upon recommendation of the Gulf Council.

Red snapper used to be the dominant species in the Gulf reef fishery but now has been replaced by groupers. Since 1990, the red snapper fishery has been managed under an overall TAC which is allocated between the commercial (51%) and recreational (49%) sectors. The TAC for 1993 and 1994 has been set at 6 MP, which is 50 percent higher than the 1992 level. The recreational fishery is managed mainly through a bag limit without any closure. In 1991, red snapper was the species primarily sought by 2.79 percent of anglers (NMFS-MRFSS, 1992). This would translate in about 44.6 thousand anglers indicating they were targeting red snapper in 1991. It may be noted, however, that 38.2 percent of anglers did not indicate any species sought. Recreational harvest of red snapper was 2.2 MP in 1991 and 2.7 MP in 1992 (Goodyear 1993) and 5.1 MP in 1993. There were major proposed regulatory changes in 1994 affecting the bag limit and size limit for the recreational red snapper fishery.

The commercial red snapper fishery is managed under an overall quota with closure when the quota is filled. There was no closure in 1990, but the fishery closed in 1991 and 1992 when the sector's quota was filled. Of the 2,214 reef fish permitted vessels in 1992 about 700 vessels participated in that year's red snapper fishery (NMFS, 1992). Landings of red snapper by the commercial sector in 1992 (regular and extended season) was 3.1 MP and has been estimated for 1993 at 3.2 MP. The 1993 season opened on February 16th under a species endorsement system and closed 95 days later. In 1994 the season lasted 77 days. Those receiving the endorsement were allowed to land up to 2,000 pounds of red snapper per trip while those without the endorsement were limited to 200 pounds per trip. Out of a total 251 permits for which holders applied for the red snapper species endorsement, 135 were approved to receive the endorsement. The major motivation for the endorsement system coupled with trip limits was to avoid the derby fishery that occurred in 1992 when the quota of 2.04 MP was filled in the first 53 days of the fishing year. The 1992 derby resulted in major disruption in the fishery, which was repeated to some extent in 1993 and 1994.

Permitting or licensing in the commercial reef fish fishery has been in effect since 1990. The imposition of a moratorium of new issuance of commercial reef fish permits has virtually imposed a limitation on the number of participants in the reef fishery. The current species endorsement system has further curtailed the number of permit holders who can land up to 2,000 pounds of red snapper per trip. A license limitation then will not be a novel thing in the red snapper fishery. In fact the endorsement approach with a few changes mostly related to the transferability of the endorsement can readily be converted into a license limitation system.

The license limitation alternative for limited entry in the red snapper fishery may be less or more restrictive than the species endorsement system in terms of initial distribution of licenses. If "current

participation" refers to participation in the red snapper fishery in 1993, a license limitation that takes full account of current participation in the fishery may have to be structured in close similarity to the endorsement system, particularly with respect to initial distribution of licenses. It may be noted though that the current endorsement provides a 200 pound bycatch allowance. If a license limitation system disallows such bycatch allowance, there may be a need to include in the licensing system those landing 200 pound per trip in order for the system to fully reflect current participation in the commercial red snapper fishery.

By initially limiting the number of participants, a license limitation system is more likely to radically alter the structure of fishing participation in the red snapper fishery. Eventually, any form of limited entry is bound to affect fishing participation. Those initially included in the system would be in the best position to benefit from the system, especially that a license freely (except for some minimal administrative cost) bestowed on them would acquire some economic value in the future. The better the condition of the fish stock and the market for the species, the higher will be the value associated with the license. Only the participation of commercial vessels and charter boats that commercially fish at certain times of the year would be affected by the proposed system. The recreational fishery at large will remain unaffected by the proposed management change.

(B) Historical Fishing Practices in, and Dependence on, the Fishery: Camber (1955), Carpenter (1965), Allen and Tashiro (1976), GMFMC (1981; 1989) and Goodyear (1992) have reviewed the history and status of the red snapper fishery. Waters (1988; 1992a) summarized these reviews and described the structure of the reef fish fishery with major focus on the commercial sector. The red snapper fishery in the Gulf of Mexico has been in existence for over a hundred years now, and fishing practices have changed through the years in response to technological, market, stock, and regulatory changes. Hook and line gear was the predominant gear used in the fishery up until the late 1970's. Since then other gear types such as bandit reels (manual or power-driven) and longlines have been used increasingly. Fishing effort has now become more concentrated off the Louisiana waters as the stock suffered large decline in many areas in the Gulf and as Mexican waters were closed to U.S. fishing vessels. Although there are still a number of fishing vessels mainly fishing for red snapper, fishermen have diversified to other species. The overfished status of red snapper, greater marketability of other species, and regulations imposed since 1990 are some of the major factors that led to such diversified fishing practice. At the same time, there are also vessels that target red snapper during the off season for their primary target species, like shrimp, or off season for their primary operation, like charter boats.

A license limitation system that is similar to the current species endorsement system particularly in terms of granting the same type of license to each qualified vessel is likely to compel many fishermen to deviate from their historical fishing pattern. If in addition to the licenses a trip limit per vessel is imposed over a relatively long period, e.g. during the rebuilding period for red snapper, there is an incentive for fishermen to modify their fishing operation such that they can make as many trips as possible. For those primarily targeting red snapper, such situation could lead to a downsizing of operations or less reliance on red snapper fishing. If there is no trip limit, on the other hand, such incentive could lead to an expansion of operations (mainly capital stuffing) in order to haul in as many fish as possible per trip and possibly to an increased dependence on red snapper fishing.

A license limitation system, or for that matter any partially form of limited entry, will close windows of opportunities for those excluded but otherwise dependent on red snapper during some part of the year. Part-time red snapper fishing in the EEZ will be closed to nonqualifying commercial fishermen engaged in other fisheries and charter boat fishermen who also commercially fish for red snapper during some part of the year. Some of these individuals could very well depend on red snapper fishing during months when their primary operations are closed.

(C) Economics of the Fishery: GMFMC (1981; 1989) and Waters (1988; 1992a; 1992b) described in more details the economics of the commercial reef fishery. Landings of red snapper continued its long-term decline since 1965. The decline in landings is due in part to a decline in catches from foreign fishing

grounds, a decline in the size of domestic snapper population, and regulation. The commercial quota for red snapper was met on August 24, 1991, and the fishery closed the remainder of the year. Total 1991 landings were 2.2 MP. In 1992 the commercial quota of 2.04 MP was filled early and the fishery closed on February 22, 1992, but was re-opened from April 3 through May 14, 1992 under a 1,000 pound trip limit per vessel. An estimated 3.1 MP were landed in that year. In 1993 and 1994 the fishery closed after 95 days and 77 days, respectively, with estimated landings of 3.2 MP. Early closure was due to unusually high catch rates and a derby atmosphere. The decline in red snapper landings was more than offset by the increase in grouper and other snapper landings.

In 1991 red snapper landings had a total ex-vessel value of \$5.3 million. This is only about 15 percent of total reef fish values in 1991, and is definitely a small percentage relative to previous years: 27 percent in 1985, 45 percent in 1980, 64 percent in 1970, and 73 percent in 1960. Real ex-vessel value (i.e., adjusted for inflation) of red snapper declined by approximately 68 percent since 1983. Although ex-vessel prices for red snapper increased steadily over time, the increases were unable to offset both inflation and the decline in landings. Of course, ex-vessel prices dropped significantly at the height of the derby in January and February of 1992. The drop in ex-vessel prices was also reflected in the drop of prices at the Fulton Fish Market.

Aside from domestic landings of groupers and other snappers, red snapper has also a close market substitute in imports. During 1991, the U.S. imported nearly 10.8 MP of fresh snappers and 1.7 MP of frozen snappers, and 5.6 MP of fresh or chilled groupers and nearly 3.9 MP of frozen groupers. On a live-weight basis, imports of fresh and frozen snappers constituted nearly 61 percent of total snapper supplies and 46 percent of total grouper supplies in the U.S. Most imports of fresh snappers and groupers originated from countries in the Caribbean or along the Gulf of Mexico, especially Mexico and Panama. Most imports of frozen snappers and groupers originated from Mexico or various countries in southeast Asia.

Existing demand estimates (Cato and Prochaska, 1976; Keithly and Prochaska, 1985) show that the demand for both snappers and groupers are price inflexible. Over time, demand for these species has become more price inflexible especially as imports have accounted for an increasing share of total snapper/grouper supplies in the U.S. The major implication of such type of demand is that revenues to domestic fishermen would increase (decrease) with an increase (decrease) in landings.

The 1992 and 1993 derby fishing may be seen as partly indicative of the excess capacity in the red snapper fishery. Such excess capacity implies that the biological gains from rebuilding the red snapper stock would not translate in long-term economic gains since effort in the fishery can readily increase as the stock rebuilds and the market condition for red snapper improves. A license limitation, especially if relatively restrictive, can initially eliminate excess capacity. Over time, however, license holders can increase their fishing effort either by improving their capacity to catch or by fishing more intensively. This will happen more likely in a system where only one type of license is issued to all vessels, since such type of a license can be utilized more effectively with larger capacity to harvest red snapper.

Although domestic red snapper still commands a market, the increasing share of imports in the U.S. supplies of snappers necessitates that the domestic harvesting industry has to be more efficient to stay competitive. License limitation may be the initial step to improve efficiency in the industry by rooting out excess effort. However, it is unlikely to eliminate the derby fishery.

(D) The Capability of Fishing Vessels Used in the Fishery to Engage in Other Fisheries: Practically all vessels engaged in the fishery could readily be used to target other reef fish or species. Heavy reliance of some vessels on red snapper fishing is more a function of the skills and interests of the operators and crew members. In this respect, a license limitation, or any form of limited entry, is unlikely to render reef fish vessels inoperative.

(E) Cultural and Social Framework Relevant to the Fishery: Amendment 1 to the Reef Fish Fishery Management Plan (GMFMC 1989) notes that "the user groups utilizing and dependent on the reef fish resource need to be identified and their socioeconomic and sociocultural characteristics delineated to enable analysis of their respective impacts on the resource and the differential impacts alternative management measures may exert on the various user groups" (p-7). Also, under "Research and Recommendations" it is noted that "The socio-economic and socio-cultural aspects of the reef fish fishery need to be evaluated with the purposed of examining the potential utility of a limited entry management strategy and for the purpose of allocations" (p-331). There have, however, been no directed studies of the socio-cultural aspects of either the reef fish fishery generally or of the red snapper fishery in particular. The following characterization is based on generally available data on the fishery as a whole, and on information gathered during the course of the effort management workshops mentioned earlier in the document.

The fishermen involved in the red snapper fishery are imbedded within the larger reef fish fishery, which itself is embedded within the complex fisheries and fishing industries and communities throughout the Gulf of Mexico. There are relatively few fishermen today who consider themselves "red snapper fishermen" exclusively. Fishermen landing red snapper commercially include shrimpers, "schooner"-type fishermen who fish primarily for red snapper, multi-gear fishermen who may use bandits, longlines or other gear for various fisheries throughout the year, charter or headboat fishermen who fish commercially during portions of the year, and many others. Many of the larger vessels are very mobile throughout the Gulf, using various ports of convenience for service and landing bases.

Historically, the commercial red snapper fishery began from ports in the eastern Gulf of Mexico, principally in Florida, with sailing schooners that fished from the northeastern Gulf of Mexico to areas off the Yucatan Peninsula in Mexico. Although a few converted sailing craft, or more recent wooden vessels built along traditional lines but updated with modern equipment, are still used in the fishery, the majority of the vessels used in the fishery today are of diverse modern materials, sizes and designs. In addition, the majority of the fishing effort has shifted from Mexico and the eastern Gulf to the middle and western Gulf, largely off the coast of Louisiana and to some extent Texas.

These changes have resulted in changes in the socio-cultural character of the fishery. In the days of the "snapper schooners" crews were large and fishing focused from a few ports such as Biloxi, Pascagoula, and Tampa. Over time, with increasing technology and diversity in the fishery, the bases for the commercial catch have spread throughout the Gulf states, with the fishery participants reflecting the diverse character of their home communities. Fishermen in the current commercial fishery are based in a wide variety of communities which range from the urbanized areas of Tampa or Corpus Christi, to smaller cities and towns such as Port Isabel or Pascagoula, to very rural areas such as the parishes in south Louisiana. They may be Hispanic, Cajun, Anglo or African or Native American. Although a large proportion of the red snapper landings are still made by some of the more "traditional" red snapper vessels, the fishery in terms of participants is increasingly characterized by a more diverse set of fishermen many of whom are part-time, either in the red snapper fishery or in fishing altogether.

Commercial red snapper fishermen have historically not been organized on a Gulf-wide basis. Some state-based organizations such as the Organized Fishermen of Florida, the Southern Offshore Fishermen's Association, the Organization of Louisiana Fishermen, the Snapper Men of Texas, and the Texas Shrimp Association have from time to time represented the interests of various constituencies on red snapper issues. In addition, groups such as the Southeast Fisheries Association or the National Fisheries Institute have periodically become involved in red snapper issues.

In the recreational area, similar to the commercial sector, most recreational fishermen in the Gulf do not identify themselves primarily as "red snapper fishermen" although red snapper is certainly a popular and sought-after fish. Red snapper has historically been very important to large segments of the charter and headboat fleet, and is often targeted by private recreational boaters as well. However, the recreational fishers for red snapper have no distinct aggregate social or cultural characteristics. Recreational

fishermen are organized Gulf-wide through the Gulf Coast Conservation Association, and many recreational fishermen belong to state and local fishing groups as well as to more general wildlife and conservation organizations.

For purposes of impact analysis, we assume that any license limitation system would be structured similar to the current red snapper endorsement system, except that the privileges would be indefinite and marketable. Thus the question is the social and cultural impacts of a license limitation system that initially limited participants to 131 permitted vessels. The impact on the initial recipients of the licenses would be very positive, with the effect being to focus the benefits of the commercial fishery which has recently been distributed among approximately 1,300 vessels to those 131 vessels. In addition, the distribution of licenses which would acquire value upon sale would create some 'social security' of the recipients. The impact would be significant and negative, however, on the owners and operators of other 1,170 vessels, with the impact varying according to the historical landing and associated dependence of each fisherman on red snapper. For some, such an impact would be in the form of changing their fishing patterns and associate lifestyles. For example, exclusion from the red snapper fishery might require wider fishing migration patterns with more time away from home communities. If numbers of those excluded were from the same communities, wider community impacts might be expected.

Because the cost of obtaining a license would probably be significant, as noted above, mobility into fishing as an occupation might be affected. This is especially significant in smaller rural communities with lower levels of formal education and training and limited occupational alternatives.

Since the licenses would not be divisible -- that is, they would have to be owned by one person -- there is a potential impact on families with one or more children who wish to fish commercially for red snapper. Only one child could benefit from the parents' license, with the others left to enter the fishery through the market for license. This may have some effect on the vitality of certain fishing communities over time.

In addition, since a license limitation would probably not address the "derby" issue, some of the social problems attendant on the "derby" such as safety and social conflict would remain.

(F) Other Relevant Considerations: As noted on several occasions, the red snapper fishery is part of a multispecies reef fishery. Limiting the entry into red snapper would force fishermen to enter other segments of the reef fishery or intensify their fishing of other reef fish species. This could have adverse impacts on these other stocks and could also aggravate the excess capacity condition of these other fisheries. Social conflict in these other fisheries could also intensify.

Red snapper is harvested both by commercial and recreational sectors, with the TAC for red snapper almost evenly divided between these two groups.

The recreational sector is managed through an allocation (49 percent of TAC) and bag limits are set to attempt to limit harvest to that allocation. If the recreational sector exceeds its allocation, subsequent allocations will be adjusted to reduce harvest. This adjustment could occur by reducing the bag limit, increasing the size limit and/or imposing closed seasons or a combination of these actions to reduce recreational fishing mortality.

Although red snapper is mainly caught in the EEZ, some are caught in state waters. Depending on state rules, a license limitation in the EEZ could redirect displaced effort to state waters. Aside from enforcement complications, this possibility of redirecting effort to state waters could lessen the effectiveness of license limitation in reducing excess capacity in the red snapper fishery and in avoiding market gluts.

Red snapper passes through numerous landing ports and dealers throughout the Gulf coasts. To the extent that these major ports and dealers are not identified, license limitation may be rendered less effective in avoiding market gluts.

ITQ Alternative (Magnuson Act Considerations for Limited Access):

(A) Present Participation in the Fishery: In general as earlier discussed, an ITQ system limits the amount that fishermen can catch usually over a fishing year and not the participants in the fishery. In this respect, an ITQ system has better potential than license limitation in reflecting present participation in the fishery. To the extent, however, that initial participants are restricted, e.g. similar to the species endorsement, the system's impact on present participation would be similar in many respects to that of license limitation. The major differences would be in terms of the amount that each participant can catch over a fishing year and the manner in which catches are made. Under an ITQ system, a participant is limited but "assured" of the amount of red snapper he can harvest in a fishing year; that is, he is limited to his allocation (although he can buy other ITQs) but he can harvest his allocation at a time and in a manner that suits him best. Under license limitation his catches would be substantially affected by catches of other participants; that is, he can catch more or less than his historical catch depending on how fast he can partake of the quota before the fishery is closed. If ITQs are initially allocated on the basis of past catch history, the system may reflect more a participant's catch capacity the larger the weight assigned to more recent catch history. If catch history over a longer period is considered for initial allocation, a participant's allocation may not reflect his current capacity to catch red snapper. In addition, catch history alone is not totally indicative of present participation. Although possibly many of the new entrants in the fishery are speculators, there are some who may have recently become financially independent to invest in red snapper fishing vessels. To the extent that they would be excluded from the system or granted a very small catch allocation, an ITQ system could introduce a composition of fishery participants different from current participation.

(B) Historical Fishing Practices in, and Dependence on, the Fishery: An ITQ system is definitely a novel management approach in the Gulf of Mexico fisheries, but it is flexible enough to be tailored to reflect local historical conditions in the fishery and dependence on the fishery. The proposed system could address historical fishing practices and dependence on the fishery, and to the extent that this happens, an ITQ system would not effect a significant change in individual fishing operations, at least, of those that would be granted catch privileges. An ITQ system, however, is bound to discount any high value fishermen may place on the gambling element of fishing or on the achieving of a "high liner" status. While one can still move on to become a high liner in the fishery under an ITQ system, he needs both an increased catch capacity and large catch allocation, both of which would require financial investment. Additionally, since in an ITQ system fishermen can harvest their allocations at a time and in a manner that suit them best, there will be introduced an incentive for fishermen to adopt technological innovation that can maximize their profits. Technological innovation, however, will be adopted in a more rational and orderly manner, and will eventually change the fishing practices in the Gulf red snapper fishery.

(C) Economics of the Fishery: The commercial fishery is under a relatively low quota, characterized with excess capacity, and has more recently experienced abbreviated seasons that adversely impacted fishermen revenues. The situation prompted more restrictions, such as late season opening, species endorsement, and vessel trip limits. In addition, imports have accounted for a substantial portion of U.S. supplies of snappers and groupers, and are likely to increase further with improvements in product handling. While an ITQ system cannot increase the commercial quota nor reduce in imports, it does compel the fishing industry to explicitly take account of these constraints in the "production" of red snapper for the consuming public. An ITQ system will eliminate the derby atmosphere and will effect in time a more appropriate matching of red snapper resource and harvest capacity. The fishing flexibility the system affords would enable fishermen to harvest fish at such a time when the most profitable market window for fresh snappers becomes available. This profitable market window may be open when for a given demand fishing is least costly or when demand is high relative to a given fishing cost. Such profitable condition may also be realized in cases where stability of red snapper supply is the most important factor.

While license limitation is bound to increase catch capacity per licensee, an ITQ system will virtually leave to each ITQ participant the option to expand or reduce fishing operations in order to achieve his most profitable position.

(D) The Capability of Fishing Vessels Used in the Fishery to Engage in Other Fisheries: As mentioned above, reef fish fishing vessels are capable of being utilized, and in fact many of them are utilized, in harvesting species other than red snapper. The 1992 logbook records show 116 species landed by vessels that had red snapper landings in 1992, although many of these species were a small part of the total landings. Overall, logbook records show that red snapper accounted for 10% of the ex-vessel landings for vessels that landed less than 5,000 pounds of red snapper in 1992 and 52% of the total ex-vessel landings for vessels that landed 5,000 pounds or more of red snapper in 1992. For vessels with 5,000 pounds or more of red snapper landings in 1992, the top ten species landed and percent of total logbook landings by ex-vessel weight in 1992 were:

red snapper	- 52%
vermillion snapper	- 13%
king mackerel/cero	- 9%
yellowedge grouper	- 5%
greater amberjack	- 3%
silk snapper	- 2%
yellowfin tuna	- 1%
triggerfishes	- 1%
warsaw grouper	- 1%
scamp	- 1%

An ITQ system will not hinder these fishing vessels from engaging in other (than red snapper) fisheries.

(E) Cultural and Social Framework Relevant to the Fishery: For purposes of this analysis we assume a system with an initial allocation of ITQ to anyone with red snapper landings in the years 1990-1992.

Since such a distribution would generally reflect the historical participation in the fishery, the negative social impact resulting from exclusion from the fishery would be negligible. Similar to license limitation, social stability would be created for those to whom ITQ shares were allocated.

Although mobility into the fishery would be affected due to the need to purchase ITQ shares or coupons, the effect would be minimized due to the ability to purchase in small amounts and get into the fishery gradually. In addition, the divisibility feature of ITQ shares would benefit families with more than one child who wished to go into fishing, since ITQ shares could be divided among more than one person.

The ability of the ITQ allocation to be used at any time throughout the year would eliminate the "derby" problem (at least as a result of regulation), and thus the negative social impacts of safety and social conflict noted above.

(F) Other Relevant Considerations: As discussed above, limiting the entry into red snapper would force fishermen to enter other fisheries or intensify their fishing of other reef fish species. This could have adverse impacts on these other stocks and could also aggravate the excess capacity condition of these other fisheries. Social conflict in these other fisheries could also intensify. These problems are also bound to arise under an ITQ system for red snapper only.

Red snapper is harvested both by commercial and recreational sectors, with the TAC for red snapper almost evenly divided between these two groups. The recreational sector is managed through an allocation (49 percent) and bag limits are set to attempt to limit harvest that allocation. If the recreational sector exceeds its allocation, subsequent allocations will be adjusted to reduce harvest. This adjustment could occur by reducing the bag limit, increasing the size limit and/or imposing closed seasons or a combination of these actions to reduce recreational fishing mortality.

Although red snapper is mainly caught in the EEZ, there are a number of those caught in state waters. An ITQ system only for fish caught in the EEZ could redirect displaced effort to state waters. Aside from enforcement complications, this possibility of redirecting effort to state waters could lessen the effectiveness of ITQs in reducing excess capacity in the red snapper fishery and in avoiding market gluts.

As also mentioned earlier, red snapper passes through numerous landing ports and dealers throughout the Gulf coasts. The identification of major ports and dealers and monitoring of catches passing through these ports and dealers are extremely important for the success of an ITQ system.

The limited entry measures considered in this amendment are deemed to alter the human environment in terms of providing a more stable fishing environment conducive to more profitable fishing operation and long-range planning by fishery participants. Extension of the moratorium on the issuance of commercial reef fish permits is also deemed to provide a relatively more stable fishing environment. There is a general lack of more current socio-cultural and demographic information on the red snapper fishing participants. The information on these aspects of the fishery are contained in the original fishery plan for reef fish, and are not adequate to specifically determine the potential social impacts of most current management actions. However, for the purpose of determining the socio-demographic and cultural effects of more general limited entry alternatives, recourse was made to information generally available about the reef fishery as a whole and to information gathered during the course of the effort management workshops conducted throughout the Gulf coasts. Pertinent portions of the socioeconomic impacts discussed in the document are deemed to constitute the social impact assessment within the narrow confines of limited information available.

Figure 1.

MINIMUM NUMBER OF VESSELS QUALIFYING FOR RED SNAPPER ENDORSEMENT

1,287 vessels had at least one red snapper landing reported on either NMFS logbooks or Florida DNR trip tickets between 1990 and 1992. Based solely on NMFS logbooks and Florida DNR trip ticket data, below are the number of permitted vessels that would qualify for a red snapper endorsement based on meeting a given criteria in 1, 2, or 3 of the last 3 years. The criteria is annual pounds of red snapper landed in whole weight. Additional permitted vessels will qualify by using fish house receipts for landings that were not reported on either logbooks or Florida trip tickets. Also, additional permits that were transferred between vessels during 1990 to 1992 may qualify. The number of additional vessels that will qualify is not known.

CRITERIA	ONE YEAR	TWO YEARS	THREE YEARS
1	1287	591	247
500	522	219	62
1000	408	161	53
1500	345	140	43
2000	297	123	41
2500	272	118	39
3000	249	106	36
3500	233	93	31
4000	213	83	29
4500	192	80	26
5000	177	79	24
5500	164	71	22
6000	154	68	19
6500	152	63	18
7000	145	58	16
7500	133	55	14
8000	128	50	13
8500	125	44	13
9000	121	43	13
9500	120	40	13
10000	114	40	11
10500	110	38	11
11000	99	34	11
11500	97	33	11
12000	90	33	11
12500	86	31	11
13000	80	31	9
13500	75	28	9
14000	73	28	9
14500	69	27	5
15000	68	26	5

14.4 Impact on Other Fisheries

Fishermen who are partially or totally displaced from the red snapper fishery may choose to target other species instead of, or in addition to, red snapper. Vermilion snapper and triggerfish have been mentioned as possible alternatives. The increased fishing pressure on other these other species may be further compounded by their low ex-vessel prices, relative to red snapper, forcing the fishermen to harvest larger amounts for the same economic return. Existing federal reef fish permit provisions require federally permitted fishermen to comply with federal red snapper rules regardless of where the fish are harvested. However, if states do not adopt compatible regulations, actions that restrict access to red snapper in federal waters may lead to more intensive harvest of red snapper by non-federally permitted fishermen in state waters where this resource can be harvested. As of the writing of this draft, Florida, Louisiana, and Alabama have adopted regulations requiring that red snapper fishermen fishing in state waters be federally permitted.

14.5 Effect on Endangered Species and Marine Mammals

A Section 7 consultation has been held with NMFS on Amendment 8. The proposed action will have no adverse impact on marine mammals and threatened or endangered species.

14.6 Effect on Wetlands

The red snapper fishery is primarily prosecuted in federal waters, offshore, and outside of state waters (Goodyear 1992b). The actions presented in this amendment and the red snapper fishery have no effect on wetlands.

14.7 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.. (Raulerson)

14.8 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

15. OTHER APPLICABLE LAW

15.1 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.

15.2 Vessel Safety Considerations

The U.S. Coast Guard has concluded that preventing a derby fishery will reduce the incentive to fish even under hazardous weather conditions and will result in a positive impact on vessel safety. The license limitation system by reducing the number of vessels may moderate this effect.

15.3 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.

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 has been concurred with by 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.

15.4 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 proposes, through this amendment, to establish additional permit and modify data collection programs. The public reporting burdens for these collections of information are estimated to average 20 minutes per response including the time for reviewing instructions, searching existing data sources, getting and maintaining the data needed, and completing and reviewing the collection of information.

15.5 Federalism

As the amendment document currently stands, no federalism issues have been identified relative to the actions proposed in this amendment. However, one may note the possibility that in implementing a license limitation or ITQ system it may be provided that qualifying vessels may not fish for red snapper beyond their allocations, no matter where the fish are harvested or possessed. Although such provision may appear to have federalism implications, NOAA General Counsel has opined that this does not raise a valid issue of federal preemption, because even if a state continues to allow harvests above a vessels allocation, the violation of vessel allocation by federally licensed fisherman is a violation of federal law, not a state law. In addition, the affected states have been closely involved in developing the proposed management measures

and the principal state officials responsible for fisheries management in their respective states have not expressed federalism related opposition to adoption of this amendment. Therefore, preparation of a federalism assessment under Executive Order 12612 is not necessary.

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APPENDIX - A Economic Rent and Windfall Profit

1. Windfall Profit

Any system that conveys ownership of a right to fish through a permit (or certificate) that may be sold, traded or leased also conveys the opportunity to reap a windfall profit to the initial recipient of the permit. This action conveys a share of a common property resource belonging jointly to the people of the United States to private ownership forever or for some defined period, so long as the private entity complies with the rules conferring such ownership. The windfall profit is realized when the first owner sells his permit or is collected in installments through leasing. Subsequent owners do not realize a windfall profit, having paid the fair-market-value for the harvesting right, even though they may realize a significant profit when the permit is resold at a later time.

There are several ways of looking at the issue of fairness and equity of conveying such a profit and at the issue of compensation to the people to whom the resource belonged. One view would be that any citizen should have equal opportunity to be granted the ownership and that all citizens should be compensated for the value of such ownership, including any windfall profit realized. Under this view, the harvesting right should be sold to the highest bidder (which is not allowed under the MFCMA). Sale at auction would eliminate windfall profits. Ownership could also be conveyed by lottery to any citizen and compensation collected for the windfall profit as well as economic rent for the harvesting right (also not allowed under the MFCMA).

Another view is that current participants should be the only group from which individuals are selected for granting such ownership. They have by their capital investment in the harvesting capacity for the fishery, obtained a de facto ownership of a share of the resource that annually belongs to them when legally harvested. Under this view, the current and historical participants have developed the fishery which contributes significantly to the economy, to the tax base of all affected governments, and thereby to management of the resource and should therefore be the principal beneficiaries of a limited access system. This recognizes that the current participants have replaced the historic participants through the marketplace. From this perspective, the windfall profit could serve in lieu of a vessel buy-back system (also not allowed under the MFCMA) to provide partial compensation as an inducement to persons for leaving the fishery. The U.S. Treasury would receive some compensation via capital gains taxes paid on the windfall profit.

The Magnuson Act in section 303(b)(6) seems to support the second view in that it requires the Council and the Secretary to take into account present participation in the fishery, historical dependence on the fishery, economics of the fishery, the capacity of vessels to engage in other fisheries, the cultural and social frameworks of the fishery and other relevant considerations. Consequently, all the limited access systems developed or being developed under the Act limit the initial allocation of fishing rights to current participants in the fishery.

Regardless of the viewpoint on these issues, windfall profits will be associated with a limited access system which conveys ownership of the harvesting right so that the marketplace can be used to reduce the excess effort capacity within the fishery. Because of the over-capitalization of the Gulf red snapper fishery, the severe depletion of the stock, and the presence of market substitutes for red snapper such as groupers and imports of reef fish, the windfall profit realized by persons leaving the fishery during the initial years of the system is unlikely to be excessive. In fact if this trend continues, persons initially leaving the fishery may have difficulty realizing a fair market value for their vessel and may realize a capital loss rather than gain. However, if the system is successful in significantly reducing participants, the value of an individual's harvesting right will be increased, but much of this increase may result from purchasing additional harvest rights from other participants rather than from the initial grant.

The experiences and observations from various limited entry systems, discussed at a recent NMFS workshop on ITQs, indicate that the implementation of an ITQ regime transfers value from vessels to the ITQ shares. Recognition of and concern regarding this transfer of value has also been voiced by NMFS regional and Washington financial services personnel. The ocean quahog/surf clam fishery is an extreme example of transfer of value in that the highly specialized vessels in this fishery became worthless, other than scrap value,

after their owners sold their ITQ shares. While a reef fish vessel in the Gulf that is excluded from the red snapper fishery will retain value in other components of the reef fish fishery, there will be some diminishment of value merely from loss of opportunity to fish for red snapper. This transfer of value has two important aspects in terms of the proposed red snapper ITQ regime. Whatever "windfall" profits may accrue from initial ITQ shareholder status (and the economists are not in total agreement as to the scope of these profits), they are lessened for vessel owners by the amount of the loss of value of the vessel. For non-owners, however, such as historical captains and earned income qualifying operators, there is not offsetting loss of value--theirs is pure windfall, at the expense of vessel owners. Previous owners, that is, owners who had red snapper landings during the 1990-1992 window but have since exited the fishery, also would likely have a pure windfall if they become initial shareholders.

2. Economic Rent

The purpose of the systems is to allow the business community affected to consolidate units of effort into more efficient units or to otherwise reduce effort so that the remaining harvest units are more profitable. It is anticipated that in achieving this, management costs to the public sector will be reduced over the long-term, and the resource conservation goals will be more easily achieved. Because the systems will allow (initially or at a later date) a select, reduced group of participants to harvest renewable natural resources at a more profitable level, it is not unreasonable for them to pay the management costs associated with the system from the increased profit. It should be recognized that the systems will directly affect the harvesting sector only. The processing sector may have some elements that are vertically integrated with the harvesting sector, but in general each unit of the processing sector can operate completely independent of their harvesting sector (e.g. by using imports or red snapper from other vessels) and should not be considered as directly benefitting from the system. Even though the processing sector of a vertically integrated firm may obtain red snapper at cost from that firm's vessels for processing, the value of the red snapper is what they could be sold for to a competitor, i.e., the profit accrues to the harvesting sector of that firm.

Because of the excessive number of participants in the harvesting sector relative to the quota and the relatively slow rate by which reductions will be achieved through at least one of the systems (i.e., license limitation that is not stringent at the outset), the generation of economic rent associated with the systems (i.e. individual profit above that with no system) is apt to be very slow and a very modest individual amount initially.

Therefore, even if the Magnuson Act allowed collection of economic rent, there would be virtually little to none to collect for several years from the Gulf red snapper fishery. Whereas, by comparison, for the limited access systems proposed for Alaskan pollack fisheries at a point where there is a surplus of resource and the industry is very profitable, the economic rent created is likely to be high.

Because economic rent associated with limited access systems represents an individual's excess profits resulting from the systems and not from other factors, it is difficult to measure. There are a multitude of factors related to existing market conditions and related to costs of operations, such as fuel costs, that affect profits. Additionally, a vertically integrated operation presents problems in ascertaining the appropriate rent accruing to the harvest sector. Transfer pricing is a fairly common practice in commercial conglomerates wherein the full price of a product is charged by the least profitable operation and the full cost of an input is charged to the most profitable operation. In the present case, since liability for exacting payments on the generated economic rent falls on the harvesting sector, the full price of red snapper may be charged by the processing sector or the full price of some costs (e.g. management costs) may be charged to the harvest sector. All of these factors must be considered in the analyses that attempt to isolate profits of the harvesting sector derived from limited access.

If the system utilized is successful, then eventually significant amounts of economic rent will be generated from the red snapper fishery especially as the stock reaches full recovery. And if limited access systems become commonly used for the nation's fisheries, perhaps Congress will amend the Magnuson Act allowing such rent to be taxed through fees to support the management systems. However, until that occurs, the excess profit or rent may be taxed (shared) to support management only indirectly.

3. Rent Sharing

Rent sharing involves the regulatory agency or government retrieving a portion of the profit (rent) created by the management system as compensation for the right to harvest the common property resource. Such government share of the rent could be dedicated to support the management system and/or applied to general tax revenue fund supporting the government. The Magnuson Act currently allows collection of fees only for the administrative cost of issuing permits which is currently on the order of \$30 to \$40 per permit. Therefore, economic rent above that amount can only be collected indirectly.

Some of the rent would be collected indirectly through individual income tax or corporate tax on the additional profit created by the limited access system. Other options for indirectly collecting such rent are related to requiring participants to perform some service, at their expense, that benefits management of Gulf fishery resources or which may shift the cost of current management programs from the public sector to the participants. Some of these alternatives are listed below.

- measures for reporting by vessels and dealers that shift the reporting burden to the private sector.
- requiring vessels to carry scientific observers and pay all or part of this cost.
- requiring vessels to donate time for scientific sampling aboard the vessel.

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

ERRATA SHEET FOR AMENDMENT 8 TO THE REEF FISH FMP

Beginning with the first full paragraph on page 122 and continuing through the first two paragraphs on page 123, substitute the following language:

The Small Business Administration (SBA) defines a small business in the commercial fishing activity as a firm with receipts of up to \$2.0 million annually. SBA also defines a small business in the charter boat activity as a firm with receipts up to \$3.5 million per year. Practically all current participants of the reef fish fishery readily fall within such definition of small business. In general, a "substantial number" of small entities is more than 20 percent of those small entities engaged in the fishery (NMFS, 1992). In 1992, a total of 2,214 permits were issued to qualifying individuals and attached to vessels, and are deemed to comprise the reef fish fishery in the U.S. Gulf of Mexico. In 1995 there are about 700 vessels participating in the commercial red snapper fishery. With the adoption the species endorsement system for red snapper, 131 of these have been granted the endorsement and have been harvesting red snapper up to 2,000 pounds per trip, with the rest (including those that did not fish for red snapper in 1992 but have valid reef fish permits) limited to 200 pounds per trip. In addition, the specific provisions of the proposed ITQ program provide the potential for other reef fish permit holders to join the fishery via the purchase of shares or coupons. Since the proposed action will affect at least 700 (or 32%) of the 2,214 current small businesses permitted to operate in the reef fish fishery, the "substantial number" criterion will be met.

Economic impacts on small business entities are considered to be "significant" if the proposed action would result in any of the following: a) reduction in annual gross revenues by more than 5 percent; b) increase in total costs of production by more than 5 percent as a result of an increase in compliance costs; c) compliance costs as a percent of sales for small entities are at least 10 percent higher than compliance costs as a percent of sales for large entities; d) capital costs of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities; or e) as a rule of thumb, 2 percent of small business entities being forced to cease business operations.

As is shown in detail in the accompanying RIR, the provisions of the ITQ program have clear implications which relate to changes in the gross revenues of small entities. In particular, those small businesses that initially participate in the ITQ program



are expected to receive a substantial increase in revenues due to an expected increase in the ex-vessel price for red snapper. For the industry at large, the gross revenues are expected to rise by over 20%. If comparisons are made between the "No Action" alternative and the proposed ITQ program, no action would result in a return to a pure open access form of management and harvesters not currently in the reef fish fishery would have the ability to harvest red snapper. In the case of some of those small harvesting businesses that would be involved in the harvest of red snapper under the no action scenario, they might have the ability to increase their personal revenues by more than 5% relative to their harvests at the present time. As shown in the RIR, production costs for those small businesses involved in the harvest of red snapper will decrease by a significant but unquantified amount under the preferred alternative of an ITQ management system.

Regarding the competitive situation between large and small businesses following the adoption of the proposed management regime, the ITQ system does not have disproportionate effects on small versus large business entities simply because all entities affected by the regulations are determined to be small. It is noted that under an ITQ system larger vessels may get larger shares than smaller vessels (recall that all the vessels constitute small businesses) because the share allocation will be based on catch history. Although initially no capital cost increases to vessel owners may be expected as a direct result of the ITQ system, those small businesses that enter the fishery by purchasing shares or coupons will have to incur those additional fixed costs.

No small businesses are expected to cease operations as a result of this action because the system recognizes historical participation in the red snapper fishery. Furthermore, fishermen who do not have a recent history of catches will have the ability to enter the fishery through the purchase of red snapper ITQ shares or coupons.

Since a large proportion of the small businesses in the reef fish fishery will be affected by this action and since some of these are expected to experience a rise in income of over 5% and others are expected to forgo a greater than 5% increase in income from the preferred ITQ action versus the no action alternative, it is concluded that the proposed action would impose a significant economic impact on a substantial number of the identified small business entities. Hence, an Initial Regulatory Flexibility Analysis is required. The following summary and the accompanying RIR constitute the information required for the IRFA.