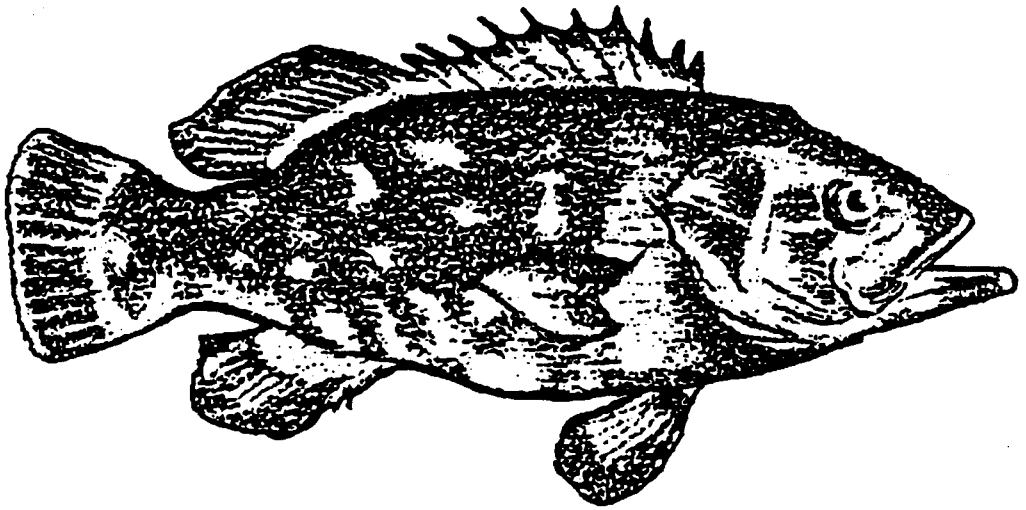
FINAL

AMENDMENT 5 (WRECKFISH),
REGULATORY IMPACT REVIEW,
INITIAL REGULATORY FLEXIBILITY DETERMINATION
AND ENVIRONMENTAL ASSESSMENT

FOR THE

FISHERY MANAGEMENT PLAN FOR THE
SNAPPER-GROUPER FISHERY
OF THE SOUTH ATLANTIC REGION



SEPTEMBER 1991

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I. INTRODUCTION

EXPLANATION OF KEY TERMS AND CONCEPTS FOR INDIVIDUAL TRANSFERABLE QUOTAS

Percentage Share or Share: Refers to a fisherman's permanent holding in the fishery based on the initial allocation of shares that can be modified by trading. For instance, a fisherman may receive a 4% share from the initial allocation. This means that he will receive an allocation, in pounds of wreckfish, which is 4% of the TAC in the first year (e.g., if TAC in the first year was 1,000,000 pounds, he would get 40,000 pounds). For future years, as TAC is modified, that fisherman will receive 4% of TAC every year, and the quantity of wreckfish pounds that this translates into will vary with changes in TAC. For example, if TAC increases to 2,000,000 pounds in the second year, he would get 80,000 pounds for that year. A fisherman can sell some or all of his percentage share. For instance, by selling one-half of his 4% share, the seller would be entitled to a 2% share of TAC in future years and the buyer would get 2% of TAC in the future. If the buyer were in the fishery already and held a 3% percentage share, the 2% he purchased would make his total percentage share 5% of TAC every year.

Individual Quota: Refers to the quantity of wreckfish that a percentage share translates into in a particular year. In the above example, the fisherman with the 4% share got an individual quota of 40,000 pounds in the first year. He can land those pounds of wreckfish or he can sell some or all of his individual quota to another fisherman who needs more individual quota that year, provided that fisherman owns a percentage share in the wreckfish fishery (see management section). Conversely, he can purchase individual quota from another fisherman. For transactions involving individual quota, it is important to remember that the percentage share held by those involved in the transaction does not change. So even though a fisherman may sell quota this year, he still receives quota next year based on his percentage share.

Tracking/Monitoring Individual Quotas: Refers to a system of official record keeping to track an individual's landings of wreckfish over the fishing season so that individuals do not catch more than their individual quotas. This will be accomplished with a coupon system so that violations can be detected on the water, at the dock, or when wreckfish are in the fish house.

Tracking/ Monitoring Percentage Share Transactions: This is the system to record sales and purchases of percentage shares. Tracking transactions involving percentage shares determines changes in individuals' permanent holdings in the fishery which are critical for knowing who to

allocate individual quota to in future fishing seasons. The system for recording sales and purchases of percentage shares is set up to allow free exchanges of percentage shares but some recording provisions will have to be met. Details on the proposed system to track percentage share transactions are available in the management measure section.

Individual Quota Transactions: Sales and purchases of individual quota are accomplished by exchanging coupons. These transactions are recorded on the back of the coupons that are sold. Actively tracking transactions of individual quota is not critical because we are primarily interested in allowing the TAC to be landed, not in which fishermen actually harvest it. Sales of individual quota between two fisherman who both hold percentage shares and already have current wreckfish permits are accomplished by exchanging coupons for the purchase price with the signatures of the seller and buyer and the date entered on the appropriate lines on the back of the coupons that are exchanged. More details of how the proposed coupon system works are available in the management measure section.

Permit: Refers to the vessel permit or federal wreckfish dealer permit that will be required in addition to other requirements of wreckfish fishermen or dealers. Wreckfish fishermen are already required to obtain a vessel permit. Fish house owners wishing to handle wreckfish will be required to possess a wreckfish dealer permit. Prerequisites for obtaining a federal wreckfish dealer permit will be a valid state dealers license and a physical facility at a fixed location in the state where the state dealers license is held. Both permitted dealers and fishermen will have to comply with data reporting requirements (which are explained in the management section).

TAC: Total Allowable Catch

A. Background

The Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC, 1983a) was prepared by the South Atlantic Fishery Management Council and implemented by the Secretary of Commerce on August 31, 1983 [48 Federal Register 39463]. The Fishery Management Plan was prepared to prevent growth overfishing in thirteen species in the snapper grouper complex and to establish a procedure for preventing overfishing in other species. The Fishery Management Plan established a 12" total length minimum size for red snapper, yellowtail snapper, red grouper and Nassau grouper; an 8" total length minimum size for black sea bass; and a four inch trawl mesh size to achieve a 12" minimum size for vermilion snapper. Additional harvest and gear limitations were also included in the original management plan.

Amendment 1 (SAFMC,1988) was implemented by the Secretary effective January 12, 1989 [54 Federal Register 1720] to address the problems of habitat damage and growth overfishing in the trawl fishery. The amendment prohibits use of trawl gear to harvest fish in the directed snapper grouper fishery south of Cape Hatteras, North Carolina (35° 15' N Latitude) and north of Cape Canaveral, Florida (Vehicle Assembly Building, 28° 35.1' N Latitude). A vessel with trawl gear and more than 200 pounds of fish in the snapper grouper fishery (as listed in Section 646.2 of the regulations) on board was defined as a directed fishery. The amendment also established a rebuttable presumption that a vessel with fish in the snapper grouper fishery (as listed in Section 646.2 of the regulations) on board harvested its catch of such fish in the Exclusive Economic Zone (EEZ).

Amendment 2 (SAFMC,1990a) prohibited the harvest or possession of jewfish in or from the exclusive economic zone in the South Atlantic due to its overfished status and defined overfishing for jewfish and other snapper grouper species according to the 602 guidelines requirement that definitions of overfishing be included for each fishery management plan. The harvest or possession of jewfish was prohibited by emergency rule. The amendment was approved on October 10, 1990 and final regulations were effective October 30, 1990 [55 Federal Register 46213].

Amendment 3 (SAFMC, 1990b) established a management program for the recently developed wreckfish fishery. The Council was concerned that the rapid increase in effort and catch threatens the wreckfish resource with overfishing and that the concentration of additional vessels in the relatively small area where the resource is located also could create problems with vessel safety because of overcrowding. Actions included: (1) adding wreckfish to the management unit, (2) defining optimum yield, (3) defining overfishing for wreckfish, (4) requiring an annual permit to fish for, land or sell wreckfish, (5) collecting data necessary for effective management, (6) establishing a control date of March 28, 1990 after which there would be no guarantee of inclusion in a limited entry program should one be developed (this was later limited to the area bounded by 33° and 30° N Latitude based on input from public hearings), (7) establishing a fishing year beginning April 16, (8) establishing a process whereby annual total allowable catch (annual quotas) would be specified with the initial quota being 2 million pounds, (9) establishing a 10,000 pound trip limit and (10) establishing a spawning season closure from January 15 through April 15. Actions (7), (9) and (10) were based on public input at meetings and hearings. An emergency rule effective August 3, 1990 [55 Federal Register 32257] added wreckfish to the management unit, established a fishing year for wreckfish commencing April 16, 1990, established a commercial quota of 2 million pounds and established a catch limit of 10,000 pounds per trip. The Secretary closed the fishery for wreckfish in the EEZ effective August 8, 1990 based on the TAC of 2 million pounds being reached [55 Federal Register 32635]. The Council requested an extension of the emergency rule which was approved [55 Federal Register 40181]. Amendment 3 was approved on November 9, 1990 and final regulations were effective January 31, 1991 [56 Federal Register 2443].

Amendment 4 (SAFMC,1991) was prepared to reduce fishing mortality on overfished species, to establish compatible regulations, where possible, between state and federal agencies, to identify the universe of fisherman, and to gather the data necessary for management. Amendment 4 prohibits: (1) use of fish traps in the South Atlantic federal waters with the exception of black sea bass traps when used north of Cape Canaveral, Florida; (2) use of entanglement nets, which includes gill and trammel nets; (3) use of longline gear inside 50 fathoms (300 feet) in the snapper and grouper fishery in South Atlantic federal waters; (4) use of bottom longlines for wreckfish; and (5) use of powerheads and bangsticks in all designated special management zones (SMZs) off the South Carolina coast. In addition, fishermen who fish for other species with gear prohibited in the snapper-grouper fishery may not have bycatches of snapper and grouper species in excess of the allowed bag limit. No bycatch would be allowed for those species that have no bag limit or that are prohibited. The Amendment establishes the following minimum sizes: 8" total length for lane snapper and black sea bass; 10" total length for vermilion snapper (recreational fishery only); 12" total length for red porgy, vermilion snapper (commercial fishery only), gray, yellowtail, mutton, schoolmaster, queen, blackfin, cubera, dog, mahogany and silk snappers; 20" total length for red snapper, gag, and red, black, scamp, yellowfin, and yellowmouth groupers; 28" fork length for greater amberjack (recreational fishery only); 36" fork length or 28" core length for greater amberjack (commercial fishery only); and no retention of Nassau grouper. Amendment 4 also requires that all snappers and groupers possessed in South Atlantic federal waters must have head and fins intact through landing. Bag limits that are established under Amendment 4 for the recreational fishery are: a bag limit of 10 vermilion snapper per person per day; a bag limit of three greater amberjack per person per day; a snapper aggregate bag limit of 10 fish per person per day, excluding vermilion snapper and allowing no more than two red snappers; and a grouper aggregate bag limit of five per person per day, excluding Nassau grouper and jewfish. Under the Amendment, charter and head boats are allowed to have up to a two-day possession limit as long as there are two licensed operators on board and passengers have receipts for trips in excess of 12 hours. Excursion boats would be allowed to have up to a three-day possession limit on multi-day trips. Fish harvested under the bag limit may be sold in conformance with state laws if they meet the commercial minimum sizes. The commercial harvest and/or landing of greater amberjack in excess of the three-fish bag limit is prohibited in April south of Cape Canaveral, Florida. The commercial harvest and/or landing of mutton snapper in excess of the snapper aggregate bag limit is prohibited during May and June. To exceed bag limits in the snapper-grouper fishery, an owner or operator of a vessel that fishes in South Atlantic federal waters is required to obtain an annual vessel permit. For individuals to qualify for a permit they must have at least 50% of their earned income, or $20,000 in gross sales, derived from commercial, charter, or headboat fishing. For a corporation to be eligible for a permit, the corporation or a shareholder or officer of the corporation or the vessel operator would be required to

have at least $20,000 in gross sales derived from commercial fishing. For partnerships, the general partner or operator of the vessel is required to meet the same qualifications as a corporation. A permit, gear, and vessel and trap identifications are required to fish with black sea bass traps. Amendment 4 also addresses enforcement concerns that surfaced with the wreckfish trip limit. Amendment 4 was approved on August 26, 1991 by the Secretary of Commerce and all regulations will go into effect January 1, 1992 except the bottom longline prohibition for wreckfish that will be effective October 17, 1991.

Bottom longline gear was being used to a limited extent in the wreckfish fishery and input from fishermen indicated that the loss of gear, damage to habitat and lost gear continuing to fish was a problem. The Council subsequently requested and was granted emergency regulations [56 FR 18742] that prohibit the use of bottom longline gear in the wreckfish fishery effective April 19, 1991 and were granted an extension on July 19, 1991 [56 FR 33210].

The wreckfish fishery is currently under a 3 million pound TAC for fishing year 1991. That TAC will be released in 1 million pound units, the first on April 16, 1991, the second on July 16, 1991, and the third on October 16, 1991. Release of the third 1 million pound unit is contingent upon the finding that the index of catch per unit effort (CPUE) and mean size of wreckfish do not show a significant decline over the first two harvest periods, and other information available does not indicate concern about the status of the wreckfish resource.

A control date of July 30, 1991 for possible future limited entry was established for the entire snapper grouper fishery excluding wreckfish [56 FR 36052].

B. FMP Problems

The problems of the Snapper Grouper Fishery Management Plan as modified by Amendment 4 (SAFMC, 1991) are:

1. Excessive fishing mortality is jeopardizing the biological integrity of the snapper grouper resource of the South Atlantic. First, thirteen species in the complex are in a documented state of overfishing, i.e., spawning stock ratio (SSR) is less than 30%. This group consists of black sea bass, gray snapper, vermilion snapper, red snapper, red porgy, gray triggerfish, gag, scamp, red grouper, speckled hind, snowy grouper, warsaw grouper, and greater amberjack. Second, fourteen species are thought to be overfished even though the SSRs are unknown. This group consists of golden tilefish, yellowedge grouper, misty grouper, Nassau grouper, black grouper, yellowmouth grouper, yellowfin grouper, schoolmaster snapper, queen snapper, blackfin snapper, cubera snapper, dog snapper, mahogany snapper and silk snapper. Third, the jewfish resource is thought to be severely overfished throughout the Gulf of Mexico and South Atlantic even thought the SSR is unknown. Fourth, the rapid increase in number of vessels, effort, and catch in the newly developed

wreckfish fishery threatens the wreckfish resource with overfishing even though the SSR is unknown. Fifth, additional species may be overfished or likely to experience overfishing in the near future.

2. Adequate management has been hindered by lack of current and accurate biological, statistical, social, and economic information. Data necessary to document growth and/or recruitment overfishing, and to calculate SSRs are very limited. Since the universe of participants is unknown, scientists are unable to estimate catch, effort, and other important information with desired accuracy. The present system of fishery dependent and fishery independent data collection provides limited information for assessment purposes and practically no economic or social data.

3. Intense competition exists among recreational, part-time, and full-time commercial users of the snapper grouper resources; and between commercial users employing different gears (hook and line, traps, entanglement nets, longlines, and powerheads/bang sticks).

4. Habitat degradation caused by some types of fishing gear and poor water quality have adversely affected fish stocks and associated habitat.

5. The existence of inconsistent State and Federal regulations makes it difficult to coordinate, implement and enforce management measures and may lead to overfishing. Inconsistent management measures create public confusion and hinders voluntary compliance.

C. Problems Requiring Amendment 5

ACTION 1. NEW PROBLEMS IN THE WRECKFISH FISHERY

1. EXCESS CAPACITY. The size and capacity of the wreckfish fleet exceeds that needed for present TAC as well as the range of TACs the Council is likely to approve in the foreseeable future. Additional vessels in the future would exacerbate this situation since the derby nature of an open access fishery encourages fishermen to add harvest capacity even when gains in production are marginal or when economies of scale are not necessarily realized.

2. INEFFICIENCY. Past and present measures to control harvest (TAC, gear restrictions, trip limits) and future measures that would likely be needed under continued open access, increase fishing costs and decrease potential consumer and producer benefits from the fishery.

3. LOW CONSERVATION AND COMPLIANCE INCENTIVES. Under open access, incentives to promote conservation and voluntary compliance with regulations are low because the benefits from doing so may be appropriated by other fishermen or new entrants.

4. POTENTIAL CONFLICTS. Competitive fishing conditions may eventually lead to gear and area conflicts as a large number of vessels compete for available TAC.

5. HIGH REGULATORY COSTS. Management and enforcement costs are unnecessarily high and are expected to increase under open access as the number of vessels increases and stricter management measures are needed to control excess fishing effort.

6. LOW MARKETING INCENTIVES. Efforts by fish dealers to augment consumer acceptance of wreckfish have been thwarted by short-run oversupply and lack of product continuity. The likelihood of additional harvest restrictions under open access increases uncertainty and instability and discourages long-run planning and investment by dealers.

Rejected Option For Action 1

Rejected Option 1. No Action.

Discussion

Problems exist in the wreckfish fishery. The no action option would not address these problems and was rejected by the Council.

D. FMP Objectives

The management objectives of the Snapper Grouper Fishery Management Plan as modified by Amendment 4 (SAFMC, 1991) are:

1. Prevent overfishing in all species by maintaining the spawning stock ratio (SSR) at or above target levels.

2. Collect necessary data to develop, monitor, and assess biological, economic, and social impacts of management measures designed to prevent overfishing, obtain desired SSR levels, and address the other stated problems.

3. Promote orderly utilization of the resource.

4. Provide for a flexible management system that minimizes regulatory delays while retaining substantial Council and public involvement in management decisions, and rapidly adapts to changes in resource abundance, new scientific information, and changes in fishing patterns among user groups.

5. Minimize habitat damage due to direct and indirect effects of recreational and commercial fishing activities.

6. Promote public comprehension of, voluntary compliance with, and enforcement of the management measures.

E. Objectives for Limited Entry

ACTION 2. OBJECTIVES FOR LIMITED ENTRY IN THE WRECKFISH FISHERY

1. Develop a mechanism to vest fishermen in the wreckfish fishery and create incentives for conservation and regulatory compliance whereby fishermen can realize potential long-run benefits from efforts to conserve and manage the wreckfish resource.

2. Provide a management regime which promotes stability and facilitates long-range planning and investment by harvesters and fish dealers while avoiding, where possible, the necessity for more stringent management measures and increasing management costs over time.

3. Develop a mechanism that allows the marketplace to drive harvest strategies and product forms in order to maintain product continuity and increase total producer and consumer benefits from the fishery.

4. Promote management regimes that minimize gear and area conflicts among fishermen.

5. Minimize the tendency for over-capitalization in the harvesting and processing/distribution sectors.

6. Provide a reasonable opportunity for fishermen to make adequate returns from commercial fishing by controlling entry so that returns are not regularly dissipated by open access, while also providing avenues for fishermen not initially included in the limited entry program to enter the program.

Although not an explicit objective at this time, the Council believes that portions or all of management and administrative costs should be recovered from those who hold individual quota shares in the wreckfish fishery, should recovery of those costs become permissible under future Magnuson Act (MFCMA) revisions. Those costs, or portions of them, would be recovered through such means as transfer fees or ad valorum taxes or other means available.

Rejected Option For Action 2

Rejected Option 1. No Action.

Discussion

The Council rejected the no action option in order to address the new problems by establishing a limited entry system.

II. DESCRIPTION OF FISHERY AND UTILIZATION PATTERNS

Amendment 3 (SAFMC, 1990b) and the Updated Source Document (SAFMC, in prep.) contain additional information on the fishery and utilization patterns.

A. Commercial Fishery (Ulrich and Sedberry, 1990)

"The southeastern fishery began in 1987 with two vessels landing wreckfish in South Carolina. These vessels fished two heavy duty, hydraulic reels spooled with $^1/_8$ inch cable and a terminal rig consisting of 50 pounds of weight and 8-12 large circle hooks baited with squid. Fishing occurred on an area of the Blake Plateau characterized by an extensive ridge having approximately 100 m of relief, in depths ranging from 450-600 m. Initial catch rates were impressive, ranging between 10-12 thousand pounds per 7-8 day trip. The fishery has expanded rapidly since 1987. In 1988 six vessels participated in the fishery and by 1989 twenty-five vessels were fishing for wreckfish. In early 1990 a commercial fisherman estimated that there were at least 40 boats participating in this fishery (P. Reese, *F/V Bold Venture*). (NOTE: The wreckfish review group report estimated 37 vessels in the fishery during January through March 1990; Merriner, 1990.)

During the first two years of the fishery, fishing was done from anchored vessels. Vessels were anchored over suitable habitat by deploying an anchor and approximately 1 mile of cable from a bow-mounted, longline spool. Recently, vessels have been fishing up to 4 reels using a technique known as motor-fishing. In motor fishing, the vessel makes enough headway to counteract the velocity of the surface current and maintains a relatively stable position while lowering and retrieving the fishing gear.

Vessels known to be participating in this fishery range from 44-76 feet in length. These vessels are converted snapper-grouper vessels ("bandit" and longline boats), shrimp trawlers, and swordfish vessels. Shrimp trawlers are expected to participate part-time (during closed seasons for shrimp). Swordfish vessels may also fall into the part-time category, alternating between the swordfish and wreckfish fisheries. Conversion costs to enter the wreckfish fishery are relatively low, at approximately $3,000 - 5,000, for a vessel with an existing hydraulic system. (NOTE: Cost and returns data indicate that the median cost to rig an average vessel that has an existing hydraulic

system with 3-4 reels is $12,000. The $3,000 to $5,000 estimate above is apparently on a per reel basis or reflects a point in time when vessels fished 1-2 reels; see Ulrich and Sedberry, 1990 and SAFMC, 1990b)

Vessel catch rates now range between 10 and 30 thousand pounds for a 7-8 day trip. (NOTE: Survey results indicate catch rates between 5 and 30 thousand pounds; see SAFMC, 1990b.) The present number of direct participants in this fishery is estimated to range between 125 and 175.

The fishing grounds comprise an area of the Blake Plateau of approximately 50-75 square nm, characterized by a rocky ridge system having a vertical relief of > 50 m and a slope of > 15 degrees (Figure 1). The depth range in this area is 450-600 m. The substrates in areas of the Blake Plateau exhibiting significant relief are generally characterized as composed of manganese-phosphate pavements, phosphorite slabs and coral banks (Pratt and McFarlin, 1966: Stetson et al, 1979). Bottom samples obtained from commercial fishermen indicate that wreckfish concentrations occur primarily on the manganese-phosphate bottoms. Prior observations from the research submersible, *Johnson Sea-Link I,* showed low densities of wreckfish associated with coral mounds or banks [C.A. Wenner, SCWMRD, pers. commun.] There has been some exploratory efforts by commercial vessels but most of the fishing effort occurs on the initially discovered grounds of the Hoyt Hill area. The limited exploratory work is understandable, as catch rates in the original area remain high. There is presently little incentive for fishermen to utilize potential fishing time for possibly unproductive searching."

Catch, Catch Per Unit Effort (CPUE) and Fleet Size (Merriner and Waugh, 1991)

"Monthly landings in 1990 exceeded those of record by a factor of 10 times for January through February, reflecting the continued rapid growth of the fishery and improved skills of the fleet (Table 1, Figures 2-4). The all time high monthly landings of 1.012 million pounds was taken in March in 79 trips. Landings in April through July continued at over 400,000 pounds from 50-70 trips per month.

From April 16 through July 31, 1990 a special survey for quota tracking of landings indicated 1,842,038 pounds were landed. The fishery was closed effective August 8, 1990 by action of the NMFS Regional Director. Season landings were 2,094,522 pounds based on the then used conversion factor of 1.18 (a gutted wreckfish weighs 18% less than before it was gutted, on average).

Monthly catches, preseason, ranged from 8-11,000 pounds per trip. Within the 1990 season, catches ranged from 6-9,000 pounds per trip. As in 1989 there was considerable variation among vessels. Much lower CPUEs were attributed to a learning curve for the new entries and part time (multi fishery) vessels. Effort exploded in 1990, up from 265 total trips in 1989 to 400 in 7 months of 1990. Catch rates by experienced full time wreckfish vessels in South Carolina and Florida do not show appreciable declines in catch per trip. At public hearings several comments also alluded to exploratory fishing trips which would tend to reduce catch per trip.

We note however that trip length varies considerably and some smaller vessels have limited hold capacity. We suggest that improved data from the log book in 1991 will allow refined comparison of fleet performance and use CPUE as a measure of stock abundance.

The fleet size has grown from 2 vessels in 1987 to an estimated 74 active vessels for 1990 although about 30 have reported most of the catch during the 1990-91 fishing year. North Carolina reports up to 9 new entries (gearing up) for 1991 but the South Carolina, Georgia and Florida fleets

may have peaked in 1990. The total fleet for 1991 is estimated at 83 vessels but the "core" of full time participants will be 50 or fewer.

Length frequency data from landed fish suggest some reduction in average size of fish landed (Figures 5-10). Annual changes in length frequency distribution from 1988 to 1990 (Figure 5) were not statistically different. Monthly changes in mean length and weight were noted in December through April for males and females (Figure 9); by mid-summer the mean sizes were back to earlier values. The fishery includes very few immature fish in the catches. Lengths of fish landed in North Carolina include smaller fish than the composite length frequency plots but the mode is very similar.

Wreckfish in the Hoyt Hills portion of the Blake Plateau have been fished by other fisheries. Fish regularly are found with smaller hooks present (at least two different types). One hook type has been reported from a Cuban hook and line fishery for Alfonsen (*Beryx splendens*) which takes place 400 miles east of Barbados on sea mounts. Some hooks are similar to those used in the Korean pelagic longline fishery in the Leeward Islands (Jim Beets, USVI, pers. commun.). In addition, similar hooks are used in the red porgy or sea bream fishery in the Azores."

B. Recreational Fishery (SAFMC, 1990b)

"The recreational fishery for wreckfish is relatively unknown and expected to be very small. Thus far the only reference to recreational fishing was a letter published in *Sport Fishing* discussing deep dropping for wreckfish in 700 feet of water off Norfolk, Virginia."

C. Status of the Stock

1) Background (Ulrich and Sedberry, 1990)

"The wreckfish (*Polyprion americanus*), has a wide geographic distribution but little is known of its biology and fisheries potential. Hardy (1978) reported the distribution of *Polyprion americanus* in the western Atlantic as extending from Grand Banks, Newfoundland to La Plata River, Argentina. The available literature consists primarily of occurrence records or behavioral observations (Roberts, 1977; Ryall and Hargrave, 1984; Schroeder, 1930), with limited life history data (Roberts, 1989). Wreckfish are pelagic for the first several years of their life (up to 30 cm length), often associated with floating debris (Roberts, 1989), the habit responsible for their common name. They grow to large size (100 kg weight, 2 m length), and are commercially fished in portions of their range (Roberts, 1989). The shallowest reported demersal populations of *Polyprion* in the western Atlantic were reported off Argentina in depths of 66-84 m (Menni and Lopez, 1979). The maximum reported depth for wreckfish is 1000 m (Lythgoe and Lythgoe, 1971). The presence of fishable concentrations of wreckfish in the northwestern Atlantic was unknown until 1987, when a fishery began to develop on the Blake Plateau, adjacent to South Carolina and Georgia."

2) Biology (Merriner and Waugh, 1991)

"The wreckfish, *Polyprion americanus*, is not well known from a life history perspective. The fishery is on a "local population" of a species whose range extends throughout the East-Western North Atlantic through the South Atlantic (Argentina) and into Australia and New Zealand waters. Sub-populations/stock boundaries have not been identified in the North Atlantic for *P. americanus*. Our fishery occurs on a spawning ground/locale and there are wreckfish available in this area year round, though fish smaller than 850 mm total length are rare in the fishery (= "local population"). Absence of the younger ages is perplexing since we do not know when and at what stages the fish change from a pelagic to demersal habitat. Most information describes the range of distribution for adults, eggs, larvae or juveniles; others deal with general reproduction, aging in disjunct areas and

systematics (Roberts, 1989). Biology of its southern hemisphere relative *P. oxygeneios* is better known though much of its biology is still subject to speculation."

a. Reproduction

"The spawning season of *P. americanus* extends from January to mid-April based upon microscopic and histological inspection of gonads. Input from fishermen cited spawning condition female fish in February - March (shedding eggs on deck). Description of seasonal gonad cycle and histology by the South Carolina Marine Resource Research Institute is shown in Figures 11-12. Gonad somatic indices show an obvious spawning peak January through March. Histological staging of females parallel these indices; males were in spawning stage through May. Fecundity samples have not been taken but should be a priority for 1991 (collection and processing). Roberts (1989) dispelled the notion of sex reversal (hermaphroditism) in *Polyprion*. The smallest mature female was 850 mm total length and the smallest mature male was 786 mm total length.

Fecundity estimates for *P. oxygeneios* range from 1.5×10^6 for 92 cm TL to 5.8×10^6 for 136 cm TL with first sexual maturity at 92 cm TL for males and 88 cm TL for females (Flores and Rojas, 1985)."

b. Growth

"Growth of *P. americanus* in the fishing area is under study by C. Manooch (Beaufort Lab, NMFS) using otoliths collected during 1988-90 by South Carolina and NMFS ESO personnel. A total of 505 otolith samples are on hand from fish 640-1,380 mm total length (Table 2). Of the 180 fish aged to date (640-998 mm TL) preliminary results (presumed ring = annulus) suggest 4 rings at 630 mm TL, 6 at 788 mm TL, 8 at 869 mm TL, 10 at 967 mm TL, 12 at 979 mm TL and unknown in the largest. These findings are similar to those for *P. oxygeneios* off Chile (Pavez and Oyarzun, 1985): "asymptotic length 176.14 cm for females and 144.87 cm for males...the critical age and length were 12.59 years, 115.7 cm for the females and 10.41 years, 95.5 cm for the males."

These data were from the Robinson Crusoe and Santa Clara Islands (Juan Fernandez Archipelago). Pizanno and Yanez (1985) estimated yield per recruit for *P. oxygeneios* and cited a size at first capture of 9 years. They proposed a moderate increase in fishing effort and expansion to deeper water."

c. Weight Conversions

"Data from South Carolina (Figures 13 and 14) provide information for converting from landed weight which is gutted to whole weight. During the quota tracking phase, a conversion of 1.18 was applied from the grouper fishery. All other data in Table 1 uses the conversion factor of 1.11 based on South Carolina data which should be representative of the entire fishery."

d. Migrations/Range

"The wreckfish aggregation in the known fishery area is atypical...in that the species is believed to be in low abundance over a worldwide-temperate geographic range. In the western Atlantic, wreckfish extend from Newfoundland to the LaPlata River, Argentina (Bigelow and Schroeder, 1953; Gilhen, 1986). Most records are rarity occurrence citations, no other northwest Atlantic "aggregation" phenomena like that which supports our fishery has been reported. Wreckfish

support small fisheries in Portugal and Spain in the eastern Atlantic and there are reported landings of under 10,000 pounds per year in Bermuda.

Young fish (juveniles) are associated with surface waters (floating logs or wreckage), intermediate sizes of 550-790 mm FL were taken off Argentina in depths of 66-84 m (Menni and Lopez, 1979) and large fish of 630-1,300 mm are taken in 550-915 m (1,800-3,000 ft) by U.S. fishermen.

Movements and stock structure within the Atlantic basin are open to speculation. Study of both topics is needed."

3) Optimum Yield (SAFMC, 1990b)

"Optimum yield (OY) is any harvest level for wreckfish which maintains, or is expected to maintain, over time, a survival rate of biomass into the stock of spawning age fish to achieve at least a 30% spawning stock biomass per recruit (SSBR) population level, relative to the SSBR that would occur with no fishing."

4) Definition of Overfishing (SAFMC, 1990b)

Overfishing for wreckfish is defined as follows:

1. Wreckfish are overfished when the stock is below the level of 30% of the spawning stock biomass per recruit which would occur in the absence of fishing.

2. When wreckfish are overfished, overfishing is defined as harvesting at a rate that is not consistent with a program that has been established to rebuild the stock or stock complex to the 30% spawning stock biomass per recruit level.

3. When wreckfish are not overfished, overfishing is defined as a harvesting rate that, if continued, would lead to a state of the stock or stock complex that would not at least allow a harvest of OY on a continuing basis.

5) Probable Future Conditions in the Fishery

The rapid development already exhibited by this fishery continues and may accelerate in the immediate future in the absence of effective management. Southeastern fishermen continue to seek diversification opportunities to alleviate problems experienced in fisheries for traditional species, such as user group conflicts, declining resources, and over-capitalization. Tilefish and sharks were viewed as possible alternative fisheries during the 1980s but their potential for filling this role is limited. The tilefish fishery underwent rapid development but the limited population was unable to withstand the heavy fishing pressure. Within three years average size of fish, landings, and CPUE

had dropped drastically. Increased markets and prices also attracted fishermen to shark fishing and landings increased substantially throughout the 1980s. A draft federal shark management plan seeks to cap regional commercial landings. If the plan is implemented in its present form, shark fishery expansion will be eliminated for the immediate future.

The stocks of wreckfish on the Blake Plateau currently appear to represent the most viable alternative fishery for demersal and pelagic longline vessels. A major increase in entrants to the wreckfish fishery occurred in 1990. If proposed limitations on the domestic swordfish fishery are implemented, this rapid escalation is expected to continue. There are presently 244 vessels in the southeast region licensed to fish for swordfish. Swordfish vessels displaced from that fishery could readily enter the wreckfish fishery.

The number of vessels and the total capacity of the wreckfish fleet exceeds that needed to harvest TAC now or the range of TACs the Council is likely to approve in the foreseeable future. Without limited entry, over-capacity is likely to become more problematic in the future. Measures to control harvest that have been imposed (TAC, gear restrictions, trip limits) and further measures that would likely be needed under continued open access (e.g., more gear restrictions, area and time restrictions, smaller trip limits, vessel capacity restrictions) drive up the cost of fishing and drive down potential producer and consumer benefits from the fishery.

There is no mechanism to compensate fishermen for short-run sacrifices in terms of reduced TAC in the short-run or restrictions on highly efficient gear that may jeopardize the wreckfish population in the future. Incentives to promote conservation and sustainable stock levels in the future are absent because, under open access, the benefits from doing so may be appropriated by other fishermen or new entrants.

Prices paid to wreckfish fishermen are low at times of short-run oversupply, and benefits derived from wreckfish harvest are considerably smaller than are potentially obtainable. The derby nature of TAC management exacerbates this problem by virtually forcing fishermen to fish when the season opens rather than when prices are expected to be higher or fishing costs are expected to be lower. The derby nature of the wreckfish fishery is encouraging fishermen to add harvest capacity to their present vessels or to purchase larger vessels in order to catch a larger share of TAC before the season closes. Increases in capacity on the vessel level are undertaken even when gains in production are marginal or economies of scale are not necessarily realized.

The 10,000 pound trip limit, designed to counteract short-run oversupply and low prices to fishermen that result from derby fishing, was not based on a market-driven mechanism. Although avoiding low prices to some degree by slowing down the overall harvest, trip limits introduce inefficiencies for larger vessels that would normally catch more than the trip limit of fish. In addition, trip limits typically increase fishing costs for all vessels because incentives to catch fish as fast as possible still exist and vessels normally attempt to decrease the time between trips or steam to

and from port faster than is efficient. A market driven management mechanism would allow fishermen to catch fish when it is potentially more profitable (during the legal fishing season), at the rate that is potentially more profitable, and in the manner that is potentially more profitable.

Under continued open access, derby fishing conditions may eventually lead to gear and area conflicts as a large number of vessels compete for the available TAC. Incentives for regulatory compliance are probably low. One reason is that fishermen are not vested with a long term stake in the future viability of the wreckfish fishery. Management and enforcement costs are expected to increase over time under open access as the number of vessels increases and more stringent management measures to control total fishing effort and gear or area conflicts are needed.

Efforts by fish houses to augment consumer acceptance of wreckfish have been thwarted by short-run oversupply and rapid harvest which has decreased the portion of the year when fresh wreckfish are available. At first, uncertainty over future availability of wreckfish in the absence of effective management decreased incentives for investing in long-run marketing and promotion of wreckfish. The potential for increased harvest restrictions under open access and continued entry into the fishery creates instability and discourages long-run planning and investment in processing and handling facilities by fish houses.

6) Present Research Activities (SAFMC, 1990b)

"Our present knowledge of wreckfish distribution and abundance in the southeast is based on information collected by South Carolina Wildlife and Marine Resources Department (SCWMRD) scientists, from commercial fishermen, and from two brief exploratory cruises on the *R/V Palmetto*. The SCWMRD is conducting fishery-dependent monitoring on the wreckfish fishery. Data collection elements from fishery-dependent and -independent efforts include: catch per effort statistics, size composition, scales and otoliths for aging, stomachs for food habit analysis and gonads for reproductive studies. Cooperating fishermen are landing small samples of ungutted fish to enable determination of sex ratios, reproductive stage and food habits. Samples collected by SCWMRD have allowed us to monitor length and weight frequency (Figures 5-8) of wreckfish landed in Charleston, SC. Mean lengths have not declined during this monitoring effort and length frequency is similar to that reported by Roberts (1989) for wreckfish from New Zealand.

Research cruises on the *R/V Palmetto* were conducted to confirm locations of commercial fishing effort and develop techniques for conducting fishery independent populations assessments. During the second cruise it was determined that concentrations of wreckfish are not limited to the steep slope (<15 degrees) habitats presently utilized by the commercial fishery but also occur on rocky slopes of <3 degrees of rise. Examination of NOS bathymetric charts indicates that substantial areas of potential habitat exist outside of the presently fished areas.

A wreckfish project has received Saltonstall-Kennedy funding for project year 1991. The project seeks to increase our understanding of the extent and range of the wreckfish resource on the Blake Plateau as well as to monitor more accurate indices of CPUE. Exploratory fishing under directed research conditions as well as observations from submersible equipment will be undertaken. Although management of wreckfish will ultimately benefit from increased biological information, the development of limited entry is not dependent on the results of the study."

7) Research and Management Needs (SAFMC, 1990b)

"Given the rapid development of this fishery, management agencies have little data on the available habitat, resource magnitude or biological parameters of the species on which to base management activities. The minimal support of management research to date appears to be related to the perception that the resource was very limited and the fishery would be short-lived. Sustained or increased CPUE, major increases in landings and size stability of landed fish indicates that the resource is larger than originally thought. There is, however, significant cause for concern about potential over-exploitation. Research to support management actions is needed to avoid a "boom and bust" scenario and realize the sustained fisheries potential of this resource. A primary need is to determine the magnitude of the resource by conducting a systematic survey of potential habitat areas identified from bathymetric data.

The effects of prior catches on local densities of wreckfish is unknown. Commercial fishermen have reported returning to a small area that they believed to be "fished out" (removals of 10,000 pounds in a 24 hour period) after two months and experience catch rates equal to previous rates (Captain P. Reese, *F/V Bold Venture*, pers. commun.). On areas of optimum habitat, fish may be recruited from marginal adjacent or distant habitats to "replace" those that were removed. An interesting observation lending support to this hypothesis is the capture of wreckfish with unusual hooks in their mouths or guts. The hooks have a flattened area on the shank that is used to secure the snelled monofilament gangion. Hooks of this type have not been used in the area where wreckfish were captured. These hooks are also smaller than would be used to capture fish as large as the average wreckfish. The origin of these hooks is unknown at this time, but their presence indicates substantial migratory behavior by at least some portions of the local stocks.

Biological data for western Atlantic stocks of wreckfish is non-existent. Information is needed on mortality and growth rates, reproductive biology, and stock identity. Required fisheries data includes; CPUE, landings and participation levels."

III. MANAGEMENT MEASURES

A. Introduction

At the March 1990 Council meeting, a control date for potential limited entry of March 28, 1990 was established in Amendment 3 to the Snapper Grouper Fishery Management Plan. The control date stipulates that anyone not having documented landings of wreckfish prior to March 28, 1990 is not guaranteed inclusion in the wreckfish limited entry program, should one be developed. The control date appeared in the September 24, 1990 Federal Register and the final rule to implement Amendment 3 was issued on January 23, 1991. It is the opinion of NOAA General Counsel that the publication date of a control date in the Federal Register becomes the earliest point in time that is the most legally defensible. For this reason, the effective control date for wreckfish limited entry was changed to September 24, 1990.

The formal decision to develop a limited entry system for the wreckfish fishery was made at the June 1990 Council meeting in Key West, Florida. The Wreckfish Limited Entry Committee met for the first time on October 30, 1990 in Wrightsville Beach, North Carolina. At the initial meeting, the committee considered ten proposed objectives for a wreckfish limited entry program. In

addition, the mechanics of different limited entry systems were examined, focussing on the ability of different forms of limited entry to accomplish the adopted objectives. Two economists from the SAFMC Scientific and Statistical Committee, the Snapper Grouper Advisory Panel, and a number of wreckfish industry participants were present at the session to offer theoretical and practical guidance.

The committee approved taking four limited entry systems to public scoping sessions, with a stated preference for the individual quota based systems (both transferable and non-transferable) over license limitation and income/production requirements. Although income/production requirements are not generally considered to be conventional limited entry tools, the intent was to consider restrictive income or production requirements which might effectively limit entry. For this reason, income and production requirements were grouped among conventional limited entry systems. Income and production are normally employed to determine permit eligibility in a way which is generally not considered to be limited entry.

For the preferred systems, the committee decided to present to the public a broad list of potential ways to implement those systems. Implementation steps included eligibility requirements, restrictions on ownership of percentage shares, initial allocation of percentage shares, requirements for use of individual quotas, and methods of allocating potentially larger TACs in the future. Alternatives for tracking/monitoring and transferring individual quotas were also presented at the scoping sessions. The only stated preference of the committee was that eligibility be based on documentation of wreckfish landings both prior to the control date and during the 1990 fishing season.

The committee's preference for basing eligibility on landings prior to the control date and during the 1990 season was based on the Magnuson Act limited entry criteria in §303(b)(6); specifically the provisions that historical dependence on and participation in the fishery be taken into account, and that present participation in the fishery also be given consideration. Requiring landings before the control date was to take into account historical participation, and requiring landings during the 1990 season to take into account present participation. As will be discussed under Action 5, a small number of individuals caught wreckfish as a bycatch of other fisheries, before a directed fishery developed. The committee felt that allowing those "historical" participants to be eligible for limited entry when, in some cases, they did not get involved in the directed fishery later on, would create inequities by increasing the pool of eligible participants. An increase in the number of eligible participants could potentially create hardships for the group of present participants in terms of smaller initial allocations.

A total of three public scoping sessions were held, the first in Jacksonville Beach, Florida (1/9/91), the second in Charleston, South Carolina (1/11/91), and the final one in Wilmington, North Carolina (1/15/91).

At the February 1991 Council meeting in Brunswick, Georgia, and the April 1991 meeting in Charleston, the Wreckfish Limited Entry Committee refined its preferences for wreckfish limited entry. At the February meeting, following an informal workshop by experts in the theory and application of different limited entry systems, the committee chose individual transferable quotas (ITQs) as the preferred alternative for wreckfish limited entry. The committee also selected preferred alternatives for implementation of an individual transferable quota system. In April 1991, the committee reviewed possible methods for tracking and monitoring individual quotas and provisions to make enforcement more effective. The Council approved Amendment 5 for public hearings in April 1991.

Public hearings on Amendment 5 were held in Wrightsville Beach, North Carolina (6/3/91), Charleston, South Carolina (6/4/91), and Jacksonville Beach, Florida (6/5/91). In addition, a public hearing was held in association with the June, 1991 Council meeting in Jacksonville Beach, Florida (6/27/91), and a public hearing of four modified/additional management measures was held in July in Charleston, South Carolina (7/23/91).

B. Limited Entry System for Wreckfish

Implementation of Individual Transferable Quotas

Implementation involves the specifics of how the individual transferable quota system will be put in place and operate. These specifics are important to individual fishermen because they will affect how the general benefits of limited entry will initially be divided among them. For managers, specific choices will affect the equitability and operation of the limited entry program.

ACTION 3. ESTABLISH AN INDIVIDUAL TRANSFERABLE QUOTA SYSTEM

A system of individual transferable quotas provides a mechanism that allows fishermen to fish when it is potentially more profitable, and in the manner that is most profitable. In contrast, under open access and TAC management, a fishing derby is typically created where fishermen are virtually forced to catch fish as fast as possible as soon as the fishing season opens without regard to prices or fishing costs, in order to get a share of the harvest before the TAC is met. The mechanism to allow fishermen the choice of when to fish is accomplished by dividing TAC into individual quotas that fishermen can harvest anytime during the fishing year, except during the spawning closure. Individual quotas are determined by percentage shares assigned to fishermen during the initial allocation that can be modified by trading among fishermen.

With individual transferable quotas, efficient use of capital and labor can be accomplished because business entities can sell, lease, or purchase portions or all of their shares to adjust to their existing capital holdings and other factors that influence the scale of individual operations. This mechanism has been successfully used in other fisheries around the world to address over-

capitalization and to avoid short-run oversupply problems inherent in competitive fishing under open access or license limitation. Over time, free market forces will encourage individual enterprises to minimize their costs of fishing and maximize the value of their catch. Percentage shares should eventually be transferred to enterprises that can fish at the least cost and produce the highest valued product.

Although not widely used to date in the U.S., individual quota based management has been used successfully in New Zealand and Australia to address problems inherent in open access management. Individual transferable quotas are presently being used in several Great Lakes fisheries and in the Mid-Atlantic surf clam and ocean quahog fishery.

In addition to addressing short-run oversupply and overcapitalization, individual quotas have been effectively used to create a stable management regime that allows for cost-effective, long-range planning for the harvesting and processing/distribution sectors. In fisheries managed with open access or license limitation, the need for increasingly restrictive management measures under derby fishing can make long-range planning difficult for fishermen and fish house owners because newly purchased gear may not be usable under new regulations, and competitive advantage has a very large influence on the quantity of fish that a fisherman or fish house will handle year to year. This variability in catch per vessel or per fish house can lead to under or overcapacity problems and inefficient use of capital goods such as vessels and unloading/processing facilities. The stability of knowing how much a business entity is likely to harvest on an annual basis with individual quotas allows businesses to undertake long-range planning to minimize production costs and promote efficiency for the scale of the individual share they control.

Rejected Options For Action 3

Rejected Option 1. Non-transferable individual quotas.

Non-transferable individual quotas can also be used to some degree to address problems created by short-run oversupply which can lead to low prices to fishermen under derby fishing. The individual quota aspect of a non-transferable individual quota system is essentially the same as that under individual transferable quotas in terms of providing a mechanism that allows fishermen to decide when to fish instead of virtually obligating all fishermen to fish when the season opens.

One drawback to non-transferable individual quotas is that the same flexibility is not available to fishermen to apply efficiently the right kind and amount of fixed capital goods (size of vessel, hauling and catching capacity, etc.) to the size of their percentage shares. With individual transferable quotas, a fisherman can adjust his percentage share or the amount of individual quota he possesses to his existing capital holdings. This allows for efficiency adjustments with minimal difficulty. With non-transferable quotas, fishermen must change their fixed capital holdings to match the size of their shares. This is usually more expensive and in some cases, nearly impossible.

For instance, a fisherman with a large vessel may be granted a small allocation by the initial allocation formula because he entered the fishery relatively recently and had a relatively small catch history. That allocation may not be adequate to meet even the variable costs of fishing with his existing vessel. That fisherman must either forfeit the small allocation (which he cannot sell because of non-transferability) or undertake the difficult and risky venture of selling his present vessel and purchasing a smaller vessel that may be able to fish the small allocation profitably. The same problem arises with allocations that are too large for small operations. In general, transferability allows for smooth adjustments in allocations to desired levels of production while non-transferability does not.

Under non-transferable individual quotas, nearly the exact amount has to be allocated to fishing firms at the outset for efficiency to be attained, and an allocation of that sort would be difficult to calculate and promulgate. Another drawback to non-transferability is that transfers between fishing generations involve revisiting the initial allocation process which is burdensome for management and frequently controversial. With transferability, individual quotas are handled like any other asset that can be transferred to the next fishing generation through the usual process of inheritance. In this way, a fisherman can retire knowing that his share will be conveyed to someone of his choosing, whereas under non-transferability, there is usually no reasonable guarantee that this will occur.

Rejected Option 2. License limitation.

Short-run oversupply and over-capitalization have been recurring problems in both open access fisheries and fisheries under license limitation. Even when the number of participants in the harvesting sector is effectively limited by license limitation, experience has shown that markets can still be flooded by rapid harvest because no mechanism exists to allow fishermen to catch fish when doing so is optimal from an economic standpoint. In addition, participants have large incentives to increase harvesting capacity over time in the form of larger vessels, greater horsepower and hauling capacity, more crew members, larger nets or more hooks, new gears that catch more rapidly, incentives to fish in inclement weather, etc.

Perhaps the most extensive experience with license limitation in the United States has been in Alaska. Legislative mandate for state waters fisheries in Alaska stipulates that license limitation is the only permissible form of limited entry. Because separate license limitation programs are promulgated by area, gear type, and species, there are approximately 60 different license limitation programs listed in the Alaska Commercial Fisheries Entry Commission regulation handbook for 1989 (State of Alaska, 1989). An in-depth study of the efficiency in those fisheries concludes that despite far-reaching measures to control inputs to avoid over-capitalization or "capital stuffing" where vessels add capacity under a constrained derby fishery, average vessel size and capacity has

steadily increased in nearly all fisheries managed under license limitation in Alaska (Schelle and Muse, 1986).

License limitation programs frequently require continual modification to defeat attempts to catch fish faster. These take the form of mandatory layovers, limits on the number of trips per period, staggered starts, and other non market-based attempts to slow down harvest. Even when pounds per trip limitations (trip limits) are used, experience has shown that fishermen respond by adopting gears and techniques that increase the rate at which the trip limit quantity of fish is harvested and by decreasing the layover time between trips. Under trip limits, boat maintenance and crew rest are frequently ignored until after the season is closed. This has led to potential vessel safety problems, while accomplishing only small gains in terms of slowing down the harvest.

For these reasons, license limitation is not thought to be adequate to accomplish all of the stated objectives for wreckfish limited entry. Specifically, Wreckfish Limited Entry Objectives 2, 3, and 5 are not likely to be accomplished with license limitation. Those objectives address avoiding the need for stricter management measures over time, maintenance of product continuity, and prevention of the tendency toward over-capitalization.

Rejected Option 3. Income or production requirements.

There is little evidence to suggest that income or production requirements would limit entry to the wreckfish fishery to any substantial degree because, according to an informal survey of the wreckfish fleet, wreckfish fishermen are typically full time fishermen earning close to 100% of their income from commercial fishing, and wreckfish makes up a substantial percentage of their total annual fish harvest (by either weight or value). For this reason, income or production requirements cannot be used to limit entry or accomplish the objectives of limited entry. One speaker at the scoping sessions pointed out that if the required percentage of wreckfish to all fishery products was high, then shrimp boats might be effectively kept out of the wreckfish fishery. Because there are probably already too many vessels that target wreckfish without counting shrimp boats, percentage product requirements would probably not effectively control access to the wreckfish fishery in accordance with stated objectives.

ACTION 4. LONG TERM RIGHTS

Convey rights of indefinite duration which can be revoked for either non-compliance or a future Council decision to modify or revoke these rights. Revocation or modification of the individual transferable quota program would, however, involve the plan amendment process and approval by the Secretary of Commerce.

Discussion

It has been suggested that rights granted under an individual transferable quota system should be of some limited duration rather than for an indefinite duration. It should be noted, however, that some of the benefits expected to be created through ITQs depend on the long term vesting of fishermen in the fishery. If rights are expressly granted for relatively short durations, then benefits from vesting are expected to decrease. In addition, the time consuming and difficult process of allocation (such as will be necessary for the initial allocation of percentage shares) would need to be undertaken each time the specified period of time elapses. Making allocations in the future would not necessarily be problematic, however, if future changes to the Magnuson Act allow allocation by auction or lottery. A defined duration is expected to make percentage shares trade poorly among fishermen and this would, in turn, influence the degree to which problems of over-capitalization are addressed.

Rejected Option for Action 4

Rejected Option 1. Convey rights as time grants such as:

i. Twenty year grant subject to renewal after 15 years; renewal subject to compliance and Council reissuing ITQ program.

ii. Fifteen year grant subject to renewal after 10 years; renewal subject to compliance and Council reissuing ITQ program.

Discussion

Limiting the duration of rights at the outset might facilitate reconsideration of the individual transferable quota program based on its ability to accomplish the stated objectives. Given that this is the first experience with limited entry on the part of the South Atlantic Council, there is perhaps some merit to this approach. The Council recognizes, however, that the amendment process would allow modification or dissolution of the program if it were deemed that the stated objectives were not being accomplished even if rights were originally granted on an indefinite basis. For this reason, granting rights as time grants was not preferable to granting rights of indefinite duration.

ACTION 5. INITIAL ELIGIBILITY

Include those who can document wreckfish landings during the period beginning January 1, 1989 and ending September 24, 1990 (the effective control date). In addition, the applicant must be able to document having landed at least an aggregate of 5,000 pounds (dressed weight) of wreckfish between January 1, 1987 and September 24, 1990.

Discussion

The above eligibility formula was derived in the following manner. Embracing the Magnuson Act criteria for establishing limited entry in §303(b)(6), the Council decided to base

eligibility for the ITQ program in the wreckfish fishery on both historical and present participation. Historical participation was defined as having landed wreckfish prior to the September 24, 1990 control date. Yet according to public comment, direct application of the control date would have made a number of fishermen who are no longer active or, in some cases, have never really been active in the directed fishery eligible for the ITQ program because they landed wreckfish incidentally as a bycatch of other fisheries. These bycatches occurred before there was a directed fishery for wreckfish. The exact number of fishermen in this category is not known but expected to be small. The Council did not believe that making these individuals eligible for an initial allocation was fair to those who caught wreckfish before the control date and have continued to be active in the directed fishery because this would effectively reduce allocations to active participants. The Council thus decided to balance historical participation against recent participation in a way that includes recent participants as well as early participants as long as they have remained reasonably active in the fishery.

Participation in the wreckfish fishery in 1991 was not used as a measure of current participation because, at the advice of a workshop panel of limited entry experts (February 1991 meeting in Brunswick, Georgia), eligibility criteria should not be based on anything that those who are potentially eligible can do in the future to become eligible. In other words, if having wreckfish landings during the current (1991) season were part of the eligibility criteria, then a potential flood of speculative entrants seeking an initial allocation (in order to sell that allocation immediately, in some cases) might have occurred. To avoid the potential problem identified by the workshop panel, the Council decided to define present participation as having landed wreckfish during at least one the last two (completed) fishing seasons.

The additional 5,000 pound aggregate minimum wreckfish landings 1987-1990 was incorporated into the eligibility formula because public comment indicated that a small number of individuals who landed wreckfish in either 1989 or 1990 made only one trip or a partial trip to try wreckfish fishing and never made another trip. The Council did not want to award an initial allocation to those who are not really in the wreckfish fishery. Those who experimented with the fishery and made only one abbreviated trip would have received nearly the same initial allocation (see initial allocation formula, Action 6) as someone who entered the fishery relatively recently, but stayed in the fishery and made a number of trips.

The 5,000 pound threshold was not arrived at arbitrarily; it represents one-half of the present trip limit quantity (roughly 5-7 days of fishing based on average fishing conditions). Comment from wreckfish fishermen attending public hearings indicated that anyone catching less than that quantity did not make a legitimate effort to fish for wreckfish. The rationale of the Council here is to limit initial eligibility to those who are truly wreckfish fishermen, in order not to inflate the number who are eligible. If the number of eligible fishermen were inflated, initial percentage shares would be

smaller than if only the core wreckfish participants were included. This would create a feeling among fishermen that the new system was unfair, which could increase noncompliance. With the combined effects of the formulas for eligibility and initial allocation (see Action 6), the Council believes that if initial individual quotas translate into grossly smaller catches for wreckfish fishermen under ITQs, this would be due to smaller TACs than in past years, not because shares were small because the number of fishermen eligible for initial shares was inflated.

Applications for initial allocations of percentage shares will require documentation of quantities of wreckfish landed and documentation will be the responsibility of fishermen who apply for the limited entry program. Written documentation is required such as fish house receipts in conjunction with a signed copy of the revenues from fishing portion of federal tax returns (normally Schedule C or F for single proprietorships), or copies of dealer records that identify the individual or vessel wreckfish was purchased from. Sworn affidavits attesting to the accuracy and authenticity of dealer records will have to be provided, and a signed copy of the revenues from fishing portion of the applicant's federal tax returns must also accompany dealer records and sworn affidavits.

To the greatest extent possible, official landings records on an individual vessel basis, total official landings per fish house, and other information will be used to verify evidence submitted.

Rejected Options for Action 5

Rejected Option 1. Include those who qualify for the March 28, 1990 (former) control date.

Discussion

Use of March 28, 1990 as a control date would reduce the number of eligible applicants and mean that the initial allocation of percentage shares would give larger shares to eligible participants. NOAA General Counsel, however, interprets recent decisions involving control dates to mean that the Federal Register publication date of the proposed control date is the most defensible point in time that can be used as a control date, so March 28,1990 was rejected by the Council.

In addition, public comment has emphasized that the original March 28, 1990 control date was set rapidly and apparently was not well known or understood by some members of the wreckfish industry. Some fisherman claim that they rigged up and began fishing for wreckfish just after the former (March 28, 1990) control date without knowledge of its existence. Other fishermen claim that they could have landed wreckfish before that date but decided to add safety equipment to their vessels before beginning to fish for wreckfish, which resulted in their landing wreckfish after the control date. According to public comment, virtually all wreckfish fishermen who would have failed to be eligible under the March 28, 1990 (former) control date are eligible under the September 24, 1990 control date.

Rejected Option 2. Include those with documented landings prior to the September 24, 1990 control date.

Discussion

Although similar to the preferred alternative, the Council rejected this option because it does not include a measure for making sure participants have remained active in the fishery. Under this option, a fisherman who could prove that he landed some wreckfish years ago as a bycatch of another fishery, prior to the development of a directed fishery, would be eligible. Under this scenario, more fishermen who were never really in the fishery would receive an initial allocation. This would dilute initial percentage shares and require more trading initially for fishermen to have enough wreckfish for a viable commercial operation.

Rejected Option 3. Include everyone who has purchased wreckfish gear.

Discussion

Under this scenario, more fishermen would qualify for an initial allocation, and if purchasing gear were loosely defined, then a virtual flood of applicants could occur. This would dilute initial percentage shares and require more initial trading to ensure a viable commercial operation. For this reason, this option was rejected by the Council.

Rejected Option 4. Include everyone who has documented wreckfish landings.

Discussion

The Council rejected this option because it does not include a measure of current participation in the fishery. This means that many more fishermen who could prove that they landed some wreckfish years ago as a bycatch of another fishery, prior to the development of a directed fishery, would be eligible. Under this scenario, some fishermen who were never really in the fishery would receive an initial allocation. This would dilute initial percentage shares and require more initial trading.

Rejected Option 5. Include everyone who has a wreckfish permit issued for the 1991 season.

Discussion

Approximately 85 vessel owners obtained permits to fish for wreckfish in 1991. Some of these had not been in the fishery before the fishing season closed in 1990. In addition, some fishermen who were in the fishery in 1990 and prior years opted not to fish in 1991 because of the projected large number of boats in the fishery, the relatively small TAC, and the perception that prices would be low under the open-access, derby fishery. As the formula for eligibility evolved in Council proceedings, and at the advice of the limited entry expert panel, participation in 1991 was not to have any bearing on future eligibility under limited entry, so some of these wreckfish

fishermen may not have fished or obtained permits for 1991. The exact number of fishermen in this situation is not known but is thought to be small.

In addition, there may be a few fishermen who were active in the fishery through 1990, but did not obtain a permit for 1991 because their vessel was lost during the 1990 season. According to public comment, there are two fishermen in this situation and both have large catch histories from 1987 to 1990.

A small number of individuals apparently began to fish for wreckfish for the first time in 1991, despite the fact that it was widely known by then that limited entry was being promulgated and that they would not likely be eligible. These individuals would be eligible under this option, but are not eligible under the preferred alternative. The Council has rejected their argument that they did not enter the fishery in 1990 because they did not have wreckfish reels, but had them on order. The wreckfish Advisory Panel and public comment from the industry in general disputed the "reels on order" claim, pointing out that although one reel manufacturer may have been temporarily unable to meet his orders, other manufacturers had reels in stock. In addition, many fishermen point out that they were able to build their own reels and that building one's own reels was a viable option for individuals who say they did not enter the fishery because they could not obtain wreckfish reels.

Rejected Option 6. Include anyone who wants to be part of the limited entry program.

Discussion

The Council rejected this option because it would dilute initial percentage shares greatly and require more trading initially for fishermen to have enough wreckfish. Shares would be given to people who have no intent to fish for wreckfish, and never incurred the expense of gearing up for the fishery. Some of these people would be able to realize gains from selling their shares with little or no investment needed to get the shares they would sell. Those seriously interested in fishing would have to pay more initially to get enough individual quota to fish in the fishery.

Rejected Option 7. Include those with documented wreckfish landings prior to the August 8, 1990 closure when the TAC was met.

Discussion

Similar to Rejected Option 2, this eligibility requirement was rejected because it does not include a measure of current participation in the fishery. This means that many more fishermen who could prove that they landed some wreckfish years ago as a bycatch of another fishery, prior to the development of a directed fishery, would be eligible. Under this scenario, some fishermen who were never really in the fishery would receive an initial allocation. This would dilute initial percentage shares and require more trading initially for fishermen to have a viable operation.

Rejected Option 8. Include those who can document wreckfish landings during the legal 1990 season and prior to September 24, 1990.

Discussion

This option was the preferred alternative until the Council became aware that requiring participation in 1990 eliminated some recent and historical participants, particularly fishermen who fished in 1989 and are fishing for wreckfish this year but were not able to fish during 1990 because of vessel breakdowns, etc. The Council felt that these individuals had demonstrated that they were committed to wreckfish fishing but were unable to fish in 1990 due to extenuating circumstances. In addition, this option was rejected because it did not include a minimum quantity provision.

Rejected Option 9. Include the first 20 boats that qualify for the March 28, 1990 control date; first 20 chronologically, skipping those who do not wish to participate.

Discussion

This alternative is the most restrictive in terms of the number of individuals that would be eligible to receive an initial percentage share. This option was rejected by the Council because some long time participants who are also currently in the fishery would not be given a percentage share under this alternative, which was not considered to be fair.

Rejected Option 10. In addition to the eligibility requirements of the preferred alternative, only applicants who are currently fishing wreckfish are eligible.

Discussion

Participation in 1991 was not used as a measure of current participation, at the advice of a workshop panel of limited entry experts (February 1991 meeting in Brunswick, Georgia) because eligibility criteria should not include anything that those who are potentially eligible can do in the future to become eligible. To avoid the potential problem identified by the workshop panel, the Council decided to define recent participation as participation during the last two (completed) fishing seasons.

ACTION 6. DISTRIBUTION OF INITIAL ALLOCATION

Divide one-half of the 100 available shares equally among eligible participants; the remaining 50 shares will be divided based on participants' percentages of total wreckfish catch between January 1, 1987 and August 8, 1990. The formula for the weighted portion of the initial allocation for an individual is: participant's total documented wreckfish catch 1987-1990 divided by total wreckfish catch 1987-1990, as determined by fish house receipts and dealer records with affidavits submitted, not official landings data.

Discussion

The preferred initial allocation formula is designed to strike a balance between rewarding the early participants in the wreckfish fishery who have remained active with larger percentage shares than later entrants because early participants should generally have larger overall catches. At the same time, the Council intends to give newer participants a chance to participate in the wreckfish fishery via the portion of the formula granting equal shares. Through the combined effects of the eligibility and initial allocation measures, along with further limitations on the relative size of percentage shares initially allocated to an individual or business entity (see Action 11), the Council has attempted to balance the historical and recent participation in a way which will be fair to both groups.

Applications for initial allocations of percentage shares will require documentation of quantities of wreckfish landed and documentation will be the responsibility of fishermen who apply for the limited entry program. Written documentation is required such as fish house receipts in conjunction with a signed copy of the revenues from fishing portion of federal tax returns (normally Schedule C or F for single proprietorships), or copies of dealer records that identify the individual or vessel wreckfish was purchased from. Sworn affidavits attesting to the accuracy and authenticity of dealer records will have to be provided, and a signed copy of the revenues from fishing portion of the applicant's federal tax returns must also accompany dealer records and sworn affidavits.

To the greatest extent possible, official landings records on an individual vessel basis, total official landings per fish house, and other information will be used to verify evidence submitted.

Rejected Options for Action 6

Rejected Option 1. Divide TAC into equal initial percentage shares among eligible participants.

Discussion

Equal initial allocations puts someone who entered the fishery in 1990 on the same footing as those who began fishing in 1987 and remained active in the fishery. In theory, those who began fishing at the beginning invested more time and money developing and modifying the gear, refining fishing techniques, and finding areas that tend to hold wreckfish concentrations, and shouldered more financial risk. The preferred initial allocation formula seeks to reward early participants, to some degree, in proportion to the quantity of wreckfish they can document having landed. This option was rejected by the Council because it would reward all eligible fishermen with equal percentage shares from the initial allocation.

Rejected Option 2. Initial allocation based on percentage of documented landings from 1987 to 1990.

Discussion

This option was rejected by the Council because it bases the initial allocation completely on catch history from 1987 to 1990. Under this option, applicants who can document large catches of wreckfish would get large initial percentage shares, while those who entered in 1990 would get very small initial percentage shares which might not allow them a fair chance to remain in the fishery.

Rejected Option 3. Divide TAC using a formula that weights previous landings (allowing fishermen to drop bad years, etc.), vessel size, capacity, and other factors.

Discussion

This basic approach was used in the initial allocation of percentage shares for the Mid Atlantic surf clam ITQ program. An allocation formula in which fishermen can drop one or more years when their catches were low is more relevant where catch histories involve a greater number of years. A formula which considers vessel size or capacity as well as catch history would tend to give some preference to those who have invested more in fishing. At this time, there is no way to determine whether this would favor newer entrants or long term participants in the wreckfish fishery and was rejected by the Council.

Rejected Option 4. Weighted formula based on production history, debt service, length/capacity of vessel, length of time in the fishery.

Discussion

Depending on the relative weights put on different factors in this formula, the outcome of an initial allocation could be quite different from that of the preferred alternative. At this time, it is not possible to estimate whether those who entered the fishery recently would fare better under this alternative than under the preferred alternative and was rejected by the Council.

Rejected Option 5. Weight either recent or earlier landings more heavily than the preferred alternative.

Weighting either earlier landings or recent landings more heavily could have been used as a method of structuring the initial allocation to favor earlier or later participation in the fishery. The Council rejected this approach because the preferred alternative appeared to be the fairest balance between rewarding early participants and giving newer entrants a chance to remain in the fishery.

ACTION 7. TRANSFER

Allow sale of percentage shares to anyone. Sale or lease of individual quota or portions of it can be to shareholders only.

Discussion

The concept of transfer incorporates sale of all, or a portion of, percentage shares and sale or lease of all, or a portion of, individual quota. Percentage share transactions will require official recording before they become final (see Action 14). Sale or lease of individual quota is accomplished by selling or leasing individual quota coupons for the quantity of wreckfish denominated by the face value of the coupons. Individual quota transactions will require that both the seller/lessor and buyer/lessee sign the designated transfer endorsement portion of coupons that are sold or leased. A buyer of individual quota will be responsible for writing his permit number in space provided (see Action 13). To buy individual quota, a fishermen must hold a percentage share in the ITQ program, which means he will be one of the original eligible wreckfish fishermen, or he will have to purchase at least some portion of a percentage share from an individual in the program to be eligible to buy individual quota. The Council believes that restricting the sale of individual quota to vested shareholders will increase incentives for compliance and simplify monitoring and enforcement of the ITQ program.

Rejected Options for Action 7

Rejected Option 1. Percentage shares may be sold to anyone; individual quota may be sold or leased to anyone, whether they hold a percentage share or not.

Discussion

Completely unrestricted transfer allows the market mechanism inherent in ITQs to work unimpeded, and to some degree this would facilitate accomplishing the stated objectives more than the preferred alternative. Given the potential problems of "quota busting" (exceeding individual quotas) and non-reporting of catch, however, the Council feels that it is better to restrict trading slightly rather than to allow for non-vested fishermen (fishermen who do not hold percentage shares) to harvest wreckfish. The Council has incorporated provisions to recommend forfeitures of percentage shares for non-compliance as a method of making the ITQ program successful. Fishermen who do not hold shares which are ultimately subject to forfeiture do not have the same incentives to comply as vested fishermen and the Council feels this is both unwise and unfair to vested fishermen. Although trading is somewhat constrained by this provision, non-shareholders who want to fish for wreckfish and who do not wish to or are not able to purchase sizable shares, can probably purchase portions of shares at potentially less cost and then buy or lease individual quota. No restrictions have been placed on the minimum size of shares at this time.

Rejected Option 2. Sale or lease of percentage shares or individual quota is subject to management approval which may require an "intent to use" clause, an explanation for the sale or lease, and review by a management committee and/or peer review committee.

Discussion

Some ITQ programs, such as the Wisconsin Chub ITQ program, subject transfers to management approval. In Wisconsin, this rule is used as a *de facto* provision to prevent percentage shares from being purchased by outside entities, i.e., fishermen or investors who are not part of the original program. Although there is often public support for restrictions of this sort, the Council rejected this alternative because it would diminish the benefits to be obtained from ITQs by restricting market forces and prevent the flow of fishing rights to those with lower fishing costs or the ability to produce a higher value product.

Rejected Option 3. Only allow sale of percentage shares among legitimate fishing operations.

Discussion

This alternative was rejected because although the wreckfish harvesting sector is made up primarily of owner/operators, to some degree investors are already an integral part of the wreckfish industry. Although public opinion sometimes scorns the involvement of investors in the fishing industry, investors play an important role in providing investment capital, particularly in larger scale fisheries such as the wreckfish fishery. The Council is aware that individuals who have never been fishermen have invested in vessels and gear for wreckfish fishing, before ITQ management was even contemplated. Restricting percentage share sales to what are deemed legitimate fishing operations would attempt to restrict the influx of investors, and this would be an attempt to make the industry, under ITQ management, something that is was not under open access. The Council rejected this alternative because it would serve to constrain free market forces and diminish the benefits from ITQs.

Rejected Option 4. Percentage shares or individual quota may be sold or leased subject to a maximum price thought to compensate individuals for gear expenditure.

Discussion

This option was rejected because it would constrain free market forces and reduce benefits from ITQs. If the sale price of percent shares is capped at a value thought to be compensatory for expenditures to rig vessels, then fishermen will likely refuse to sell percentage shares (preventing the flow of access to those with low fishing costs or the ability to produce a higher valued product). Alternatively, a black market or similar device will evolve where shares are exchanged for a price closer to their fair market value.

Rejected Option 5. Percentage shares or individual quota may be sold or leased only after the first year. Fishing firms which do not harvest their individual quota in the first year forfeit their percentages share back to the management program.

Discussion

This provision attempts to prevent those who receive a percentage share from immediately selling that share. In effect, however, the outcome of this provision would be that fishing firms that would normally find it more profitable to sell their shares immediately because they no longer intend to stay in the wreckfish fishery, will incur further expenditures to fish their share minimally in the first year and then sell it the next year. This option was rejected because it encourages inefficiency as a response to the requirement that fishermen fish their individual quota the first year. Overall, this provision would serve to diminish the benefits to be obtained from the ITQ program.

ACTION 8. ASSIGNMENT OF INITIAL ALLOCATION

The initial allocation of percentage shares will be to vessel owners. The portion of an individual's share that is based on catch history can be from separate vessels owned by an individual during the 1987-1990 period, provided adequate documentation of landings and vessel ownership during the 1987-1990 period is submitted.

Discussion

There has been considerable discussion over whether initial allocations of individual quotas should be made to vessel owners only, or vessel owners, vessel captains who are not vessel owners, fish house owners, etc. The majority of comments addressing this issue at the public scoping sessions and public hearings endorsed initial allocations of percentage shares to vessel owners. Part of the rationale for this was, as a practical matter, any system whereby owners and non-owners could apply for initial allocations would lead to double counting of past catches. Public comment also stressed that vessel owners have shouldered the financial risks of wreckfish fishing, and are therefore entitled to initial allocations. Captains who worked for a vessel owner can, by virtue of the value of the service they performed for the vessel owner, continue to receive fair compensation from the vessel owner, just as they would if limited entry were not created. The wreckfish industry panel at the February 1991 Council meeting in Brunswick, Georgia also endorsed initial allocation to vessel owners as the only equitable and practical means of executing the initial allocation. The industry panel was composed of wreckfish fishermen and dealers.

In cases where a vessel with a wreckfish catch history has been sold, the owner during the time upon which the initial allocation is based is eligible to submit for an initial allocation. If the terms of the sale of the vessel did not specify the disposition of future percentage share allocations, then that is a matter to be resolved between the seller and the buyer.

Rejected Options for Action 8

Rejected Option 1. Percentage shares will be initially allocated to vessel owners, captains who are not vessel owners, fish houses, etc.

Discussion

If captains who are not vessel owners are allowed to submit for an initial allocation, then wreckfish landings may be counted twice in the initial allocation because the vessel owner and vessel captain (when they are not the same person) may submit duplicate records for the same wreckfish catch history. One reason this option was rejected is because it would introduce an element of confusion into the allocation process. The most important reason this alternative was rejected is because vessel owners ultimately undertook the financial risk of wreckfish fishing and thus are believed to be more entitled. Captains who worked for a vessel owner can, by virtue of the value of the service they performed for the vessel owner, continue to receive fair compensation from the vessel owner, just as they would if ITQs were not created. If a vessel owner explicitly wants his initial allocation percentage shares to go to the captain who worked for him, then the vessel owner must apply for the percentage shares which can then be transferred through the recording system for percentage share transfers (see Action 14).

The intent of the Council is to give initial allocations to those who shouldered the financial risks of wreckfish fishing. In most cases, this will mean that wreckfish captains will qualify for initial allocations because the industry is made up primarily of owner/operators. Fish house owners who own vessels that landed wreckfish under the eligibility requirements can also apply for an initial allocation. Overall, qualification to receive an initial allocation is not determined by one's occupation, but by whether or not they owned a vessel that landed wreckfish during the prescribed period, and hence took the financial risks involved in getting into the fishery.

Rejected Option 2. Allocate percentage shares to vessel owners or captains who must be present during harvest operations; the person receiving an allocation must be present.

Discussion

This option intends to make sure that initial allocations go to fishermen, not investors, or vessel owners who are not captains. It was rejected by the Council, however, because requiring the person receiving an initial allocation to be present during the harvesting activities would introduce a large departure from the present way in which the wreckfish industry functions. Some vessel owners currently hire captains to work for them and have done so from the outset of their involvement in the fishery. The Council did not want to impose a restriction on the way the wreckfish industry operates under ITQs that differed from the way the industry operated prior to ITQ management.

The intent of the Council is to give initial allocations to those who shouldered the financial risks of wreckfish fishing. In most cases, this will mean that wreckfish captains will qualify for initial allocations because the industry is made up primarily of owner/operators. Overall, qualification to receive an initial allocation is not determined by one's occupation, but by whether or not they owned a vessel that landed wreckfish during the prescribed period, and hence took the financial risks involved in getting into the fishery.

ACTION 9. NO DIRECT USE REQUIREMENT

Individual quota not in direct use by the owner of the corresponding percentage share does not have to be sold and will not revert to the management program. The Council will monitor the use of individual quota over time and may take steps to require direct use in the future, if absentee ownership or other potential problems arise.

Discussion

The Council believes that to accomplish the stated objectives of wreckfish limited entry, individual quota and ultimately percentage shares held by individuals should be treated as "pure" assets to the greatest extent possible, to be handled in the manner of the owners choice. Accordingly, those who receive initial allocations merit them because they meet the eligibility requirements, and thus can reap the benefits by either fishing for their individual quotas, selling their percentage shares, or selling individual quotas in years when that decision makes better economic sense. The Council also recognizes, however, that use requirements might be necessary in extreme cases where a large portion of percentage share holders continually sell their individual quotas each year but retain their percentage shares. The Council prefers to monitor this situation via the sale endorsement portion of individual quota coupons (see Action 14), advice from the Advisory Panel and other public comment, and consider measures to require direct use if future situations warrant them.

Rejected Options for Action 9

Rejected Option 1. An individual quota or at least 50% of it must be used by the person or business entity owning it at least once in every three year period. If more than 50% of an individual quotas is leased, loaned, or sold for three consecutive years, then the individual's or business entity's percentage share must be sold or it will revert back to the to the management program for redistribution.

Discussion

The intent of this rejected alternative was to prevent "absentee ownership" of percentage shares in the ITQ program. Proponents of use requirements feel that portions of the resource will either remain idle or that many individuals will sell, lease, or loan their individual quota over a

number of consecutive years while retaining their percentage shares. From a personal financial standpoint, or from the perspective of obtaining the largest potential benefits from the ITQ program, the decision to sell individual quota rather than fish for it sometimes makes more sense. The Council rejected this option in favor of no restrictions on use at this time because restrictions could potentially force individuals into actions to preserve their percentage share that do not make good economic sense and hence violate the objectives of the ITQ program. One such action would be to use a vessel that is no longer suitable or safe for wreckfish fishing just to avoid forfeiture of a percentage share. That action involves economically unsound behavior, and goes against the objectives of this amendment.

In an extreme case, however, if a large portion of all individual quota is sold, loaned, or leased each year by those who own the percentage shares, then absentee ownership might be construed to be a problem. The more likely scenario, however, is that some individuals will opt not to catch their individual quota and will sell, lease, or loan it some years or every year and retain their percentage share. The majority, however, will decide to fish for their individual quota or eventually sell their percentage share. Recognizing the difference between the extreme case and the more likely scenario, the Council decided it would be more prudent to monitor this situation via the sale endorsement portion of individual quota coupons (see Action 14), advice from the Advisory Panel, and other public comment, and consider measures to require direct use if future situations warrant them.

As for the argument that wreckfish allocations may potentially remain idle as has been the case for some shellfish leases in state waters, the Council believes that wreckfish quotas are valuable assets that are not likely to remain unused. The Council intends, however, to monitor the use of individual quota each year to ensure that it is not remaining idle, and will take steps to modify the program if substantial portions of the TAC are not being harvested over time.

Rejected Option 2. Individual quotas not in use for __ years must be sold or they revert to the management program.

Discussion

This is essentially the same approach as Rejected Option 1. but a different number of consecutive years, either greater or fewer than three can be specified. This option was rejected by the Council for the same reasons presented in Rejected Option 1.

ACTION 10. SUBSEQUENT TACs AND HOW LARGE CHANGES IN TAC WILL BE ADDRESSED

Allocate future wreckfish TACs, whether larger or smaller, based on the annual percentage shares at the beginning of the fishing year.

Discussion

Due to the relative paucity of biological information on wreckfish, it is difficult to project yields the wreckfish resource in the South Atlantic can sustain. Accordingly, when better biological information is available in the future, larger or smaller TACs may be possible or necessary. Larger TACs may thus result more from better biological information than from short-run sacrifices or efforts made by participants in the wreckfish limited entry program. For this reason, provisions to handle this potential situation can be built into the ITQ program from the start. Alternatively, potential situations of this sort could be dealt with in future amendments.

Because reductions in TAC would reduce the size of individual quotas based on annual percentage shares, the Council believes that increases in TAC should also increase individual quotas regardless of the source or reason for the increase. The decision of whether to allow a greater number of participants into the program if a very large TAC increase were possible could still be undertaken by plan amendment in the future, and the Council would then have to decide what size of TAC increase is in fact large enough to warrant modification of the ITQ program to allow another initial allocation of shares.

Rejected Options for Action 10

Rejected Option 1. Specify that if large increases in TAC are possible, fishermen who were not initially allocated percentage shares should be given percentage shares.

Discussion

This option was rejected because it would lock the Council into the position that new fisherman would have to be allowed into the ITQ program if large increases in TAC were possible. Because TAC reductions would reduce the size of individual quotas of the fishermen already in the ITQ program based on annual percentage shares, the Council believes that increases in TAC should also increase individual quotas. Moreover, it is likely that the existing number and capacity of vessels in the fishery could harvest any increase in TAC that is likely to occur.

Rejected Option 2. Give any large increases in TAC to both existing participants and new entrants based on a formula to be specified later.

Discussion

This option was rejected because it would lock the Council into the position that large increases in TAC would have to be divided among new fisherman and the existing fishermen in the

ITQ program. Because reductions in TAC would reduce the size of individual quotas of the fishermen already in the ITQ program based on annual percentage shares, the Council believes that increases in TAC should also increase individual quotas.

ACTION 11. RESTRICTIONS ON PERCENTAGE SHARES AT THE TIME OF THE INITIAL ALLOCATION

No percentage share can be greater than 10% of the 100 available shares at the time of the initial allocation.

Discussion

This action is designed to make the initial allocation formula more equitable. According to public comment and staff analysis, it is not likely that any initial allocation to an individual or single business entity under the present initial allocation and eligibility formulas will be as great as ten percent of the 100 available shares. The Council wishes to retain this measure, recognizing that there is uncertainty involved with estimating the size of initial shares prior to the initial allocation. Should estimates of the size of initial shares prove inaccurate, large percentage share allocations to individual or entities will be avoided by retaining this provision.

Limitations on the size of a percentage share held by an individual or business entity after the initial allocation are not thought to be necessary. One reason for this is the desire to allow the free market to determine optimal scale in the wreckfish fishery. Existing anti-trust laws (Sherman and Clayton Acts) could potentially be applied if shares were deemed to be excessive. Because large shares of the wreckfish fishery do not necessarily mean market power over consumers (wreckfish is just one of the grouper and grouper-like products available to consumers), the ability to greatly influence or determine market price is not expected, even if wreckfish shares do become concentrated in the hands of relatively few participants. The Council intends to monitor the concentration of shares over time, and may place restrictions on the concentration of shares if evidence of price-determining power or other detrimental effects are observed.

Rejected Options for Action 11

Rejected Option 1. No restrictions on the size of percentage shares at the time of the initial allocation.

Discussion

Although under the present initial allocation and eligibility formulas, it is not believed that any one allocation to a single individual or business entity will exceed 10% of the 100 available shares. This option was rejected by the Council in favor of a 10% cap, however, because of inherent uncertainty in the information available to analyze the initial allocation and the possibility that even under the partially weighted, partially equal, initial allocation formula, some initial shares could be fairly large. When the preferred alternative for the initial allocation was for a strictly weighted

formula, not restricting the size of the initial percentage share allocated to an individual or business entity would potentially have greatly favored those with very large wreckfish landings between 1987 and 1990.

Rejected Option 2. Impose restrictions on the size of a percentage share an individual or corporation can own after the initial allocation.

Discussion

The Council rejected this option because it would restrict free markets for shares and would impose an undesirable constraint because large percentage shares may ultimately prove to be the optimal scale of operation in the wreckfish fishery. Control of large percentage share of the wreckfish fishery does not necessarily give the holder market power because wreckfish is just one part of the grouper and grouper-substitute market. In addition, other legal actions could be invoked if market power were to evolve in the wreckfish fishery under ITQs.

ACTION 12. ALLOCATION OF SHARES

Allocate shares as percentages of Total Allowable Catch (TAC).

Discussion

Permanent shares in the wreckfish ITQ program can be expressed as percentage shares of TAC or fixed quantities or numbers of wreckfish. The advantage of percentage shares is that if the TAC needs to be adjusted (higher or lower), percentage shares automatically determine the individual quotas for the current year. For some of the New Zealand fisheries managed with ITQs, TACs were initially set too high and it was discovered later that fish stocks could not sustain harvests of that magnitude. Cutbacks were necessary but because shares were denominated in fixed quantities of fish, fishermen in the program were essentially owed certain pounds of fish. Government buy-back programs were envisioned which became a tense situation for both fishermen and government agencies. A repeat of the New Zealand situation can be prevented by specifying shares in the fishery as percentages of TAC.

Rejected Option for Action 12

Rejected Option 1. Allocate shares as fixed quantities or numbers of wreckfish.

Discussion

It has been observed that shares would trade more smoothly in an ITQ program because fishermen would know exactly what a share represented in terms of the quantity of wreckfish. Someone purchasing a share would not have to wonder whether the share would translate into a large or small quantity of fish from year to year. The Council rejected the fixed approach and decided upon a percentage share approach, however, because the uncertainty that may constrain trade

of shares does not evolve from percentage shares, but from the variability in size of a renewable resource due to changes in recruitment, availability of food, spawning habitat, currents, water temperatures, and also from uncertainty in estimates of TAC due to the lack of biological information on wreckfish. Denominating shares as quantities of fish still involves risk in individual quota and share transactions, wherein the buyer of a share asks himself: "Can the government continue to promise me this quantity of fish, and what will happen when the population cannot sustain harvest of this magnitude?" because government buy-backs have not been a common feature in the way fisheries are managed in this country. In the final analysis, share prices will reflect risk whether explicit in the way shares are denominated or not.

ACTION 13. TRACKING/MONITORING INDIVIDUAL QUOTAS

The system to track and monitor individual quotas to ensure that TAC and individual quotas are not exceeded is a dual-entry record keeping system. The system described below is subject to further refinements that will result from cooperation between the SAFMC staff and the NMFS Southeast Regional Office, prior to the first issue of coupons.

Discussion

The main features of the dual-entry system are as follows:

1) Individual quotas will be issued via coupons (Figure 15) in small denominations of wreckfish pounds (exact denominations to be determined later) equaling the total pounds of a fisherman's individual quota for that year.

2) Coupons will be serially numbered, and coded for each fisherman, and a portion of the serial number will be the permit number of the fisherman receiving the individual quota allocation.

3) Coupons will be separable at the center, one part to be submitted to the Southeast Regional Office within seven days of the time of trip settlement along with the logbook sheet for the trip; the other half goes to the fish house or dealer that purchases the wreckfish.

4) Fishermen must have adequate coupon units on board for the wreckfish in their possession, and the proper number of coupons must be "canceled" by being signed and dated, in ink, prior to landing.

5) Fishermen must obtain a permit, and submit logbook sheets and canceled coupons to record their catch. Anyone in possession of wreckfish who does not have a permit, logbook, and adequate coupons for the wreckfish in their possession is in violation.

6) Fishermen must return any unused coupons to the National Marine Fisheries Service (NMFS) at the end of the fishing year.

7) Fish houses will be responsible for signing and dating their portion of the coupons accompanying wreckfish they purchase. Fish houses must have canceled and dated coupons equalling the pounds of wreckfish at their fish house at a given time. Fishhouses are also

responsible for printing their Federal wreckfish dealer permit number on their side of coupons accompanying wreckfish they purchase (see Action 16).

8) Fish houses must submit monthly settlement sheets or the equivalent, to report the total number of pounds of wreckfish purchased that month, as well as submitting their portion (the side marked for dealers) of wreckfish coupons totaling the quantity of wreckfish purchased that month.

Rejected Options for Action 13

Rejected Option 1. Track individual quotas with the existing data collection system.

Discussion

The Council rejected this option because the existing data collection system is not designed for tracking/monitoring landings at the individual vessel level and hence would be inappropriate for tracking individual quotas. The existing data collection system would not be adequate for preventing fishermen from exceeding their individual quotas or determining that a fisherman had done so and would diminish the potential for attaining the objectives of the ITQ program.

Rejected Option 2. Track individual quotas by a receipt system (paper trail).

Discussion

The coupon system is one form of paper trail or receipt system. Usually, receipt systems are dual-entry recording systems that are audited at the end of the fishing year to determine if fishermen have exceeded their individual quotas. This system is the principal tracking device used for ITQ programs in Australia and New Zealand. The main difference between standard receipt systems and the coupon system is that enforcement agents cannot immediately determine that a fisherman has exceeded his quota with the receipt system because there is no method for on site verification. With a receipt system, an enforcement agent has to wait for an audit to determine whether a fisherman has exceeded or "busted" his individual quota. With the coupon system, if a fisherman does not possess an adequate quantity of coupon units for the fish in his possession, he is in violation and it is assumed that he has exceeded his individual quota. In addition, separable coupons with a portion to follow the fish that is purchased by a fish house can be used to verify that all the wreckfish at a fish house were purchased from fishermen in the ITQ program and were properly recorded in the dual entry system. Receipt systems do not have any means of instant verification and records on a dealer's premises can sometimes be readily fabricated.

An on-line debit card computer system can be envisioned as a variation of the paper trail wherein fishermen would have magnetic credit cards and dealers would have terminals such as those used by stores that take credit cards. The quantity of catch would be instantly deducted from the fisherman's individual quota upon landing, and enforcement agents would be able to call up a fisherman's account to verify that he has a positive balance of quota. This system has some positive

aspects but appears to be prohibitively expensive for fish houses at this time. In addition, non-reporting may be significantly easier with a debit card system. For these reasons, the Council rejected this option.

Rejected Option 3. Track individual quotas by a fish tag system.

Discussion

Requiring that all wreckfish be tagged with plastic tags that ratchet in one direction, or a similar device, that cannot be opened to be placed on another fish without being broken is another system that allows instant verification. Fish tags strongly discourage non-reporting of catch because tagging fish is somewhat time consuming and could not be done quickly at dockside if the fisherman were approached by an enforcement agent. The main disadvantage of tags is that they involve time-consuming and tedious work for fishermen. In addition, large numbers of tags would have to be issued, which would mean additional costs to fishermen and management. Therefore, the Council rejected this approach.

ACTION 14. TRACKING/MONITORING INDIVIDUAL QUOTA AND PERCENTAGE SHARE TRANSACTIONS

Tracking sales of individual quota will be done by requiring the buyer and seller to sign and date the appropriate lines on the reverse side of the coupons that are sold. The system to track transactions of percent shares will involve a NMFS single point transfer agent similar to the way stock and bond transactions are recorded. Fees to cover the administrative costs of processing transfer applications will be charged.

Discussion

Individual quota coupons will have a designated area for the buyer and seller to sign and date (Figure 15). The buyer must also write the vessel permit number on the coupons he purchases. Fishermen will be responsible for making sure that the proper signatures, dates, and vessel permit numbers are recorded on the reverse of coupons in their possession that were not coupons originally allocated to them. Fishermen will be advised to record the serial numbers of their coupons immediately upon receiving them so that if they are lost or stolen, they may request replacement coupons similar to the way in which travelers' checks are replaced if they are lost or stolen.

Sales of percentage share must be transacted through the National Marine Fisheries Service (NMFS), Southeast Regional Office (SERO). All or part of a percentage share may be sold. Previous certificates of percentage share must be surrendered and new certificates that reflect the change in percentage share will be issued before transactions are final. Sales prices of percentage shares may have to be recorded. Sales of percentage shares may not be allowed when individual

quota coupons are being issued. This is to prevent changes of ownership of shares while coupons are being issued to the previous owner.

Rejected Option for Action 14

Rejected Option 1. Do not track transactions of individual quotas or percentage shares.

Discussion

If transactions of percentage shares are not recorded, then individual quotas may be issued to parties who have sold their percentage share because there will be no way of knowing who currently owns each percentage share. Providing a means by which sales of individual quotas can be tracked will allow for verification in cases where quota busting is suspected. Without any records of the person to whom coupons have been sold, investigations of suspected quota busting would be extremely difficult.

ACTION 15. INCREASING ENFORCEABILITY: PERMIT SANCTIONS OR REMOVAL OF ANNUAL PERCENTAGE SHARE FOR GROSS VIOLATIONS

Because the benefits obtained from individual transferable quota management depend, in large measure, on regulatory compliance with individual quotas, the Council maintains that gross violations (such as quota busting, failure to report, or fishing during the closed season) warrant strict penalties such as permit sanctions, forfeiture of individual quota and permit sanctions, or percentage share forfeiture and permit sanctions.

Discussion

Exceeding individual quotas or "quota busting" has been one of the most frequent problems with individual quota based limited entry systems. Quotas are exceeded by either not canceling coupons so that they can be used again (failure to report) or fraudulent use of coupons. In fisheries managed with individual quotas abroad where quota busting has been a significant problem, the number of individual operators holding permanent shares has been considerably greater than the number of operators in the wreckfish fishery now or the number likely to be in the fishery under individual transferable quotas. This may make the task of tracking individual quotas and detecting violations more manageable. However, an individual quota system is not likely to accomplish our objectives if individuals can exceed their quotas without a reasonable probability of detection, or without severe penalties when violations are detected. Because limited entry involves a type of long term vesting of fishermen, fishermen may be more willing to report violations they observe than under traditional open access fishing. Although the Council cannot mandate that serious infractions such as quota busting should necessarily entail forfeitures of percentage shares or vessel permits, specific language can be developed stating that for the wreckfish individual quota system to

accomplish the Council's objectives, serious infractions should meet with permit sanctions or share forfeitures.

Rejected Option For Action 15

Rejected Option 1. Do not state the Council's intent that gross violations should be met with share forfeitures or permit sanctions.

Discussion

NOAA General Counsel recommended that stating the Council's intent in this matter will potentially facilitate enforcement. If the Council does not specify its intent, NOAA General Counsel will have to interpret the original intent of the Council to categorize the relative gravity of the offense. For this reason, not adding this provision may make effective sanctions more difficult and could serve to decrease benefits from the ITQ program in the long-run. Therefore, the Council rejected this option.

ACTION 16. DEALER PERMITS

Dealers who want to handle wreckfish must obtain a federal wreckfish dealer permit. Dealers who handle wreckfish must fill out monthly wreckfish reports listing their total wreckfish purchases and must attach their portions of the wreckfish coupons. Requirements for a federal wreckfish dealer permit are that the applicant possess a state dealer's license, and that the applicant must have a physical facility at a fixed location in the state wherein the dealer has a state dealers license. Dealers can use unpermitted agents to offload and transport fish, but must comply with the 24 hour notice prior to offloading requirement (see Action 19). A fee will be charged to cover the administrative costs of issuing federal wreckfish dealer permits.

Discussion

Dealer permits should increase compliance with individual quota management. Landings in excess of individual quotas still remains an important concern for wreckfish limited entry. Dealer permits should increase our ability to track individual quotas accurately and provide inducements for dealers to report quota busting infractions. Because dealers will be required to send in monthly reports as part of the tracking system for individual quotas, requiring a permit will give management something that can be revoked for serious non-reporting incidents or other infractions. The requirement that dealers have a physical facility in a fixed location will help enforcement officers define the universe of fish houses and other establishments authorized to purchase wreckfish from wreckfish fishermen.

Rejected Option for Action 16

Rejected Option 1. Do not require dealer permits.

Discussion

Dealers are an integral part of the dual entry tracking system and without dealer permits detection and punishment of non-reporting would be significantly more difficult. Also, without dealer permits, enforcement would have little or no way of defining the universe of fish houses and other establishments that are authorized to purchase wreckfish from wreckfish fishermen. Thus, the Council rejected this option.

ACTION 17. PERMITS IN CONJUNCTION WITH POSSESSING COUPONS AND A LOGBOOK

Fishermen are required to possess a wreckfish vessel permit in conjunction with coupons and a current logbook. To obtain a wreckfish permit, an applicant must possess a certificate of percentage share which was issued at the initial allocation of shares or obtained from the transfer agent after purchasing percentage share or portion thereof (see Action 14). A fee to cover the administrative cost of issuing wreckfish vessel permits will be charged.

Discussion

Fishermen will be required to possess a wreckfish vessel permit, enough coupon units to match the quantity of wreckfish in their possession, and a logbook. By requiring a vessel permit, enforcement will have four potential targets for sanctions if a fisherman is in violation: 1) seek a civil penalty (up to $100,000), 2) sanction his vessel permit, 3) invalidate or repossess the coupons in his possession, or 4) sanction his percentage share.

Permits allow enforcement officials effective sanctions if fishermen attempt to circumvent other enforcement tools. For example, a fisherman may attempt to minimize his risk of forfeiting his annual percentage share (or a significant portion of it) by selling portions of his percentage share to family members, etc. This would effectively reduce the portion of his total share that is subject to forfeiture if convicted of a serious violation, which the system has decreed may warrant forfeiture of an annual percentage share. If permits are required, then the individual who has reduced his "exposure" by dividing his total share among family members, can be sanctioned and kept from fishing by removing or suspending his permit, if that action were deemed appropriate.

Permitted fishermen will be required, upon request of the NMFS Regional Director, to submit economic and socio-economic information to monitor economic performance and socio-economic impacts of the ITQ program. This may include making available the purchase price for percentage shares.

Rejected Option for Action 17

Rejected Option 1. Annual permits are not required.

Discussion

The Council rejected this option because incentives to comply with the ITQ program would be reduced without vessel permits. If cheating is thought to be difficult to detect and penalties are thought to be easily circumvented, then the ITQ program may not be effective and may not accomplish its objectives.

ACTION 18. APPLICATION OVERSIGHT COMMITTEE

An Application Oversight Committee (AOC) will be established upon approval of Amendment 5 to assist the NMFS Regional Director in handling disputes over eligibility and allocations of initial percentage shares. The charge of the AOC is to make sure that the criteria pertaining to eligibility or initial allocation were applied to an individual's application in a correct manner. The AOC is to be made up of one state director (or his designee) from each state in the South Atlantic Council's area of jurisdiction and the NMFS Regional Director, or his designee. NOAA General Counsel will have a non-voting advisory role on the AOC.

Discussion

For a specified period of time, applicants will have available to them an application oversight process where they can contest decisions pertaining to eligibility or initial allocation. **The charge of the AOC is to make sure the criteria pertaining to eligibility or initial allocation were applied in a correct manner to an individual's application.** Neither the NMFS Regional Director, nor his designee, nor any member of the AOC will be empowered to address cases where an individual does not meet the requirements for eligibility or initial allocation but claims to be equally meritorious as those who do. The AOC will have available to them evidence submitted by an applicant as well as prior official determinations based on available official records, etc. Further evidence to substantiate claims may be required of applicants during the process. The AOC process will be for a limited period of time, probably 30 days. At the end of that period, shares will be readjusted as necessary and the appeals process will be closed. Setting a fixed duration will avoid the problem encountered in individual quota programs in other countries where percentage shares exceeded 100%. Those wishing to be heard can arrange to be present when the AOC is convened or may submit their appeal in writing.

Rejected Option for Action 18

Rejected Option 1. Expand the powers of the AOC beyond the charge of determining if the criteria for eligibility or initial allocation were correctly applied.

Discussion

When the powers of an oversight committee or appeals board are expanded, such as was the case for the Mid Atlantic surf clam moratorium in the 1970s, there is a tendency to have a large number of appeals. This can result in a virtual flood of hardship cases that may allow a large number of new members in the limited entry system. Because the original criteria for eligibility and initial allocation have been developed and modified with careful attention to equity, it would not be prudent to allow additional applicants into the system who do not meet the specified criteria. This would be unfair to those who meet the criteria and made business decisions based on the assumption that entry would be limited. The Council rejected this option for these reasons.

ACTION 19. TWENTY FOUR HOUR NOTICE PRIOR TO OFFLOADING

To offload wreckfish at any location other than that of a federally permitted wreckfish dealer, the vessel operator must notify the NMFS enforcement office 24 hours prior to offloading.

Discussion

The Council believes that this provision will help to discourage non-reporting. According to wreckfish dealers who attended public hearings, the potential exists to land wreckfish at odd locations so that coupons will not have to be canceled and catch will not count against a fisherman's individual quota. At the same time, the wreckfish industry claims that, on occasion, boats are not able to land at normal dealer locations because of weather, tides, or other conditions. The Council decided to apply this hailing provision to cases where wreckfish would be offloaded in locations other than those of permitted dealers, so that these offloadings could be monitored, as required.

Rejected Options for Action 19

Rejected Option 1. Twentyfour hour notice for offloading at locations other than permitted dealers is not required.

Discussion

The Council rejected this option because offloadings could take place at locations that would not be monitored regularly which could make non-reporting easier than with the 24 hour notice requirement.

Rejected Option 2. Twentyfour hour notice at all locations.

Discussion

Provisions included in Amendment 4 to make the wreckfish trip limit more enforceable would have required 24 hour notice for all wreckfish offloadings. The Council decided to discontinue those provisions because, with federal dealer permits and other measures in

Amendment 5, dealers will be part of a dual entry reporting system. The Council feels that advance notice for all offloadings is no longer necessary with the ITQ program, and requiring it would amount to an unnecessary burden for fishermen.

ACTION 20. OFFLOADING WRECKFISH BETWEEN 8 A.M. AND 5 P.M.

All offloading of wreckfish is to occur between 8 A.M. and 5 P.M. regardless of whether offloading at a federally permitted dealer location.

Discussion

The Council is aware that non-reporting in the form of not canceling coupons is likely to occur if there is no reasonable probability of dockside inspection. In order to aid NMFS Enforcement in regularly monitoring wreckfish offloadings, it is important that offloadings occur at hours when NMFS enforcement agents are working, usually 8 A.M.to 5 P.M. This requirement does not obligate wreckfish vessels to land during those hours; it restricts the hours when wreckfish can be offloaded. Comments from fishermen and dealers present at public hearings has indicated that this requirement will not be burdensome because offloading normally occurs within that period of time. Wreckfish vessels normally have sufficient hold and ice capacity to adequately preserve wreckfish for considerable periods of time.

Rejected Option for Action 20

Rejected Option 1. No restrictions on offloading hours.

Discussion

The Council rejected this option because offloadings could take place without being monitored regularly which could make non-reporting easier than with the 8 A.M. to 5 P.M. offloading requirement.

ACTION 21. REMOVAL OF 10,000 POUND TRIP LIMIT

Upon implementation of the wreckfish ITQ program, the 10,000 pound trip limit will no longer be in force.

Discussion

With individual transferable quotas, a mechanism to allow wreckfish to flow to the market when it is makes the most sense economically will exist. Hence the trip limit, which was designed to be an interim measure to control the pace of harvest under open access, will no longer be necessary or beneficial.

Rejected Option for Action 21

Rejected Option 1. Continue 10,000 pound trip limit under ITQs.

Discussion

The Council rejected this option because trip limits are obviated under ITQs. The Council recognizes that, in all probability, it will take fishermen some time to adjust to the new system where they will be able to time harvest with the demands of the market. This may mean that product initially flows to market in a way that is not optimal. Over time, however, ITQs should direct harvest strategies to increase overall benefits from the wreckfish resource, and trip limits would be an unnecessary and potentially detrimental restriction on the workings of a market-driven mechanism.

IV. REGULATORY IMPACT REVIEW AND INITIAL REGULATORY FLEXIBILITY DETERMINATION

A. Introduction

The Regulatory Impact Review (RIR) is part of the process of developing and reviewing fishery management plans and amendments and is prepared by the Regional Fishery Management Councils with assistance from the National Marine Fisheries Service, as necessary. The RIR provides a comprehensive review of the level and incidence of economic impact associated with the proposed regulatory actions. The purpose of the analysis is to ensure that the regulatory agency or Council systematically considers all available alternatives so that public welfare can be enhanced in the most efficient and cost effective way.

The RIR also serves as the basis for determining if the proposed regulations are major under Executive Order 12291. If the proposed regulations are deemed to have a significant impact on a substantial number of small entities, then an Initial Regulatory Flexibility Analysis (IRFA) must be prepared and incorporated into a joint document that meets the requirements of the Regulatory Flexibility Act (RFA). The purpose of the Regulatory Flexibility Act is to relieve small businesses, small organizations, and small governmental entities from burdensome regulations and record-keeping requirements, to the extent possible. In as much as Executive Order 12291 encompasses the RFA requirements, the RIR usually meets the requirements of both.

B. Problems Requiring Amendment 5

ACTIONS 1. and 2. PROBLEMS AND OBJECTIVES

Problems in the fishery, as well as the objectives for Amendment 5, have been outlined in previous sections. Economic impacts resulting from this amendment are attributable to the combined

effects of the objectives and the management measures to accomplish those objectives. As such, those impacts are described under management Actions 3-21.

ACTION 3. ESTABLISH AN INDIVIDUAL TRANSFERABLE QUOTA SYSTEM

A system of individual transferable quotas provides a mechanism that allows fishermen to fish when fishing is potentially more profitable, and in the manner that is most profitable. In contrast, under open access and TAC management, a fishing derby is typically created where fishermen are virtually forced to catch fish as fast as possible as soon as the fishing season opens without regard to exvessel prices or fishing costs, in order to get a share of the harvest before the TAC is met. The mechanism to allow fishermen the choice of when to fish is accomplished by dividing TAC into individual quotas that fishermen can harvest anytime during the fishing year, except during the spawning closure. Individual quotas are determined by percentage shares held by fishermen that were assigned at the initial allocation and then potentially modified by trading among fishermen.

With individual transferable quotas, efficient use of capital and labor can be accomplished because business entities can sell or purchase portions or all of their percentage shares in order to adjust the size of their landings to their existing capital holdings and other factors that influence the scale of individual operations. In the short-run, fishermen can buy or sell individual quota to adjust for their needs during a given fishing year to accomplish a more efficient use of existing capital goods. These mechanisms have been successfully used in other fisheries around the world to address over-capitalization and to avoid short-run oversupply problems inherent in competitive fishing under open access or license limitation. Over time, free market forces will encourage individual enterprises to minimize their fishing costs and maximize the value of their catch. Those market forces will also encourage the transfer of percentage shares and individual quota to enterprises that can fish at the least cost and produce the highest valued product.

In addition to addressing short run oversupply and overcapitalization, individual quotas have been effectively used to create a stable management regime that allows for cost-effective, long-range planning for the harvesting and processing/distribution sectors. In fisheries managed with open access or license limitation, the need for more restrictive management measures with derby fishing can make long-range planning difficult for fishermen and fish house owners. This is because gear that is purchased may not be usable under new regulations and competitive advantage has a very large influence on the quantity of fish that a fisherman or fish house will handle year to year. This variability in landings per vessel or per fish house can lead to under and over capacity problems and inefficient use of capital goods such as vessels and unloading/processing facilities. The stability of knowing how much a business entity is likely to harvest on an annual basis with individual quotas

allows businesses to undertake long-range planning to minimize production costs and promote efficiency for the scale of the percentage share they control.

Very little has been published to evaluate the sociological implications of ITQ management upon a U.S. fishery. One can speculate that marketable fishing rights will have some effects on fishermen and fishing communities where wreckfish is an important source of income, but the scope and dimension of these effects cannot be rigorously evaluated at this time because there are no known sociological or socio-economic studies of other fisheries managed with ITQs in the United States to which one can refer for insights. For this reason, it will be important to direct future research priorities to study the wreckfish fishery under ITQs so that managers can have an information base to evaluate the sociological effects of ITQ management.

Marketable fishing rights may change the demographic composition of the wreckfish fleet to some degree, but it is difficult to predict the magnitude or direction of these changes at this time. Whatever changes occur would be expected to result from consolidation as well as from the ability of fishermen to fish when it is optimal, and to some degree, from the port of their choice. With open access management, fishermen were virtually forced to fish when the season opened and were more likely to land at the fish house closest to their fishing location, so as to minimize the time between trips in order to catch more during the competitive fishing season. The ITQ mechanism will allow more flexibility in timing and in location, and may change the relationship between fishermen and fish dealers somewhat. The state of residence of wreckfish operators (captains) and vessel owners (many of whom are captains) indicated in 1991 permit applications are given in Figures 16 and 17.

Another potential effect of ITQ management on wreckfish harvesters will be the degree to which vessels will remain individually owned or owned by businesses (corporations, partnerships etc.). For the 1991 vessel permit applications, 61% of vessels were reported to be individually owned (Figure 18). Under ITQ management, this percentage may change, particularly if modifications of the ITQ program such as ownership and use restrictions are contemplated in the future. At present, the majority of wreckfish vessels are thought to be owner operated. It will be interesting to monitor ownership in the future to know if owner/operators are as prevalent as prior to ITQ management. Investigations into these basic questions and other aspects of the sociological and socio-economic effects of ITQ management on the wreckfish industry will be useful to managers as ITQs become a more frequently considered option for fisheries management.

To date, there is also a paucity of quantitative studies to evaluate economic performance under ITQs compared to open access or license limitation. Indirect evidence that ITQs have been used to reduce over-capitalization in the Australian southern bluefin tuna fishery is reported in a recent study (Townsend, 1990). In that fishery, 143 individual quota allocations were made to individuals in 1984. By 1986, the number of individuals holding quota and fishing in the fishery was 57 (Townsend, 1990). In an *ex ante* study, Squires (1990) finds that a system of tradable quota

would reduce over-capitalization and inefficiency in the northern California/southern Oregon thornyhead fishery. According to the results of his empirical model, lower-cost firms would purchase quota from higher-cost firms, creating quantitatively measurable increases in rents from the fishery, despite the fact that quota markets were expected to be somewhat noisy and hampered by non-competitive forces.

Preliminary reports from the Mid Atlantic surf clam and ocean quahog ITQ program are sketchy because the system was only recently implemented. One fishing firm, however, pointed out that it used to maintain 13 boats for the periodic openings under a TAC and open access, derby, fishery management regime. With ITQs, this firm was able to reduce its vessel holdings to three boats that can efficiently fish for the firm's quota over the course of the fishing year (Dick Meyers, Eastern Shore Seafood, Mappsville VA, pers. comm.).

The ability of the wreckfish ITQ program to increase overall benefits from the wreckfish fishery will ultimately depend on the relative smoothness with which percentage shares and individual quotas are exchanged. Some provisions within the proposed management measures will constrain free trade of shares and quota to some extent (see discussions that follow under specific management measures). This may reduce the benefits created by the ITQ system somewhat. If percentage shares and individual quota do not ultimately trade freely, however, the reason may be more attributable to uncertainty inherent in the status of the wreckfish resource (which will make it difficult to determine the value of shares) than due to management measures that may restrict free trade to some degree.

On an individual or business entity basis, it is difficult to determine who will do better in terms of firm-level profits as compared to profits under open access. In theory, restricting access to the fishery should prevent or at least diminish the rate of entry that occurs under open access at times when fishing is relatively profitable. In addition, most firms should be able to realize some increases in profits under ITQs as compared to open access by being able to fish when exvessel prices are higher or fishing costs are lower. For fishing firms to realize these benefits, however, there has to be reasonable certainty that fish abundance is such that wreckfish will still be plentiful enough later on in the fishing year to convince fishermen to hold off on making the trip until conditions improve. Under open access, the derby nature of the fishery did not allow for waiting for better prices or fishing conditions that would involve lower fishing costs.

Prices to the vessel may be better for wreckfish at times of the year when the overall supply of groupers and grouper substitutes (wreckfish is generally construed to be a grouper substitute at present) is relatively low. Groupers and grouper substitutes come mainly from the Gulf of Mexico and from imports from Mexico and other South and Central American countries. Generally, spring and fall appear to be periods of high supply for groupers and grouper substitutes. If fishermen can make their wreckfish catches when groupers are not at peak abundance, then they may realize better

exvessel prices. The degree to which exvessel demand appears to be elastic, and exvessel prices for wreckfish tend to respond to the quantity of wreckfish landed and not just the overall abundance of grouper substitutes, will determine, in part, if wreckfish fishermen will get better prices under ITQ management.

The magnitude of consumer effects that may be created by a system of marketable fishing rights is difficult to predict and quantitative studies to analyze potential consumer effects are not available at this time. In theory, the fishermen can receive better prices for their catches when they are not forced to fish in a fishing derby, as under open access. It is not possible to determine, however, if these increases can ultimately be passed on to the consumer. The difficulty of making this determination stems from the lack of information on the elasticity of consumer demand for wreckfish (to the degree that consumers identify wreckfish at all), and the possibility that, in effect, a different demand curve for wreckfish may eventually apply under ITQ management.

In theory, ITQ management may allow for increases in product quality by allowing fishermen to harvest at a market-driven pace, rather than a derby-driven pace. These benefits would be passed on to the consumer. If ITQ management is successful in spreading out wreckfish harvest over the fishing year, then gains in product continuity may result, and those benefits would accrue to producers and consumers. It is potentially possible that ITQ management could eventually allow the processing/distribution sector to invest in the marketing of wreckfish, which could mean that wreckfish is marketed as a finfish item in and of itself, instead of as a substitute for grouper without consumer identification in restaurants and retail establishments. It is also possible that ITQ management may facilitate marketing wreckfish to Portuguese immigrants in New England, who are familiar with wreckfish because it is a popular seafood item in Portugal, or perhaps exporting wreckfish to Portugal. These possibilities point out the difficulty involved in estimating the consumer effects of ITQ management.

Rejected Options For Action 3

Rejected Option 1. Non-transferable individual quotas.

Non-transferable individual quotas can also be used to address problems created by short-run oversupply, which can lead to low prices to fishermen under derby fishing. The individual quota aspect of non-transferable individual quotas is essentially the same as that under individual transferable quotas in terms of providing a mechanism that allows fishermen to decide when to fish instead of virtually obligating all fishermen to fish when the season opens.

One drawback to non-transferable individual quotas is that the same flexibility is not available to fishermen to efficiently apply the right kind and amount of fixed capital goods (size of vessel, hauling and catching capacity, etc.) to the size of their percentage shares and the individual quotas which are determined by them. With individual transferable quotas, fisherman can sell some of their

shares or quota, or purchase a more shares or more quota to adjust the quantity of fish needed to existing capital holdings. This allows for efficiency adjustments with minimal difficulty. With non-transferable quotas, fishermen must change their fixed capital holdings to match the size of their percentage shares. This is usually more expensive, involves inherent inefficiencies, and in some cases, is nearly impossible.

For instance, a fisherman with a large vessel may be granted a small share by the initial allocation formula because he entered the fishery relatively recently and had a relatively small catch history. That allocation may not be adequate to meet even the variable costs of fishing with his existing vessel. That fisherman must either forfeit the small allocation (which he cannot sell because of non-transferability) or undertake the difficult and risky venture of selling his present vessel and purchasing a smaller vessel that may be able to fish the small allocation profitably. The same problem arises with allocations that are too large for small operations. In general, transferability allows for relatively smooth adjustments in allocations to desired levels of production while non-transferability does not.

Under non-transferable individual quotas, nearly the exact amount has to be allocated to fishing firms at the outset for efficiency or quasi efficiency to be attained, and an allocation of that sort would be difficult to calculate and promulgate. Another drawback to non-transferability is that transfers between fishing generations involve revisiting the initial allocation process which is burdensome for management and frequently controversial. With transferability, an individual quota is handled like any other asset that can be transferred to the next fishing generation through the usual process of the market or inheritance. In this way, a fisherman can retire knowing that his share will be conveyed to someone of his choosing, whereas under non-transferability, there is usually no reasonable guarantee of that this will occur.

Rejected Option 2. License limitation.

Short run oversupply and over-capitalization have been recurring problems in both open access fisheries and fisheries under license limitation. Even when the number of participants in the harvesting sector is effectively limited by license limitation, experience has shown that markets can still be flooded by rapid harvest and total fishing effort is likely to remain the same or even increase. This is because participants have large incentives to increase harvesting capacity over time in the form of larger vessels, greater horsepower and hauling capacity, more crew members, larger nets or more hooks, new gears that catch more rapidly, incentives to fish in inclement weather, etc.

Perhaps the most extensive experience with license limitation in the United States has been in Alaska. Legislative mandate for state waters fisheries in Alaska stipulates that license limitation is the only permissible form of limited entry to date. Because separate license limitation programs are promulgated by area, gear type, and species, there are approximately 60 different license limitation

programs listed in the Alaska Commercial Fisheries Entry Commission regulation handbook for 1989 (State of Alaska, 1989). An in-depth study of the efficiency in those fisheries concludes that despite far-reaching measures to control inputs to avoid over-capitalization or "capital stuffing" where vessels add capacity under a constrained derby fishery, average vessel size and capacity has steadily increased in nearly all fisheries managed under license limitation in Alaska (Schelle and Muse, 1986).

License limitation programs frequently require continual modification to defeat attempts to catch fish faster. These take the form of mandatory layovers, limits on the number of trips per period, staggered starts, and other non-market based attempts to slow down harvest. Even when trip limits are used, experience has shown that fishermen respond by adopting gears and techniques that increase the rate at which the trip limit quantity of fish is harvested and decreasing the layover time between trips. Under pounds per trip restrictions, boat maintenance and crew rest are frequently ignored until after the season is closed. This has led to problems with vessel safety, while accomplishing only small gains in terms of slowing down harvest.

Rejected Option 3. Income or production requirements.

There is little evidence to suggest that income or production requirements would limit entry to the wreckfish fishery to any substantial degree because, according to an informal survey of the wreckfish fleet, wreckfish fishermen are typically full time fishermen earning close to 100% of their income from commercial fishing, and wreckfish makes up a substantial percentage of their total annual fish harvest, (by either weight or value). For this reason, income or production requirements cannot be used to limit entry or accomplish the objectives of limited entry. One speaker at the scoping sessions pointed out that if the percentage of wreckfish to all fishery products was required to be high, then shrimp boats might be effectively kept out of the wreckfish fishery. Because there are probably already too many vessels targeting wreckfish without counting shrimp boats, percentage product requirements would probably not effectively control access to the wreckfish fishery in accordance with stated objectives.

ACTION 4. LONG TERM RIGHTS

Convey rights of indefinite duration which can be revoked for either non-compliance or a future Council decision to modify or revoke these rights. Revocation or modification of the individual transferable quota program would, however, involve the plan amendment process and approval by the Secretary of Commerce.

Percentage shares in the fishery specified for an indefinite duration rather than some defined period should produce potentially more benefits both to individuals holding those shares and in terms of the overall benefits society derives from the resource managed under ITQs. From an individual's

point of view, rights of indefinite duration mean that a fisherman can harvest his share of wreckfish every year. He is not faced with a point in the future at which time his rights are no longer valid.

Should the individual decide that his opportunity costs for staying in the fishery are too high, (that is, another opportunity would be more profitable for him to pursue), then the fact that rights are for an indefinite period should make them more marketable and potentially more valuable to trade. Rights of limited duration would likely sell for a price that was somehow based on the expected stream of discounted profits for the duration of those rights. If the specified duration of those rights were fairly short, then rights would trade for relatively low prices and might not trade well at all because investment in a fishing boat is a long term investment and might not be justifiable if wreckfish harvest rights are for a period of time too brief to warrant the investment.

Rights of indefinite duration would also likely sell for a price that was based on the expected stream of discounted profits into the future, but that stream would not be limited in duration. This means that the buyer will not be faced with the problem of how those rights will be allocated after the first limited period of time comes to a close. In general, for shares to trade smoothly, percentage shares must be for a long enough duration that fishing firms view them as valuable assets that are owned, rather than on loan from the government.

The degree to which shares trade smoothly will be influenced to some degree by the provision that rights can be revoked for non-compliance and a future decision to modify or revoke those rights. That rights can be revoked for non-compliance may in effect make rights more valuable and marketable, at least to serious fishermen, because that demonstrates that there will be strong incentives to prevent cheating because penalties are substantial. Non-compliance can destroy the ITQ program and any measure to avoid that may increase the value of percentage shares overall.

The provision that rights can be revoked by a future Council decision will tend to reduce the asset value of percentage shares, at least in most people's minds. Over time, however, it may become apparent to fishermen that the Council could not dissolve the program arbitrarily. A plan amendment would be required wherein rationale would have to be presented. The Secretary of Commerce would also ultimately have to approve that decision. Overall, whether stated specifically or not, every amendment and every management measure is rescindable by the amendment process. After a period of time, fishermen who become more familiar with the management process may come to realize that as long as the ITQ program is accomplishing its objectives reasonably well, it will not be dissolved.

Rejected Option For Action 4

Rejected Option 1. Time grants of 15 or 20 year duration.

Although fishing rights of a limited duration may seem more prudent from a management point of view because there is little experience with limited entry in this country, the 15 or 20 year

time grant options would probably do more to reduce benefits from the program than to create benefits. Both of these scenarios involve fairly short periods of time which will likely have little appeal to someone desiring to buy percentage shares. If percentage shares do not trade well, then the expected long-run benefits from transferring access to enterprises that can fish at the lowest cost and produce the highest valued product will not be realized. In addition, to the degree that long term conservation incentives to conserve ensue from vesting fishermen, then rights of limited duration will decrease those benefits.

ACTION 5. INITIAL ELIGIBILITY

Include those who can document wreckfish landings during the period beginning January 1, 1989 and ending September 24, 1990 (the effective control date). In addition, the applicant must be able to document having landed at least an aggregate of 5,000 pounds (dressed weight) of wreckfish between January 1, 1987 and September 24, 1990.

The formula for eligibility will determine the number of individuals who will receive initial percentage shares. From a theoretical point of view, the number of individuals receiving initial allocations of percentage shares is not of paramount importance because benefits are mostly obtained later on as percentage shares are consolidated according to the dictates of the market. To individual fishermen in the program, however, the number of fishermen eligible for an initial allocation does make a difference. If the number of eligible individuals is great, then the size of initial shares may not be large enough for most fishermen to make a profit. If percentage shares are expensive initially for some reason, then fishermen might find it prohibitively expensive to purchase enough percentage shares to justify keeping wreckfish gear on a vessel. In any case, a large round of initial trading might introduce uncertainty into the system and decrease fishermen's confidence in the merits of the ITQ program.

An exercise was undertaken to estimate the number of fishing firms that the wreckfish resource can support, with a number of assumptions and predictions where information is lacking. The goal of the exercise was to provide some rough ideas of the economics of the fishery under ITQs. Specifically, an attempt was made to bound the range of economic outcomes under ITQs so that the number of firms the fishery can support can be compared to the number likely to be eligible initially and the number that the fishery may evolve to under marketable fishing rights. The general methodology employed here is the same used in analyses done for Amendment 3 (see SAFMC, 1990b for supplemental background information).

Three scenarios were developed to simulate the economics of the fishery under ITQs. All scenarios involved a range of eligible participants from 20 to 85, and a TAC of 3 million pounds. The first scenario used an annual exvessel wreckfish price of $1.00/lb, the second used an average of $1.25/lb, and the third used $1.50. Although no one can predict exvessel prices under ITQs in

the future, exvessel prices under ITQ programs abroad have tended to be somewhat higher than under open access. That finding tends to argue for the scenario with $1.50/lb, as prices to fishermen have tended to range from $1.00 to $1.30 under open access management this year. Variable costs and prorated fixed costs were assigned according to the same methodology in the economic analysis in Amendment 3, although prorating fixed costs only becomes important to the analysis for scenarios with greater than 20 boats in the fishery.

Scenarios for fewer than 60 boats depict net returns under future conditions if percentage shares are consolidated. Although it is impossible to know, at this time, exactly how many individuals will be eligible, virtually no one in the industry believes that fewer than 60 individuals will be eligible under the formula set out above. Many industry participants believe that between 70 and 80 will be eligible.

Fishing costs under ITQs should be somewhat lower that under open access (the cost and earnings data used in these examples reflect fishing costs under open access), reflecting the captain's ability to avoid fishing when fishing costs are high, but there was no systematic way to build this factor into the analysis. This means that fishing costs may be overestimated here, and thus profits under different scenarios would tend to be somewhat greater than depicted by the analysis.

It is important to note that for this exercise, TAC was simply divided evenly among the number of participants for each scenario. The initial allocation formula (see Action 6) is based on equal division of shares for 50 of the 100 available shares only, so actual distribution will not be equal. There is no way to simulate the outcome of the partially weighted formula at this time, but knowing the outcome of the formula is not crucial because aggregate results will not differ substantially. Results of this exercise are presented in Table 3. Returns are net returns to the vessel owner/captain, after deducting average 1990 crew share as a cost, as was done in earlier analyses.

Evaluation of the results points to the importance of average exvessel price in determining benefits, and consequently the number of fishing firms the fishery can support. This means that if marketable catch rights allow fishermen to get as much as $1.50/lb, then the fishery could support a fairly large number of boats, according to this simplified model. It is important to remember that exvessel prices will ultimately also depend on exogenous factors such as the overall supply of grouper and grouper substitutes (including imports). Considering that the average wreckfish vessel ties up approximately $180,000 in capital (see SAFMC, 1990b), and that it is likely that a fairly risky investment such as wreckfish fishing would be expected to return 20-30 percent annually on the capital investment, then net returns of $36,000 to $54,000 are probably of the size that would involve an entry/exit equilibrium for the number of vessels in the fishery. For the $1.00/lb scenario, this involves between 20 to 40 fishing firms, for $1.25/lb some 40 to 55 firms, and for $1.50, some 50 to 70 firms (Table 3).

For this simple analysis, one would expect that consolidation under ITQs would reduce the fleet to as few as 20 fishing firms and possibly as many as 75 firms, depending on average exvessel prices, costs remaining as depicted, purely rational economic behavior, and other factors reflecting the assumptions made herein. If there are 80 eligible participants at the time of the initial allocation, then rationalization would range from a four fold reduction (from 80 to 20 firms) or virtually no reduction at all. Due to the vicissitudes of human behavior, probable variance in available data, and the inherent variance in estimates from the methodology used, more precise predictions of the number of boats the resource can support cannot be made at this time.

Perceived equity will be a determinant of the overall success of the program. According to public comment at the scoping sessions and public hearings, the majority of the industry appears to believe that everyone who geared up and actually landed a considerable quantity of wreckfish before September 24, 1990 and has remained in the fishery should be included, but the size of shares should be based on catch history. According to public comment, there appears to be little willingness to include those who intended to go wreckfish fishing but did not get around to it, although the word that limited entry was on the way was widespread. An allocation of shares to individuals who do not meet the eligibility requirements might be considered unfair to the people who have invested a significant amount of time and money in the wreckfish fishery. Those not eligible for an initial allocation who are seriously interested in fishing for wreckfish can still enter the fishery by purchasing individual quota or percentage shares from someone in the fishery.

Rejected Options For Action 5

Rejected Option 1. Include those who qualify for the March 28, 1990 (former) control date.

This option would include those who can document wreckfish landings prior to March 28, 1990. The number of fishermen eligible under this option is not known precisely but thought to be around 25-35. The outcome of the initial allocation under this option would be significantly different from the preferred alternative, particularly if the initial allocation formula and the 10% share cap were used in conjunction. This would mean that fishermen with large catch histories would still dominate the 50% of shares based on percent of total catch during 1987-1990, but there would be fewer fishermen in the 50% equal shares allocation. The outcome of this would tend to favor the fishermen who are eligible but do not have large catch histories, compared to the size of initial percentage shares they would receive under the preferred alternative for eligibility. As was mentioned before, the eligibility formula should not be a large consideration from an overall perspective but will have considerable effects on individuals and the overall perception of equity.

Rejected Option 2. Include those with documented landings prior to the September 24,1990 control date.

This option does not have an eligibility criterion that is based on recent participation, hence it would allow a number of fishermen who caught wreckfish years ago, before there was a directed fishery for wreckfish, to be eligible for an initial allocation. If there are a large number of individuals who can prove that they landed wreckfish before the notice date, then this option would mean that even more fishermen are eligible than under the proposed alternative. The eligibility formula should not be a large consideration from an overall perspective, but it will have considerable effects on individuals and the overall perception of equity.

Rejected Option 3. Include everyone who has purchased wreckfish gear.

Under this option, wreckfish gear could be liberally defined as wreckfish hooks or weights or conservatively defined as Miler reels or the equivalent, which would have a large bearing on the number of individuals that would be eligible for an initial allocation. Under either scenario, however, the number of individuals eligible for an allocation would be far larger than under the preferred alternative. With this option, initial shares would be quite small for fishermen who landed wreckfish during 1990 but who are relatively recent entrants and do not have large catch histories. Those individuals are dependent on the 50% of shares divided equally allocation, and their percentage shares would be significantly reduced under this option.

Rejected Option 4. Include everyone who has documented wreckfish landings.

This option is similar to Rejected Option 2 in that it does not have an eligibility criterion that is based on recent participation, hence it would allow a number of fishermen who caught wreckfish years ago, before there was a directed fishery for wreckfish, to be eligible for an initial allocation. In addition, this option would make anyone who has caught wreckfish during the 1991 season eligible for the ITQ program, including some individuals who entered the fishery knowing that limited entry was being developed and that they were not guaranteed inclusion. The eligibility formula should not be a large consideration from an overall perspective, but it will have considerable effects on individuals and the overall perception of equity.

Rejected Option 5. Include everyone who has a wreckfish permit issued for the 1991 season.

Approximately 85 vessel owners obtained permits to fish for wreckfish in 1991. Some of these had not been in the fishery before the fishing season closed in 1990. In addition, some fishermen who were in the fishery in 1990 and years before opted not to fish in 1991 because of the projected large number of boats in the fishery, the relatively small TAC, and the perception that prices would be low under open access, derby fishing. If only those who obtained permits in 1991

are eligible for the limited entry program, then some fishermen with substantial catch histories who were active in the fishery until 1990 would be excluded. In addition, some individuals who entered the fishery knowing that limited entry was being developed and that they were not guaranteed inclusion in a limited entry program, would be eligible under this option. This option would probably be deemed inequitable by the industry and this makes it less beneficial than the preferred alternative.

Rejected Option 6. Include everyone who wants to part of the limited entry program.

Perceptions that the eligibility criteria are equitable are an important aspect of the overall acceptability of limited entry. Attempts to include everyone who might want a percentage share would likely have negative affects on the success of the program. Under this option, individuals who have never seen a wreckfish would request a percentage share because it appears to be something of value for free. The end result would be that most of the shares would be too small to be reasonable and fishermen who have invested time and money in the wreckfish fishery would no longer support the program.

Rejected Option 7. Include those with documented wreckfish landings prior to the August 8, 1990 closure when the TAC was met.

This option has the same eligibility implications as Rejected Option 2 and was not preferred because it does not include a measure of recent participation.

Rejected Option 8. Include those who can document wreckfish landings during the legal 1990 season and prior to September 24, 1990.

This option was the preferred alternative until the Council became aware that a requirement for participation in 1990 alone as a measure of recent participation eliminated some recent and historical participants, particularly fishermen who fished in 1989 and are fishing for wreckfish this year but were not able to fish during 1990 because of vessel breakdowns, etc.. The Council felt that these individuals had demonstrated that they were committed to wreckfish fishing but were unable to fish in 1990 due to extenuating circumstances. In addition, this option was rejected because it did not include a minimum quantity provision.

Rejected Option 9. Include the first 20 boats that qualify for the March 28, 1990 control date; first 20 chronologically, skipping those who do not with to participate.

This option would greatly favor the first participants in the wreckfish fishery. Those individuals, regardless of whether they fished in 1990 or not, would receive large percentage shares. In some ways, this option might reduce the number of boats in the fishery at the outset to the number

that may be in the fishery under the preferred alternative after trading of percentage shares. This option probably has only limited support and would not be considered generally equitable by the majority of individuals who would be eligible under the preferred alternative. If it was not generally considered equitable, then this might cause problems for the ITQ program from the outset.

Rejected Option 10. In addition to the eligibility requirements of the preferred alternative, only applicants who are currently fishing wreckfish are eligible.

This option seeks to keep individuals who may have fished for wreckfish in the past and can meet the eligibility requirements but who are no longer fishing wreckfish from receiving an initial allocation. Depending on how "currently fishing wreckfish" is defined, then the wreckfish fishermen who have been important players in the fishery from the outset, who decided not to fish in 1991 because of the small TAC and the potential for low prices under a fishing derby might not be eligible. In another scenario, fishermen who fished up until 1990, but could not fish in 1991 because of vessel breakdowns or other reasons beyond their control, would not be eligible. The overall effects of this provision may be potentially large on some fishermen with large catch histories who did not fish for whatever reason in 1991.

ACTION 6. DISTRIBUTION OF INITIAL ALLOCATION

Divide one-half of the 100 available shares equally among eligible participants; the remaining shares will be divided based on participants' percentages of total wreckfish catch January 1, 1987 through August 8, 1990. The formula for the weighted portion of the initial allocation for an individual is: participant's total documented wreckfish catch 1987-1990 divided by total wreckfish catch 1987-1990, as determined by fish house receipts and affidavits, not official landings data.

The proposed formula has two basic aims, to reward fishermen by the extent of their historical participation (determined by their percentage of overall catch from 1987-1990 for 50% of available shares), thereby giving them a larger initial percentage share, and to give later entrants a chance to be in the program (based on equal shares of the other 50% of shares). As was pointed out before, the size of initial percentage shares to individuals is critical to attaining the expected benefits from the ITQ program only to the extent that the division of initial shares is perceived to be generally fair. Another concern is that the size of initial shares are not so small as to require a great deal of trading before anyone has enough quota to fish for profitably.

The initial allocation formula will have differing impacts on individuals who are eligible to be in the program, but it is impossible to quantify or otherwise characterize these effect precisely because the quantity of wreckfish landings that individuals will submit is not known at this time. An effort was made to determine the number of fishermen who will likely be eligible under the preferred eligibility requirement and a notion of how shares will be distributed by the allocation of initial shares

formula. A letter was sent by the SAFMC staff to all permitted wreckfish fishermen requesting them to submit an estimate of their aggregate wreckfish landings 1987-1990, without sending in documentation, so that the Council could evaluate the effects of the proposed allocation formula. Unfortunately, only 11 responses were received, which did not allow for any realistic characterization of the number of eligible participants and the size and distribution of their initial shares.

The proposed formula appears to be an effective way to accomplish the Council's intent to balance present and historical participation. With the 5,000 pound minimum catch provision for eligibility, the portion of initial shares divided equally will not give shares to fishermen who had a wreckfish catch of fewer than 5,000 pounds because they only made one short trip and may have decided the fishery was not for them. This will potentially reduce the number of fishermen eligible for an initial allocation and give more recent entrants who are serious about wreckfish a larger allocation from the equal division of shares. According to public comment, there are a significant number of wreckfish fishermen who began in 1990 but fished hard and caught 40,000 to 100,000 pounds that year. Those fishermen will probably not get a very large allocation from the weighted portion of the allocation, because they will be in the pool with some fishermen who began fishing wreckfish in 1987 or 1988 and who have large catch histories. According to public comment, an important aspect of the perceived equity of the initial allocation is to keep the number of eligible participants from being inflated so that the equal shares portion of the initial allocation helps newer entrants.

Rejected Options For Action 6

Rejected Option 1. Divide TAC into equal initial percentage shares among eligible participants.

The size of initial percentage shares is critical to attaining the expected benefits from the ITQ program only to the extent that the division of initial shares is perceived to be generally equitable. Another concern is that initial shares are not so small as to require a great deal of trading before anyone has enough wreckfish to fish for commercially. This option would not reward early participants and would greatly increase the size of shares to newer entrants relative to the preferred alternative.

Rejected Option 2. Initial allocation based on percentage of documented landings from 1987 to 1990.

The size of initial percentage shares is critical to attaining the expected benefits from the ITQ program only to the extent that the division of initial shares is perceived to be generally equitable. Another concern is that initial shares are not so small as to require a great deal of trading before anyone has enough wreckfish to fish for commercially. This option would favor early participants with large catch histories to a far greater extent than the preferred alternative.

Rejected Option 3. Divide TAC using a formula that weights previous landings (allowing fishermen to drop bad years, etc.), vessel size, capacity, and other factors.

Depending on the specifics that would be built into this weighting formula, it could be used to favor earlier participants as well as give later entrants some preference based on the size of their vessel and the extent of the investment in wreckfish fishing. It is not possible to extrapolate which group would fare better with this type of formula unless the specific weighting is known.

Rejected Option 4. Weighted formula based on production history, debt service, length/capacity of vessel, and length of time in the fishery.

Depending on the specifics that would be built into this weighting formula, it could be used to favor earlier participants as well as to give later entrants some preference based on the size of their vessels and the extent of their investment in wreckfish fishing. Using debt service as a weight appears to be generally counterproductive because it could reward individuals who have extended or over-extended themselves financially, whether the investment was wise or not. It is not possible to extrapolate which group would fare better with this type of formula unless the specific weights are known.

Rejected Option 5. Weight earlier or recent landings more heavily than the preferred alternative.

This approach could be used to shape the initial allocation to favor either early participants of later ones differently from how they would fare under the preferred alternative. It is not possible to extrapolate the effects of different weights unless the specific weights are known.

ACTION 7. TRANSFER

Allow sale of percentage shares to anyone. Sale or lease of individual quota or portions of it can be to shareholders only.

The process of selling percentage shares is of paramount importance to the stated objectives of this amendment. If transfer of percentage shares were not allowed, no market mechanism would exist to allow access to flow to those with the lowest fishing costs and the ability to produce the highest valued product.

Provisions to restrict the sale or lease of individual quota to shareholders may restrict free trade somewhat. In theory, this will diminish benefits from ITQ management because prices for individual quota will not reflect market values and this will constrain trade to some degree. Prices for individual quota could potentially be lower than they would be if unfettered markets existed because bidding will be restricted to the pool of shareholders. This is sometimes construed to be beneficial to fishermen. Yet a detrimental aspect of this provision also exists. If the seller is forced to sell quota within the pool of shareholders and the offers do not reflect what the seller feels the

individual quota is worth, then the seller may decide not to sell his quota. He may make this decision despite the fact that his fishing costs are relatively high and he would likely have opted to sell his quota if sale to the highest bidder, whether shareholder or not, were allowed. This will mean that the seller will probably fish his quota even when it makes more economic sense for him to sell it if trading were not restricted. Thus a potential inefficiency can arise out of this restriction.

Because the Council has not placed any restrictions on the divisibility of percentage shares, however, the real effects of this restriction may not be felt or may be reduced. This is because a fisherman who was not initially given a percentage share who wishes to buy individual quota can purchase a small portion of a percentage share to become eligible to purchase individual quota. If a fairly large minimum percentage share were required, then fisherman would have to purchase large fractions of a percentage shares to be able to buy quota, which could have made entry into the fishery prohibitive or impossible if no shares were for sale. With divisibility, fishermen who are not given initial percentage shares can still participate in the bidding for individual quota by purchasing some portion of a percentage share and becoming eligible to purchase individual quota.

The degree to which trade is restricted by this provision and benefits from ITQs may be reduced must be compared to potentially smaller enforcement costs and increased compliance from requiring all participants to purchase individual shares. As is described later on (Actions 15 and 17), the potential forfeiture of percentage shares is believed to be an important incentive for compliance. Although the tradeoff cannot be rigorously evaluated at this time, the benefits of potentially reduced enforcement costs may outweigh the loss of benefits from small restrictions in trade of individual quota.

Rejected Options For Action 7

Rejected Option 1. Percentage shares may be sold to anyone; individual quota may be sold or leased to anyone, whether they hold a percentage share or not.

Completely unrestrained transfer of both percentage shares and individual quota would allow the market to decide who should fish for wreckfish, which is the intent of an ITQ system. As described above, the restricted sale or lease of individual quota to shareholders means that markets will be constrained, but divisibility of shares is expected to allow markets to function better than they would if a minimum size requirement for shares were established. Hence, benefits from ITQs are expected to be higher under this option than the preferred one, but enforcement costs are expected to be higher under this option compared to the preferred alternative.

Rejected Option 2. Sale or lease of percentage shares or individual quota is subject to management approval which may require an "intent to use" clause, an explanation for the sale or lease, and review by a management committee and/or peer review committee.

Although restrictions of this sort are sometimes used (as in the Wisconsin Chub and Whitefish ITQ programs), in general, they greatly restrict free market forces and diminish benefits from ITQs because prices for percentage shares or individual quota do not reflect their real value. As such, the mechanism to allow access to flow to fishing enterprises with the lowest costs or the ability to generate the highest value from the product is impaired and, in some cases, the ITQ program cannot accomplish its objectives.

Rejected Option 3. Only allow sale or lease among legitimate fishing operations.

Although restrictions of this sort are sometimes used (as in the Wisconsin Chub and Whitefish ITQ program), in general they restrict free market forces and diminish benefits from ITQs because prices for percentage shares or individual quota do not reflect their real value. As such, the mechanism to allow access to flow to fishing enterprises with the lowest costs or the ability to generate the highest value from the product is impaired and, in some cases, the ITQ program cannot accomplish its objectives.

Rejected Option 4. Percentage shares or individual quota may be sold or leased subject to a maximum price thought to compensate individuals for gear expenditure.

This restriction would impede free market forces and diminish benefits from ITQs because prices for percentage shares or individual quota will not reflect their real value and markets would likely not function at all. As such, the mechanism to direct access to fishing enterprises with the lowest costs or the ability to generate the highest value from the product is impaired and, in some cases, the ITQ program would not be able to accomplish its objectives.

Rejected Option 5. Percentage shares or individual quota may be sold or leased only after the first year. Fishing firms which do not harvest their individual quota in the first year forfeit their percentages share back to the management program.

This restriction would impede free market forces and diminish benefits from ITQs because prices for percentage shares or individual quota will not reflect their real value. The intent of this provision is to avoid giving percentage shares to firms that do not intend to fish their shares and intend only to sell them. The impact of the provision, however, would likely be more detrimental than beneficial. Trading is supposed to allow a market (rather than government or someone else) to decide who fishes and who does not. The theory behind ITQ management is that the functioning of a market should reorganize insufficient allocations to workable (profitable) sizes. By doing this,

some fishermen are, in essence, paid to leave the fishery. This option delays this mechanism by one year, and could force some fishing firms to incur losses (by fishing their allocation when it makes more sense to sell it) until trading can begin.

ACTION 8. ASSIGNMENT OF INITIAL ALLOCATION

The initial allocation of percentage shares will be to vessel owners. The portion of an individual's share that is based on catch history can be from separate vessels owned by an individual during the 1987-1990 period, provided adequate documentation of landings and vessel ownership during the 1987-1990 period is submitted.

The decision of who should receive initial shares should be based on whatever will work in terms of being practical and equitable. Public comment thus far supports the idea of giving initial shares to vessel owners because they were the ones who shouldered the financial risks of wreckfish fishing. If this is the best way to assign initial shares in terms of practicality and equity, then it is preferable to other approaches.

Rejected Options For Action 8

Rejected Option 1. Percentage shares will be initially allocated to vessel owners, captains who are not vessel owners, fish houses, etc.

Because this option might not be generally acceptable in terms of equity considerations, and because it involves potential double counting of fish landed, it is less beneficial than the preferred alternative. From an individual's point of view, some vessel captains may feel that they merit a percentage share. Those individuals can use the bargaining power of their skills as captains to prevail upon the vessel owner to give them a portion of the percentage share, make some other form of compensation, or face finding another captain.

It must be remembered that if limited entry were not created, captains who are not vessel owners would not necessarily have been able to operate independently in the fishery. They would have had to demonstrate their initiative and earning capacity to purchase a vessel of their own. They can still do this; the only difference is that they must now also purchase percentage shares or a small portion of a percentage share and some individual quota. If free market forces prevail, then individual quota and percentage shares will be available. Although the purchase of shares or quota represents an additional start up cost, fishing should be more profitable under ITQs. Once overcoming the start up cost of purchasing shares or quota, a fisherman should be able to get an adequate return on his investment which may be potentially more lucrative because returns will not be regularly dissipated by open access. The attractiveness of the investment of wreckfish fishing under the ITQ system may make it easier to borrow funds to purchase shares or quota in the fishery.

Rejected Option 2. Allocate percentage shares to vessel owners or captains who must be present during harvest operations; person receiving an allocation must be present.

This provision adds a restriction which will constrain the operation of the ITQ program, impose unnecessary costs on fishing firms to circumvent the provision, and serve to reduce benefits overall. Because the wreckfish fishery is of an economic scale that vessel owners are sometimes investors who own boats but hire others to operate those boats for them, to dictate that under ITQs, the person receiving the percentage share must be present during harvest represents a departure from normal fishing practices and is counterproductive. Under this provision, if the person receiving the initial allocation is not a fisherman or no longer wants to participate in the harvesting sector, he will have to arrange a sale "on paper" of his percentage share to the operator or undertake to incorporate in some fashion where the vessel owner can still control the decisions of the corporation.

ACTION 9. NO DIRECT USE REQUIREMENT

Individual quota not in direct use by the owner of the corresponding percentage share does not have to be sold and will not revert to the management program. The Council will monitor the use of individual quota over time and may take steps to require direct use in the future, if absentee ownership or other potential problems arise.

To accomplish the stated objectives of wreckfish limited entry, individual quota and ultimately percentage shares held by individuals should be treated as an asset to be handled in the manner of the owner's choice. This measure will help to keep markets for percentage shares free from restrictions and will not force fishermen into behavior that would not have been rational from a practical or economic standpoint, such as fishing with an unsafe vessel just to avoid forfeiture under a direct use provision. The degree to which absentee ownership occurs or is problematic will be evaluated in the future. At that time, it will be important to compare the detrimental effects of absentee ownership to the efficiency gains from not restricting markets and the potential costs involved with making sure owners directly use their shares.

Rejected Options for Action 9

Rejected Option 1. An individual quota or at least 50% of it must be used by the person or business entity owning it at least once in every three year period. If more than 50% of an individual quotas is leased, loaned, or sold for three consecutive years, then the individual's or business entity's percentage share must be sold or it will revert back to the to the management program for redistribution.

The intent of this provision is to prevent "absentee ownership" of percentage shares in the ITQ program. Proponents of use requirements either feel that portions of the resource will remain idle or that individuals should not be allowed to sell, lease, or loan their individual quota over a

number of consecutive years, even if that decision makes more sense from a personal financial standpoint as well as an overall economic point of view. This measure could potentially force individuals into actions to preserve their percentage share that do not make good economic sense and hence violate the objectives of the ITQ program.

Rejected Option 2. Individual quota not in use for __ years must be sold or they revert to the management program.

This option has the same impacts as Rejected Option 1. except the number of consecutive years can be specified differently.

ACTION 10. SUBSEQUENT TACs AND HOW LARGE CHANGES IN TAC WILL BE ADDRESSED

Allocate future TACs, whether larger or smaller, based on the annual percentage shares at the beginning of the fishing year.

The issue of whether a large increase in TAC should automatically go to existing shareholders or whether provisions should be set out to handle this situation differently is essentially an equity issue and will not directly affect the attainment of the stated objectives of Amendment 5. If both the parties who are likely to be included in the program and those who are not are comfortable with the arrangement that although increases may have little to do with the sacrifices of fishermen in the program, they should accrue to those fishermen because decreases in TAC will reduce their individual quotas, then there is no problem. If there are large perceived equity problems, then another arrangement would be better. The actual likelihood of a large increase in TAC being possible is not known, but it may very well never occur. In the final analysis, if a large increase in TAC is possible, a future amendment could change the way it which it is distributed prior to making the increase in TAC available to fishermen.

Rejected Options for Action 10

Rejected Option 1. Specify that if large increases in TAC are possible, fishermen who were not initially allocated percentage shares should be given percentage shares.

Although this alternative would have implications for the distribution of rents in the fishery, from a practical perspective, stipulating that a large increase in TAC would have to go to new fishermen might be unwise. This is because any incentives for conservation created in the fishery under ITQs might be eroded if shareholders feel that future increases in TAC will not go to shareholders. Under the preferred alternative, the arrangement to give increases in TAC to the existing shareholders, yet reserving the possibility that a future amendment could alter as more

information becomes available, appears to be a better way to deal with potential increases in TAC than this option.

Rejected Option 2. Give any large increases in TAC to both existing participants and new entrants based on a formula to be specified later.

Incentives for conservation created in the fishery under ITQs might be eroded if shareholders feel that future increases in TAC will not go to shareholders alone. Under the preferred alternative, the arrangement to give increases in TAC to the existing shareholders, yet reserving the possibility that a future amendment could alter as more information becomes available, appears to be a better way to deal with potential increases in TAC than this option.

ACTION 11. RESTRICTIONS ON PERCENTAGE SHARES AT THE TIME OF THE INITIAL ALLOCATION

No percentage share can be greater than 10% of the 100 available shares at the time of the initial allocation.

This issue boils down to an equity matter which is not of direct importance for realizing the expected benefits from the ITQ program but of secondary importance in promoting equity which will help to ensure that the ITQ program functions well. From an individual's point of view, however, this cap on the size of an initial percentage share could have both negative and positive impacts depending on the catch history of the individual. For someone with a large catch history, this provision could mean that the size of his initial share is smaller than it would have been without this provision. For someone with a smaller catch history, this provision could mean that an individual gets a larger share from the portion of the initial allocation that is based on percentage of total catch. According to public comment and other sources, it is thought that very few or no initial percentage shares will be large enough to be reduced by this provision. If this is correct, then the 10% cap shares may not have any effect considering the initial allocation and eligibility formulas.

Rejected Options for Action 11

Rejected Option 1. No restriction on the size of percentage shares at the time of the initial allocation.

As explained above, the cap on the size of initial shares at the time of the initial allocation may affect the size of the share that individuals receive. In general, however, this issue boils down to an equity matter which is not of direct importance for realizing the expected benefits from the ITQ program but of secondary importance in promoting equity which will help to ensure that the ITQ program functions well.

Rejected Option 2. Impose restrictions on the size of a percentage share an individual or corporation can own after the initial allocation.

This option would restrict free markets for shares and would impose an unnecessary constraint because large percentage shares may ultimately prove to be the optimal scale in the wreckfish fishery. Control of a large percentage share of the wreckfish fishery does not necessarily give the holder price-determining power because wreckfish is just one part of the grouper and grouper substitute market. Restrictions on the size of shares after the initial allocation might have introduced inefficiencies that could have reduced overall benefits from the ITQ system.

ACTION 12. ALLOCATION OF SHARES

Allocate shares as percentages of Total Allowable Catch (TAC).

Whether shares are denominated as percentages of TAC or as fixed quantities (or numbers) of fish is an important aspect of how well the ITQ system functions. Differences in the functioning of the system arise when TAC is adjusted, up or down. The merits of using percentage shares is often debated but appears to be preferable for the success of the program.

When shares are expressed as a percentage of TAC, the amount of fish associated with each percentage share automatically varies from year to year as TAC varies. If shares were expressed as fixed quantities or numbers of fish, the Council would have to develop special procedures to decrease either the number of shares outstanding or the size of each share in response to the decrease in TAC.

The question arises of whether or not it is the responsibility of the Council to compensate fishermen for reductions in quota or loss of shares due to reductions in TAC. This problem does not arise with percentage shares because changes in TAC adjust the quantity of fish associated with each percentage share. In practical terms, fishermen are not going to be compensated when TAC is reduced, at least not in accordance with the way fisheries are currently managed in the United States. Direct subsidies and/or government protection for "bad years" has not been a feature of management's approach to the stewardship of its fisheries. In reality, the Council would probably adjust the size of each share proportionally to the change in TAC. Once this procedure were developed and became generally understood by fishermen, there would be essentially no practical difference between the percentage share and fixed-quantity share systems.

The traded value of shares will reflect uncertainty whether shares are denominated in percentage terms or not. If a fishery is characterized by relative uncertainty in terms of biological recruitment or other factors from year to year, then risk will be reflected in share values. If stable in terms of yields over time, then shares should not reflect risk and should trade reasonably well, all others factors equal. The underlying difference between a percentage share or fixed share approach is that percentage shares have a built in adjustment mechanism while fixed quantity shares might

initially bring about debate, policy discussions, and other actions that involve uncertainty for shareholders when reductions in TAC are needed. These problems would eventually decrease when a defined procedure for handling decreases in TAC was in place. For this ITQ program, the fact that shares are denominated in percentage terms is beneficial, particularly if it contributes to avoiding the necessity of developing a potentially complicated procedure to deal with future problems arising from potential future increases and decreases in TAC.

Rejected Option For Action 12

Rejected Option 1. Allocate shares as fixed quantities or numbers of wreckfish.

As is argued above, denominating shares in percentage rather than fixed quantity terms is thought to be preferable because it avoids the necessity of developing a procedure for decreasing share sizes, should TAC need to be reduced in the future.

ACTION 13. TRACKING/MONITORING INDIVIDUAL QUOTAS

The system to track and monitor individual quotas to ensure that TAC and individual quotas are not exceeded is a dual-entry record keeping system. The system described in the management measure section under Action 13 is subject to further refinement that will result from cooperation between the SAFMC staff and the NMFS Southeast Regional Office, prior to the first issue of coupons.

The overall importance of the tracking and monitoring system is to discourage cheating in terms of non-reporting or exceeding individual quotas. If cheating is difficult to detect, then the practice will eventually become widespread and the ITQ program will not accomplish its objectives.

Recently, attention has focussed on difficulties of preventing "quota busting" ITQ programs around the world (Copes, 1986). Given the relative size and scale of the wreckfish fishery, the relatively small area in which the fishery is prosecuted, and the relatively small number of fish houses large enough to handle unloading of wreckfish vessels, it is believed that good compliance is attainable and cheating will not be an inherent problem in the wreckfish ITQ program. The tracking and monitoring system, however, will be an important factor in avoiding problems associated with non-compliance.

The coupon system with separate entries from fishermen and those who purchase wreckfish appears to be an effective tracking/monitoring device because it gives enforcement agents a mechanism to verify that fishermen are authorized to have wreckfish on board, either on the water or at the dock, and that fish houses are authorized to have the quantity of wreckfish in their coolers. If fishermen and dealers do not have sufficient canceled coupons to match the quantity of wreckfish in their possession, then a violation has occurred. Some other systems are not able to provide instant confirmation of whether or not a fisherman has exceeded his individual quota.

From the individual fishermen's point of view, the system can be evaluated in two ways. The first is the costs it imposes for complying. The coupon system will be denominated in fairly small poundage units. It will be somewhat time consuming for fishermen to cancel coupons by the time they dock. Given that the trip back from the fishing grounds is at least 12 hours, it appears that fishermen will have ample time to cancel coupons by signing and dating them, which is expected to require between five and ten minutes. The estimated public burden cost of the coupon system is $1,000 annually. Other systems that were evaluated, such as tagging individual fish with a ratcheting gill or jaw tag, would require more of fishermen's time.

The other concern from the fishermen's point of view is that the system works effectively and discourages cheating. If cheating is rampant, then fishermen who are complying will be at an economic disadvantage.

Another general concern is the administrative cost of the tracking/monitoring system. The coupon system may be somewhat costly to administer because it involves printing and issuing coded coupons, counting coupons denominated in small units, and having a system to replace lost or stolen coupons and to verify that coupons were actually lost or stolen. NMFS costs for the system that is envisioned are a one time development cost of $10,000, $4,000 annually for coupon allocation and printing and mailing coupons, and $10,000 for tracking coupons each year.

Overall, the coupon system will be the mechanism for monitoring catch, allocating individual quota, and tracking transactions of individual quota, as well as being the individual quota transfer unit. As such, it accomplishes several important tasks. The administrative costs, as well as the time costs on fishermen are minimal when weighed against the benefits to be obtained from greater compliance and prevention of quota busting and non-reporting which might cause the ITQ program to fail.

Rejected Options For Action 13

Rejected Option 1. Track individual quotas using the existing data collection system.

Although using the existing data collection system would not involve any new costs, that system was not designed to track catch on an individual vessel basis and would not be effective at preventing non-compliance. Although costs would be minimized with this alternative, using the existing data collection system would virtually guarantee the demise of the ITQ program because that system does not match catch with individual fishermen.

Rejected Option 2. Track individual quotas by a receipt system (paper trail).

The preferred alternative of using coupons is a form of dual entry receipt system which allows immediate verification. The typical receipt system involves tallying paper receipts at the end of the fishing season to verify that fishermen have not exceeded their individual quotas. Although

that type of system can be effective, a coupon system is more advantageous because it allows on-site determinations of whether a fisherman has exceeded his individual quota and discourages non-reporting to a greater degree. The cost of a paper trail system is not known but could potentially be greater than a coupon system, if paper trail systems in other countries where ITQ programs are in place are representative of typical costs for that type of system.

Rejected Option 3. Track individual quotas by a fish tag system.

As noted earlier, a fish tag system is one of the better methods for on-site verification and discourages non-reporting. A version of this system is used in the Mid Atlantic, in the form of cage tags for surf clams and ocean quahogs. If a fisherman is in possession of fish that are not tagged by the time he docks, he is in violation, just as if he does not have coupons or has not canceled coupons equaling his catch. Locking jaw or gill tags that are virtually impossible to remove in a way that they can be used again are probably the best methods for discouraging cheating by fishermen. Because on a typical wreckfish trip, approximately 300 individual wreckfish (at an average individual gutted weight of 35 roughly pounds) are caught, this system would be somewhat burdensome for fishermen and involves unknown costs at this time. If estimates were available for the cost of developing and administering a fish tag system, one could compare those estimated costs to the costs for the coupon system, taking into account the possibility that enforcement costs with fish tags might be lower than for enforcement with the coupon system. Unfortunately, cost estimates for that comparison are not available at this time.

ACTION 14. TRACKING/MONITORING INDIVIDUAL QUOTA AND PERCENTAGE SHARE TRANSACTIONS

Tracking sales of individual quota will be done by requiring the buyer and seller to sign and date the appropriate lines on the reverse side of the coupons that are sold. The system to track transactions of percent shares will involve a single point transfer agent similar to the way stock and bond transactions are recorded. This system is being developed by the National Marine Fisheries Service, Southeast Regional Office. Fees to cover the administrative costs of processing transfer applications will be charged.

The primary concerns with tracking and monitoring transactions are that the system functions well, does not constrain sales by adding large recording costs and other obstacles, and is simple enough so that fishermen and others are aware of exactly what they are selling and buying. The proposed system to track sales of individual quota meets these criteria. Making the coupons the recording system should be a cost saving and convenient device.

Tracking percentage shares through a single point transfer agent also appears to be a viable system. This will involve slightly more inconvenience for fishermen who have to send in the proper

paperwork and wait for the sale to be finalized. The fee to cover the administrative costs of recording and handling percentage share transfers are estimated to be $2,000 annually and the public burden cost of the share transfer system is estimated to be $2,500 annually.

Sales of percentage shares are a more involved undertaking for the buyer and seller in any case and the fact that the sale is not instantly finalized may actually help to avoid misunderstandings between those entering into transactions because they will have sufficient time to understand what exactly has been purchased before the sale is final. At this time, no minimum share size is contemplated. As explained in Action 7, this is important because of restrictions imposed on sales of individual quota to shareholders only. Although recording transfers of small shares may impose more costs on the system, the overall benefits obtained from allowing buyers to purchase small shares will probably outweigh the costs of recording those potentially numerous transactions.

Provisions to collect the sales price of shares will make data available to economist and sociologists who are interested in studying the market for shares in an ITQ program. Because there are so few ITQ systems in the United States, this information will be useful in determining the benefits that are created under ITQ management. In addition, this information will also be useful for evaluating the potential for ITQ management of other fisheries.

Rejected Option For Action 14

Rejected Option 1. Do not track transactions of individual quotas or percentage shares.

It is important to track transfers of individual quota so that if there is any question of whether an individual has exceeded his individual quota, the original owner can be identified and the number of coupons issued can be matched to the number of coupons collected. Tracking percentage share sales is important as a practical matter to know who should be issued individual quota to in future years.

ACTION 15. INCREASING ENFORCEABILITY PERMIT SANCTIONS OR REMOVAL OF ANNUAL PERCENTAGE SHARE FOR GROSS VIOLATIONS

Because the benefits obtained from individual transferable quota management depend, in large measure, on regulatory compliance with individual quotas, the Council maintains that gross violations (such as quota busting, failure to report, or fishing during the closed season) warrant strict penalties such as permit sanctions, forfeiture of individual quota and permit sanctions, or percentage share forfeiture and permit sanctions.

The Council believes that gross violations such as fishing outside the season, exceeding individual quotas, and non-reporting should be met with stiff penalties such as share forfeitures or permit sanctions. If stating the Council's intent from the outset actually helps provide for penalties that are large enough to deter other violators, then the provision is beneficial. Because compliance is

so important to realizing the expected benefits from the ITQ program, measures to stimulate compliance are necessary and worthwhile. The benefits from this measure are potentially great, and no direct costs are created by establishing this provision.

Rejected Options For Action 15

Rejected Option 1. Do not state the Council's intent that gross violations should met with share forfeitures or permit sanctions.

NOAA General Counsel indicated that stating the Council's intent in this matter will facilitate General Council's use of the administrative record to determine the relative gravity of various offenses. For this reason, not adding this provision would decrease the probability that strict penalties are sought and this would serve to decrease benefits from the ITQ program in the long run.

ACTION 16. DEALER PERMITS

Dealers who want to handle wreckfish must obtain a federal wreckfish dealer permit. Dealers who handle wreckfish must fill out monthly wreckfish reports listing their total wreckfish purchases and must attach their portions of the wreckfish coupons. Requirements for a federal wreckfish dealer permit are that the applicant possess a state dealer's license, and that the applicant must have a physical facility at a fixed location in the state wherein the dealer has a state dealers license. Dealers can use unpermitted agents to offload and transport fish, but must comply with the 24 hour notice prior to offloading requirement (see Action 19). A fee will be charged to cover the administrative costs of issuing federal wreckfish dealer permits

Dealer permits will increase incentives for dealers to accept only legally caught wreckfish and to report wreckfish landings. For this reason, dealer permits are important. The small inconvenience to fish houses from requiring permits and monthly reporting is more than compensated for by the benefits from increased incentives for regulatory compliance. The estimated public burden cost of dealer permits is $600 annually and the public cost of dealer reporting is estimated to be $1,000 annually. Requiring that dealers have a physical facility at a fixed location is not thought to impose any large costs on legitimate dealers because, from a practical standpoint, physical facilities are required to offload wreckfish. For inland dealers who may wish to offload wreckfish at non-permitted dealer locations, 24 hour notice prior to offloading must be given (see Action 20), which will potentially cause some minor inconvenience. For legitimate dealers wishing to handle wreckfish, however, these requirements do not appear to be overly burdensome according to public comment.

Although somewhat restrictive, these measures will pay large dividends if they are successful in discouraging non-reporting and other forms of cheating because non-compliance can readily destroy or severely reduce the expected benefits from ITQ management. It is important that

restrictions do not greatly constrain individuals who wish to handle wreckfish from becoming federally permitted wreckfish dealers so that fishermen will have a variety of dealers to sell to, and markets will not be obstructed. A state wholesaler's license is already required of anyone wishing to handle wreckfish in each state in the South Atlantic Council's area of jurisdiction. Most states already require that applicants provide an address other than a post office box in order to obtain a state license. Action 15 simply adds the restriction that the dealer's facility be at a fixed location, which will eliminate the use of mobile facilities such as trucks and trailers.

Rejected Option For Action 16

Rejected Option 1. Do not require dealer permits.

If dealer permits were not required, incentives for compliance among dealers and fishermen would be decreased and a weak link in the compliance chain would exist. The small inconvenience to fish houses by requiring permits and reporting is more than compensated for by the benefits from increased incentives for regulatory compliance.

ACTION 17. PERMITS IN CONJUNCTION WITH POSSESSING COUPONS AND A LOGBOOK

Fishermen are required to possess a wreckfish vessel permit in conjunction with coupons and a current logbook. To obtain a wreckfish permit, an applicant must possess a certificate of percentage share which was issued at the initial allocation of shares or obtained from the transfer agent after purchasing percentage share or portion thereof (see Action 14). A fee to cover the administrative cost of issuing wreckfish vessel permits will be charged.

The requirement that fishermen obtain a wreckfish permit in addition to having coupons on board and a logbook creates another way to increase enforcement by closing a loophole. The loophole available to fishermen whose share is exposed to forfeiture is to divide their share among family members in order to reduce their exposure to a share forfeiture. By requiring permits, NOAA General Counsel will have another effective way of penalizing violators. Vessels fishing for wreckfish are already required to obtain a permit so this action does not involve any new requirement of fishermen. The fee for obtaining a wreckfish vessel permit is presently is $23 per permit and the public burden cost for obtaining permits is estimated to be $1,200 annually.

Rejected Options For Action 17

Rejected Option 1. Annual permits are not required.

If the potential enforcement loophole of dividing shares is allowed to exist, then the threat of a forfeiture of percentage shares will not deter non-compliance effectively. This would decrease benefits from the ITQ program.

ACTION 18. APPLICATION OVERSIGHT COMMITTEE

An Application Oversight Committee (AOC) will be established upon approval of Amendment 5 to assist the NMFS Regional Director in handling disputes over eligibility and allocations of initial percentage shares. The charge of the AOC is to make sure that the criteria pertaining to eligibility or initial allocation were applied to an individual's application in a correct manner. The AOC is to be made up of one state director (or his designee) from each state in the South Atlantic Council's area of jurisdiction and the NMFS Regional Director, or his designee. NOAA General Counsel will have a non-voting advisory role on the AOC.

The role of the Application Oversight Committee to address problems with initial determinations on eligibility and the initial allocation of percentage shares. To fishermen, the AOC is important because it will help to prevent erroneous determinations. The charge of the AOC is narrow, however, and this means that it is not empowered to determine that a given fisherman who did not meet the eligibility requirement is equally meritorious, for example. If the charge of the AOC were broad, then eligibility and initial allocation criteria would not be the only criteria used to determine eligibility and the initial allocation. Fishermen who meet the Council's criteria, would be left with smaller initial allocations if the AOC granted percentage shares to "equally meritorious" or "hardship" cases.

It is also important that the period during which the AOC can review initial allocation percentage share determinations is both adequately long for fishermen to contest decisions and limited in duration. This is because after initial shares are adjusted, reflecting AOC decisions, fishermen will need to know that the share they hold is final and cannot be adjusted by further AOC decisions. If it remains possible that the AOC could again adjust shares, than the market for shares will not function well. At this point, the AOC process is expected to take 30 days. This should be adequately long for fishermen to contest initial determinations.

It is expected that the AOC will only need to be convened once or possibly twice during the AOC period. The costs of convening the AOC are estimated to be $5,000.

Rejected Option For Action 18

Rejected Option 1. Expand the powers of the AOC beyond the charge of determining if the criteria for eligibility or initial allocation were correctly applied.

The status of individuals who do not meet the criteria for eligibility or those who receive small initial allocations will not be changed by the oversight committee unless the initial determination was based on a calculation error or unless it is a matter of submitting better evidence of landings. Those individuals with cases which do not meet the criteria but have extenuating circumstances of some sort would fare better if the powers of the AOC were expanded. The detrimental side of allowing the AOC to look at extenuating circumstances would be that a potentially

large number of additional fishermen would be eligible for an initial allocation, thus diluting the size of each initial allocation, particularly the portion of the allocation based on equal shares which is critical to more recent entrants to the fishery.

ACTION 19. TWENTY FOUR HOUR NOTICE PRIOR TO OFFLOADING

To offload wreckfish at any location other than that of a federally permitted wreckfish dealer, the vessel operator must notify the NMFS enforcement office 24 hours prior to offloading.

The wreckfish industry claims that, on occasion, boats are not able to land at normal dealer locations because of weather, tides, or other conditions. This hailing provision offers fishermen the flexibility to adjust to unpredictable conditions and to avoid the appearance of illegal behavior. Another potential use of the 24 hour notice provision is for the sale of wreckfish to a dealer who does not have a facility on the water. The fisherman selling to that dealer will have to notify NMFS enforcement prior to offloading if the offloading does not take place at the facility of a federally permitted wreckfish dealer. This provision will help to discourage non-reporting. Without requiring 24 hour notice, wreckfish could be unloaded at locations where regular inspections are not carried out because the location is not known to NMFS enforcement. By requiring notice, some inconvenience for the boat captain and dealer will be created, but according to public comment, this inconvenience will be minor compared to the larger impacts from allowing offloadings at federally permitted dealer locations only. NMFS law enforcement has already budgeted the costs to administer and carry out the 24 hour notice provision under Amendment 4, so no new costs are created by this measure.

Rejected Option for Action 19

Rejected Option 1. Twenty Four hour notice for landing at locations other than permitted dealers is not required.

If offloadings were allowed to take place at locations that would not be monitored regularly, then it would be easier for fishermen to illegally land fish in excess of their quotas. Eventually, this could reduce or eliminate the expected benefits from ITQ management.

ACTION 20. OFFLOADING WRECKFISH BETWEEN 8 A.M. AND 5 P.M.

To offload wreckfish at any location other than that of a federally permitted wreckfish dealer, the vessel operator must notify the NMFS enforcement office 24 hours prior to offloading.

Fishermen would be more likely to exceed their quotas if a reasonable probability of dockside inspection does not exist. In order to aid NMFS enforcement in regularly monitoring wreckfish offloadings, it is important that offloadings occur at hours when NMFS enforcement agents are working, usually 8 A.M. to 5 P.M. This requirement does not obligate wreckfish vessels to land

during those hours; it restricts the hours when wreckfish can be offloaded. Public comment from fishermen and dealers present at public hearings have indicated that this requirement will not be burdensome because offloading normally occurs within that period of time. Wreckfish vessels normally have sufficient hold and ice capacity to adequately preserve wreckfish for considerable periods of time. NMFS law enforcement has already budgeted the costs to carry out a substantial number of dockside inspections of wreckfish offloadings, under measures approved in Amendment 4. This measure will make those inspections less costly and more effective.

Rejected Options for Action 20

Rejected Option 1. No restrictions on offloading hours.

Offloadings could occur without being monitored regularly under this option, which could make non-reporting easier than with the 8 A.M. to 5 P.M. offloading requirement. This could potentially reduce or eliminate the expected benefits from the ITQ system.

Rejected Option 2. Twenty Four hour notice at all locations.

Provisions included in Amendment 4 to make the wreckfish trip limit more enforceable would have required 24 hour notice for all wreckfish offloadings. With federal dealer permits and other measures in Amendment 5, dealers will be part of a dual entry reporting system and this means that wreckfish offloadings can be monitored as effectively as they would have been under the previously envisioned plan to require 24 hour notice for all offloadings. For this reason, measures to require hailing before all offloadings of wreckfish are no longer necessary and it would be burdensome on fishermen to require them to give 24 hour notice for all offloadings when adequate monitoring of wreckfish offloadings can be achieved in another way.

ACTION 21. REMOVAL OF 10,000 POUND TRIP LIMIT

Upon implementation of the wreckfish ITQ program, the 10,000 pound trip limit will no longer be in force.

With individual transferable quotas, a mechanism to allow wreckfish to flow to the market when it is makes the most sense economically will exist. Hence the trip limit, which was designed to be an interim measure to control the pace of harvest under open access, will no longer be necessary or beneficial.

Under open access, the trip limit provided the only means available to slow down the pace of landings and help prevent markets from becoming flooded. As pointed out in Amdendment 3, although providing some benefits overall, trip limits imposed costs on fishing firms with vessels capable of efficiently harvesting more than 10,000 pounds on a trip. For an ITQ program, however, to keep the trip limit in place would impose a needless restriction on the flow of product to markets

and could potentially reduce benefits from ITQ management. Under ITQs, it may make sense for some fishing firms to land more than 10,000 pounds on a trip. In aggregate, however, product should flow to the market at a pace that achieves the greatest net benefits attainable (accounting for any imperfections that might exist in market levels beyond the exvessel level), particularly as fishermen learn to adjust their behavior to the new system over time.

Rejected Option for Action 21

Rejected Option 1. Continue 10,000 pound trip limit under ITQs.

Trip limits are obviated under ITQs and could potentially reduce overall benefits from ITQ management. Product may initially flow to markets in a way that is not optimal, but ITQs should direct harvest strategies once fishermen and dealers adjust to the new system. Trips limits would be an unnecessary restriction on the workings of a market-driven mechanism.

C. Small Business Considerations

No Significant Impact Determination

The proposed measures will affect most of the estimated 85 small businesses in the wreckfish harvesting sector, so the "substantial number" criterion is met. Management measures in Amendment 5 are not expected to result in a reduction in gross revenues by more than five percent, so there is not a "significant impact." Any decreases in gross revenues to fishing firms would be attributable to decreases in exvessel prices or decreases in the quantity of wreckfish fishing firms can harvest.

Theoretically, an ITQ program will allow fishing firms to receive higher prices for their catches, all other factors equal. Exvessel prices could be lower in the future due to factors such as a demand shift resulting from a decrease in disposable income, which could have implications for exvessel demand. That would, however, in no way be attributable or related to ITQ management. A decrease in gross revenues resulting from a decrease in the quantity firms can harvest in the future would be attributable to the level of TAC, and not ITQ management. The mechanism to set TAC was established in Amendment 3 (SAFMC, 1990b), and impacts of TAC levels are accounted for in RIRs prepared annually as part of the Modified Notice Action procedure.

Lastly, fishing firms that opt to exit the fishery may experience decreases in gross revenues participating in other fisheries or other employment activities. If markets function efficiently, those firms should be adequately compensated by the revenues they receive for their shares. In the final analysis, it is possible for firms to sell out without adequate compensation, but that would be attributable to an inferior business decision, something that could equally have happened prior to ITQ management.

Because measures in this amendment are expected to increase net revenues to firms and aggregate producer benefit from the wreckfish fishery, and decreases in gross revenues are not directly attributable to measures in this amendment, an Initial Regulatory Flexibility Analysis (IFRA) is not required. To the extent possible, given data availability, the impacts of proposed management measures on fishing firms are detailed in the Regulatory Impact Review.

SUMMARY OF PUBLIC AND PRIVATE COSTS ASSOCIATED WITH AMENDMENT 5
(Source: NMFS SERO)

NMFS/NOAA COSTS:	
-NMFS Southeast administrative (Eldridge)	$15,000
-NMFS Headquarters administrative (Eldridge)	$ 3,000
-NOAA General Counsel (Eldridge)	$ 2,000
-Appeals Board - one-time cost - (Eldridge)	$ 5,000
-Enforcement (Bohr)	$ 0
(Law Enforcement costs covered under amendment 4)	
-Coupon system (Burgess)	
-One-time development cost	$10,000
-Annual coupon allocation	$ 2,000
-Annual printing and mailing	$ 2,000
-Annual coupon tracking	$10,000
-Data management (Burgess)	$ 5,000
-Costs related to share transfers (Burgess)	$ 2,000
PUBLIC BURDEN COSTS:	
-Dealer logbooks (Burgess)	$ 1,000
-Annual coupon reporting (Burgess)	$ 1,000
-Dealer permits (Burgess)	$ 600
-Fishing permits (Burgess)	$ 1,200
-Share transfer fees (Burgess)	$ 2,500

D. Economic Data

SAFMC staff conducted an informal survey of wreckfish fishermen and results are included as Appendix 1 in Amendment 3 (SAFMC, 1990b). NMFS Economics and ESO staff have provided

the product value information shown in Table 1 in the 1991 assessment report (Merriner and Waugh, 1991). No other new economic data are available.

V. HABITAT CONCERNS

The habitat section for the snapper grouper fishery management plan was updated as part of Amendment 1. Additional information on wreckfish is shown below (Ulrich and Sedberry, 1990).

"Wreckfish are pelagic for the first several years of their life (up to 30 cm length), often associated with floating debris (Roberts, 1989), the habit responsible for their common name. They grow to large size (100 kg weight, 2 m length), and are commercially fished in portions of their range (Roberts, 1989). The shallowest reported demersal populations of *Polyprion* in the western Atlantic were reported off Argentina in depths of 66-84 m (Menni and Lopez, 1979). The maximum reported depth for wreckfish is 1000 m (Lythgoe and Lythgoe, 1971). The presence of fishable concentrations of wreckfish in the northwestern Atlantic was unknown until 1987, when a fishery began to develop on the Blake Plateau, adjacent to South Carolina and Georgia.

The fishing grounds comprise an area of the Blake Plateau of approximately 50-75 nm^2, characterized by a rocky ridge system having a vertical relief of > 50 m and a slope of > 15 degrees (Figure 1). The depth range in this area is 450-600 m. The substrates in areas of the Blake Plateau exhibiting significant relief are generally characterized as composed of manganese - phosphate pavements, phosphorite slabs and coral banks (Pratt and McFarlin, 1966: Stetson et al, 1969). Bottom samples obtained from commercial fishermen indicate that wreckfish concentrations occur primarily on the manganese-phosphate bottoms. Prior observations from the research submersible, *Johnson Sea-Link I*, showed low densities of wreckfish associated with coral mounds or banks (C. A. Wenner, SCWMRD, pers. commun.). There has been some exploratory efforts by commercial vessels but most of the fishing effort occurs on the initially discovered grounds of the Hoyt Hill area (Figure 1)."

Preservation of quantity and environmental quality of offshore habitat in the South Atlantic region is essential to the wreckfish stock. Discharge of pollutants may result in direct mortality of wreckfish at various stages of their life history. In addition, exposure and concentration of such chemicals in wreckfish could limit the desirability or the possibility of consumption as occurred in bluefish with PCBs. Presently there is limited information on the concentrations or occurrence of chemicals in wreckfish. As information becomes available, the Council will readdress the issue and include information in subsequent amendments to the FMP.

Potential activities that may threaten the quantity or quality of habitat the wreckfish resource is dependent on include, oil and gas exploration and production, mining of minerals (e.g., manganese) from deep sea beds on the Blake Plateau, ocean dumping of contaminated substances, and plastic pollution. If such activities were determined to result in significant environmental degradation or net loss of fishery habitat they would be in direct opposition to adopted Council Habitat Policy.

As future observations of wreckfish from submersibles are conducted within the fishing grounds, researchers should begin to determine the extent of distribution and species composition of any deepwater coral habitat. Previous wreckfish harvest methods involved anchoring and occasionally resulted in corals being removed from the bottom by the anchor. Present harvest involves the use of a 30 to 50 pound sinker, cable, and terminal rig while motor fishing. Obervations from submersible dives should be made to determine any impacts present harvest techniques are having on deepwater coral habitat. Present regulations in the Fishery Management Plan for Coral and Coral Reefs state "Prohibited coral and allowable octocoral taken as incidental catch to other fishing activities by a person who does not have a permit must be returned to the sea in the general fishing area as soon as possible." Prohibited corals include fire corals, hydrocorals, stony corals, black corals, and sea fans.

VI. VESSEL SAFETY CONSIDERATIONS

P.L. 99-659 amended the Magnuson Act to require that a fishery management plan or amendment must consider, and may provide for, temporary adjustments (after consultation with the U.S. Coast Guard and persons utilizing the fishery) regarding access to the fishery for vessels otherwise prevented from harvesting because of weather or other ocean conditions affecting the safety of the vessels.

No vessel will be forced to participate in the fishery under adverse weather or ocean conditions as a result of the imposition of management regulations set forth in this amendment to the Snapper Grouper fishery management plan. The ITQ program will allow fishermen to more effectively choose the optimal fishing periods in terms of fishing productivity and weather conditions. Therefore, no management adjustments for fishery access will be provided.

There are no fishery conditions, management measures, or regulations contained in this amendment which would result in the loss of harvesting opportunity because of crew and vessel safety effects of adverse weather or ocean conditions. No concerns have been raised by the people engaged in the fishery or the Coast Guard that the proposed management measures directly or indirectly pose a hazard to crew or vessel safety under adverse weather or ocean conditions. Therefore, there are no procedures for making management adjustments in this amendment due to vessel safety problems because no person will be precluded from a fair or equitable harvesting opportunity by the management measures set forth.

There are no procedures proposed to monitor, evaluate and report on the effects of management measures on vessel or crew safety under adverse weather or ocean conditions.

VII. 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. 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. Based upon the assessment of this amendment's impacts in previous sections, the Council has concluded that this amendment is an improvement to the federal management measures for the wreckfish fishery.

This amendment is consistent with the Coastal Zone Management Program of the states of Florida, South Carolina, and North Carolina to the maximum extent possible; Georgia does not participate in the Coastal Zone Management Program.

This determination has been submitted to the responsible state agencies under Section 307 of the Coastal Zone Management Act administering approved Coastal Zone Management Programs in the states of Florida, South Carolina and North Carolina.

North Carolina requested that they be allowed to comment on the final plan amendment. South Carolina responded that Amendment 5 was consistent with their Coastal Management Program. Florida did not respond.

VIII. ENDANGERED SPECIES AND MARINE MAMMAL ACTS

The proposed actions have no anticipated impact on threatened or endangered species or on marine mammals. A Section 7 consultation was conducted with the NMFS Southeast Regional Office. A biological assessment was prepared which concluded that the proposed actions will have no anticipated impact on threatened or endangered species or marine mammals. In addition, a Section 7 consultation was conducted for the original fishery management plan and for Amendment 4, and it was determined the fishery management plan was not likely to jeopardize the continued existence of threatened or endangered animals or result in the destruction or adverse modification of habitat that may be critical to those species.

IX. 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 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 data collection programs. The public reporting burdens for these collections of information are estimated to average 15 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.

X. FEDERALISM

No federalism issues have been identified relative to the actions proposed in this amendment and associated regulations. 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.

XI. NATIONAL ENVIRONMENTAL POLICY ACT ENVIRONMENTAL ASSESSMENT

The discussion of the need for this amendment, proposed actions and alternatives, and their environmental impacts are contained in Section III of this amendment. A description of the fishery is contained in Section II.

The proposed amendment is not a major action having significant impact on the quality of the marine or human environment of the South Atlantic. The proposed action is an adjustment of the original regulations of the fishery management plan to protect the wreckfish resource from depletion. The proposed action should not result in impacts significantly different in context or intensity from those described in the Environmental Impact Statement (EIS) published with the initial regulations implementing the approved fishery management plan. The preparation of a formal EIS is not required for this amendment by Section 102(2)(c)(c) of the National Environmental Policy Act or its implementation regulations. For a discussion of the need for this amendment, please refer to Sections I and II.

Mitigating measures related to proposed actions are unnecessary. No unavoidable adverse impacts on protected species, wetlands, or the marine environment are expected to result from the proposed management measures in this amendment.

The proposed regulations will protect the resource from depletion, better achieve the objectives of the fisheries management plan, and lessen the environmental impacts of the fishery. Overall, the benefits to the nation resulting from implementation of this amendment are greater than management costs incurred.

Finding of No Significant Environmental Impact (FONSI)

Having reviewed the environmental assessment and the available information relating to the proposed actions, I have determined that there will be no significant environmental impact resulting from the proposed actions.

Approved: _____

Assistant Administrator for Fisheries Date

RESPONSIBLE AGENCY:

South Atlantic Fishery Management Council
1 Southpark Circle
Southpark Building, Suite 306
Charleston, South Carolina 29407-4699
(803) 571-4366
(803) 769-4520 (FAX)

LIST OF AGENCIES AND PERSONS CONSULTED:

Comments were solicited from the following on Amendment 5:

Atlantic Coast Conservation Association
Atlantic States Marine Fisheries Commission
Snapper Grouper Advisory Panel
SAFMC Scientific and Statistical Committee
North Carolina Coastal Zone Management Program
South Carolina Coastal Zone Management Program
Florida Coastal Zone Management Program
Florida Department of Natural Resources
Florida Marine Fisheries Commission
Georgia Department of Natural Resources
South Carolina Wildlife and Marine Resources Department
North Carolina Department of Environment, Health, and Natural Resources
National Marine Fisheries Service
- Southeast Region
- Southeast Center
United States Coast Guard
U.S. Environmental Protection Agency, Region IV
Center for Environmental Education
Gulf of Mexico & Mid-Atlantic Fishery Management Councils
Florida League of Anglers
South Atlantic Fisheries Development Foundation
Marine Advisory Agents
National Coalition for Marine Conservation
North Carolina Fisheries Association, Inc.
Organized Fishermen of Florida
Southeastern Fisheries Association
Sportfishing Institute

LIST OF CONTRIBUTORS

John R. Gauvin, Fishery Economist, South Atlantic Fishery Management Council

Gregg T. Waugh, Deputy Executive Director, South Atlantic Fishery Management Council

Roger Pugliese, Fishery Biologist, South Atlantic Fishery Management Council

Jane DiCosimo, Fishery Statistician, South Atlantic Fishery Management Council

Dr. James R. Waters, Industry Economist, Southeast Regional Office, National Marine Fisheries Service

Dr. John M. Ward, Industry Economist, Southeast Regional Office, National Marine Fisheries Service

LOCATION AND DATES OF PUBLIC SCOPING MEETINGS

January 9, 1991 ---------- Jacksonville Beach, Florida

January 11, 1991 ---------- Charleston, South Carolina

January 15, 1991 ---------- Wilmington, North Carolina

LOCATION AND DATES OF PUBLIC HEARINGS

June 3, 1991 ----------	Wrightsville Beach, North Carolina	7 P.M.
June 4, 1991 ----------	Charleston, South Carolina	7 P.M.
June 5, 1991 ----------	Jacksonville Beach, Florida	7 P.M.
June 27, 1991 ----------	Jacksonville Beach, Florida	2 P.M.
July 23, 1991 ----------	Charleston, South Carolina	7 P.M.

XII. LITERATURE CITED

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SAFMC. 1990a. South Atlantic Fishery Management Council. Amendment 2 (Jewfish), Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region.

Table 1 South Atlantic Wreckfish Landings
Whole Weight
Certain cells are blank to protect confidentiality

	1984			1985			1986			1987			
	Whole Pounds	Value	Number of Trips	Whole Pounds	Value	Number of Trips	Pounds	Value	Number of Trips	Whole Pounds	Value	Number of Trips	Directed Catch per Trip
January	0	0	0			1			5			9	
February	0	0	0	0	0	0			9			3	
March	0	0	0			6			1			2	
April	0	0	0			1	0	0	0			1	
May	0	0	0			3	0	0	0	0	$0	0	
June	0	0	0	0	0	0	0	0	0	0	$0	0	
July	0	0	0	0	0	0	0	0	0	0	$0	0	
August	0	0	0	0	0	0	0	0	1	9,602	$17,092	2	4,801
September	0	0	0	0	0	0			1	10,444	$19,739	2	5,222
October	0	0	0			3	0	0	0	8,444	$15,959	1	8,444
November			4			1			1			1	
December			1			4	0	0	0	0	$0	0	
Annual Total	120	$214	5	1737	$3,092	19	716	$1,274	18	28,849	$53,429	21	5,690

Prepared: February 11, 1991
By Andrew J. Applegate, SCWRRI

	1988				1989				1990				
	Whole Pounds	Value	Number of Trips	Directed Catch per Trip	Whole Pounds	Value	Number of Trips	Directed Catch per Trip	Whole Pounds	1.10 Conversion Pounds	Value	Number of Trips	Directed Catch per Trip
January	0	$0			29,383	$53,403	6	4,897	357,441	379,982	$456,000	32	9,496
February	0	$0			46,905	$70,460	6	7,817	369,387	392,602	$422,239	34	9,852
March			2		81,324	$113,041	11	7,393	1,098,901	1,168,201	$1,486,840	83	11,130
April					151,761	$201,982	24	5,853	492,272	523,316	$613,787	68	6,297
May			5		177,745	$185,707	20	7,831	496,991	528,333	$545,986	74	6,193
June	21,753	$33,499	4	10,853	257,944	$300,072	28	8,857	492,922	524,007	$544,357	60	6,203
July	41,910	$64,771	9	4,413	233,470	$275,976	24	9,517	486,715	528,040	$573,395	63	7,884
August	89,345	$138,889	11	6,445	241,551	$280,689	25	9,044	237,535	252,514	$295,003	23	10,328
September	54,456	$78,226	8	5,497	314,311	$353,961	34	10,024					
October	104,257	$161,268	15	6,950	251,274	$329,207	27	8,495					
November	41,859	$61,533	5	8,372	208,978	$413,983	27	9,076					
December	31,189	$49,280	4	7,797	248,947	$322,269	25	8,540					
Annual Total	384,685	$588,258	63	7,113	2,323,594	$2,900,751	257	8,493	4,042,163	4,297,075	$4,938,494	497	8,133
							1/ Quota Totals:		1,970,299	2,094,552			

			1991
Number of Vessels	NC	0	15
	SC	5	12
	GA	0	10
	FL	6	46
	NC	3	6
	SC	6	12
	GA	0	10
	FL	30	46

1/ Quota totals include half of April through end of season.

TABLE 2. STATUS OF AGE AND GROWTH STUDY OF WRECKFISH.

STATUS OF AGE AND GROWTH STUDY OF WRECKFISH

RINGS	SAMPLE SIZE	MEAN LENGTH (TL)
4	1	640
5	0	-
6	2	788
7	6	836
8	17	869
9	42	928
10	65	967
11	14	965
12	2	979

SOURCE: CHARLES S. MANOOCH, III (NMFS BEAUFORT LAB); personal communication.

NOTE: 505 otolith samples were received from South Carolina and NMFS personnel in Charleston. All otoliths have been sectioned. To date 180 otolith samples have been aged; 325 are unaged. Fish lengths (TL) represented by these samples range from 640-1,380 mm. Fish lengths for aged samples range from 640-998 mm TL; 760-1,380 for unaged samples.

Table 3.

	SCENARIO ONE (10,000 lb/trip $1 /lb, fixed costs prorated)		SCENARIO TWO (10,000 lb/trip $1.25/lb, fixed costs prorated)		SCENARIO THREE (10,000 lb/trip $1.50/lb, fixed costs prorated)	
ANNUAL TAC		3000000		3000000		3000000
TAC/# VESSELS	20	150000	20	150000	20	150000
	30	100000	30	100000	30	100000
	40	75000	40	75000	40	75000
	50	60000	50	60000	50	60000
	55	54545	55	54545	55	54545
	60	50000	60	50000	60	50000
	65	46154	65	46154	65	46154
	70	42857	70	42857	70	42857
	75	40000	75	40000	75	40000
	80	37500	80	37500	80	37500
	85	35294	85	35294	85	35294
# TRIPS/YR PER VESSEL	20	15.0	20	15.0	20	15.0
	30	10.0	30	10.0	30	10.0
	40	7.5	40	7.5	40	7.5
	50	6.0	50	6.0	50	6.0
	55	5.5	55	5.5	55	5.5
	60	5.0	60	5.0	60	5.0
	65	4.6	65	4.6	65	4.6
	70	4.3	70	4.3	70	4.3
	75	4.0	75	4.0	75	4.0
	80	3.8	80	3.8	80	3.8
	85	3.5	85	3.5	85	3.5
TOTAL FIXED & VARIABLE COSTS	20	$86,650	20	$86,650	20	$86,650
	30	$57,766	30	$57,766	30	$57,766
	40	$43,325	40	$43,325	40	$43,325
	50	$34,660	50	$34,660	50	$34,660
	55	$31,509	55	$31,509	55	$31,509
	60	$28,883	60	$28,883	60	$28,883
	65	$26,661	65	$26,661	65	$26,661
	70	$24,757	70	$24,757	70	$24,757
	75	$23,106	75	$23,106	75	$23,106
	80	$21,662	80	$21,662	80	$21,662
	85	$20,388	85	$20,388	85	$20,388
TOTAL REVENUE / YR PER VESSEL	20	$150,000	20	$187,500	20	$225,000
	30	$100,000	30	$125,000	30	$150,000
	40	$75,000	40	$93,750	40	$112,500
	50	$60,000	50	$75,000	50	$90,000
	55	$54,545	55	$68,181	55	$81,818
	60	$50,000	60	$62,500	60	$75,000
	65	$46,153	65	$57,692	65	$69,230
	70	$42,857	70	$53,571	70	$64,285
	75	$40,000	75	$50,000	75	$60,000
	80	$37,500	80	$46,875	80	$56,250
	85	$35,294	85	$44,117	85	$52,941
ANNUAL NET RETURNS PER VESSEL CAPTAIN OR OWNER	20	$63,350	20	$100,850	20	$138,350
	30	$42,233	30	$67,233	30	$92,233
	40	$31,675	40	$50,425	40	$69,175
	50	$25,340	50	$40,340	50	$55,340
	55	$23,036	55	$36,672	55	$50,309
	60	$21,116	60	$33,616	60	$46,116
	65	$19,492	65	$31,030	65	$42,569
	70	$18,100	70	$28,814	70	$39,528
	75	$16,893	75	$26,893	75	$36,893
	80	$15,837	80	$25,212	80	$34,587
	85	$14,905	85	$23,729	85	$32,552

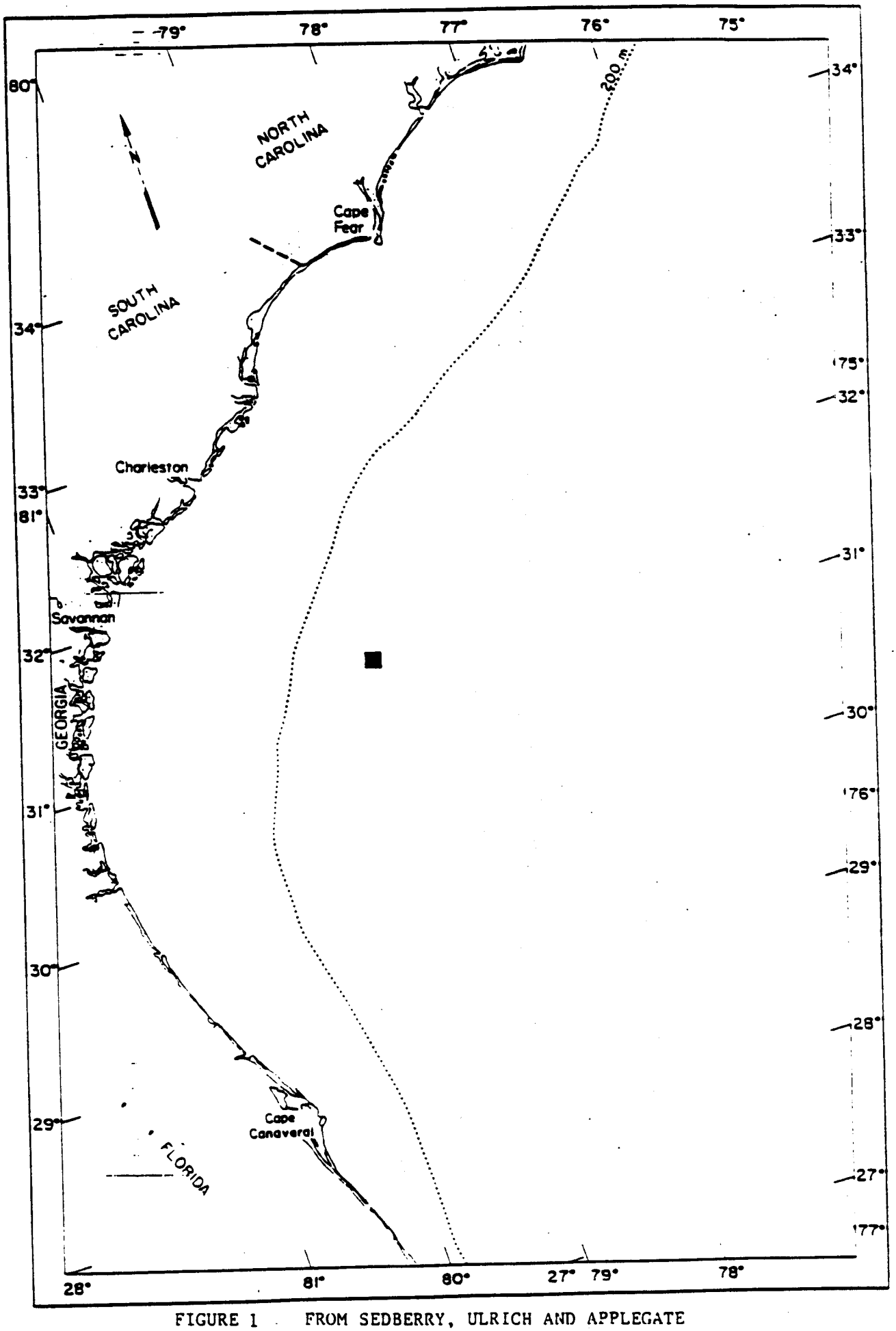


FIGURE 1 FROM SEDBERRY, ULRICH AND APPLEGATE

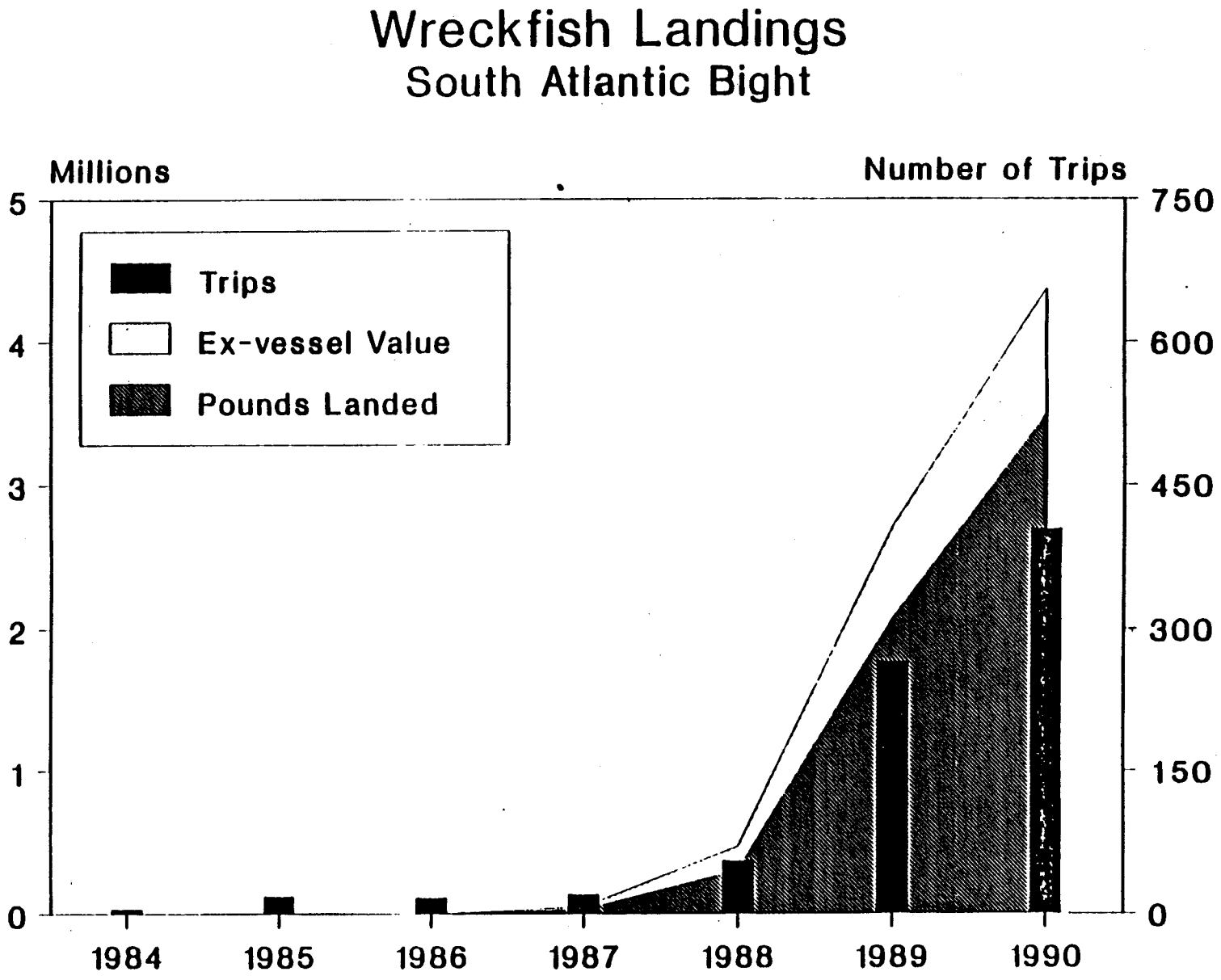


FIGURE 2. FROM SEDBERRY, ULRICH AND APPLEGATE (1991)

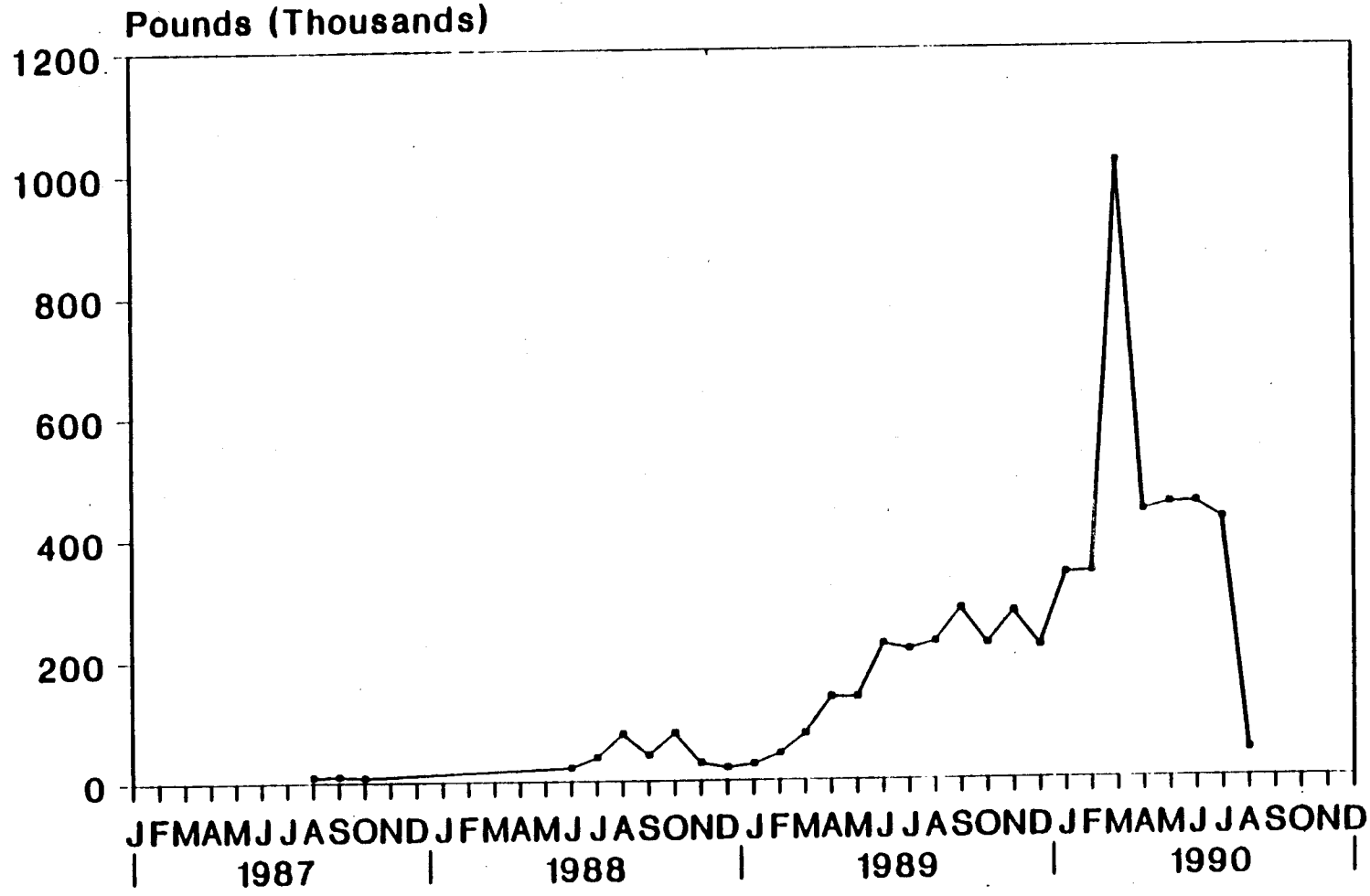


FIGURE 3. FROM SEDBERRY, ULRICH AND APPLEGATE (1991)

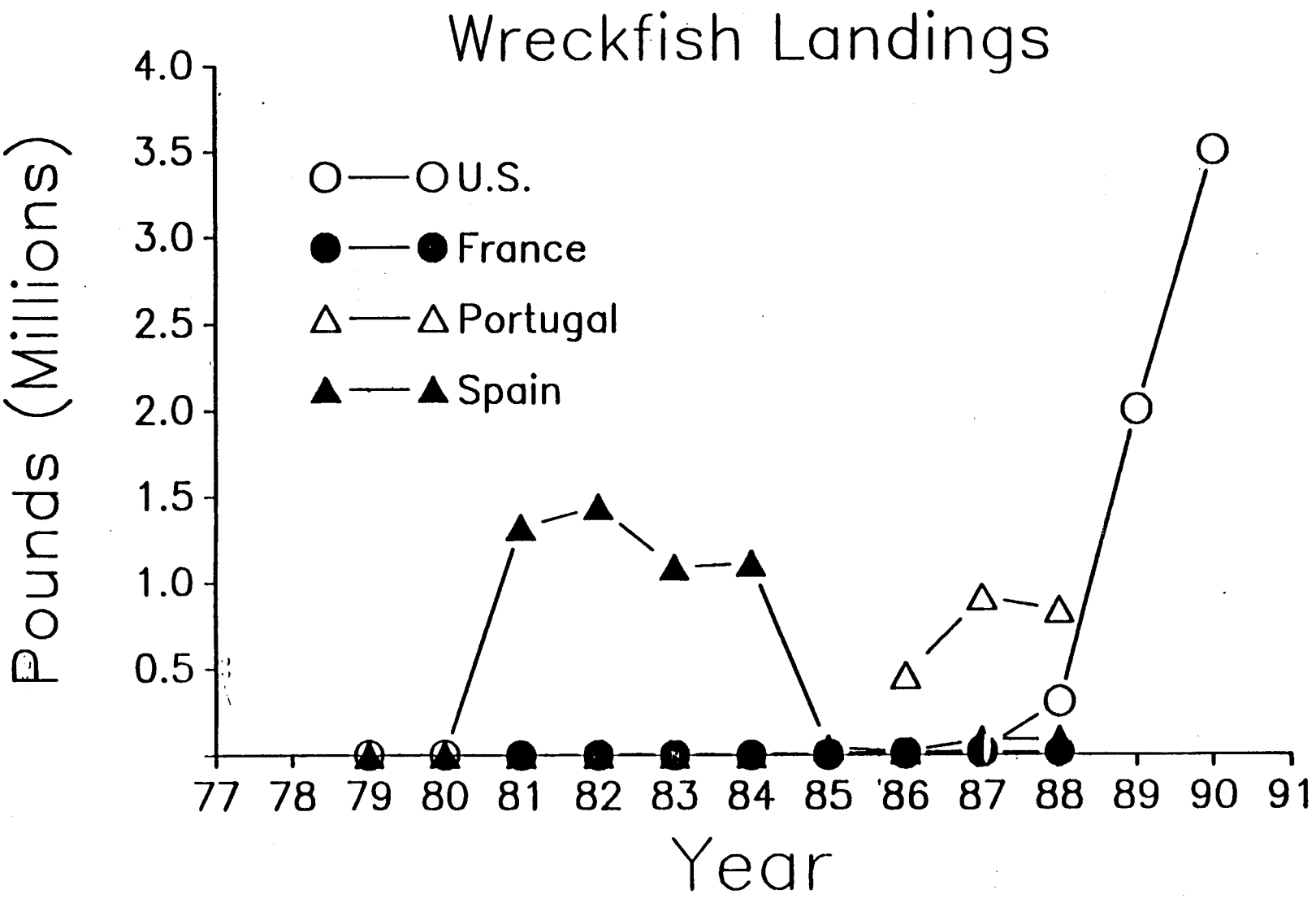


FIGURE 4. . FROM SEDBERRY, ULRICH AND APPLEGATE (1991)

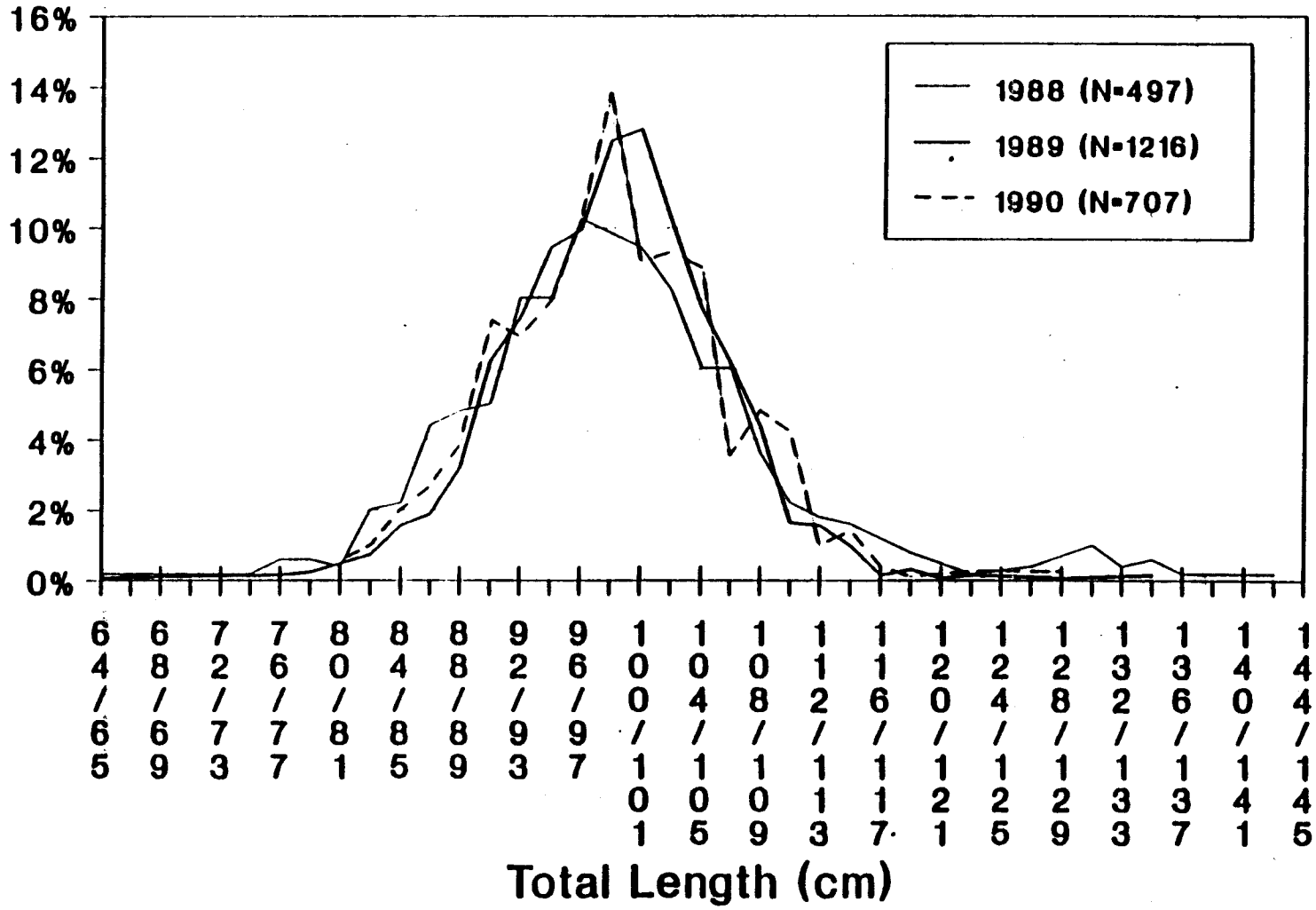


FIGURE 5. FROM SEDBERRY, ULRICH AND APPLEGATE (1991)

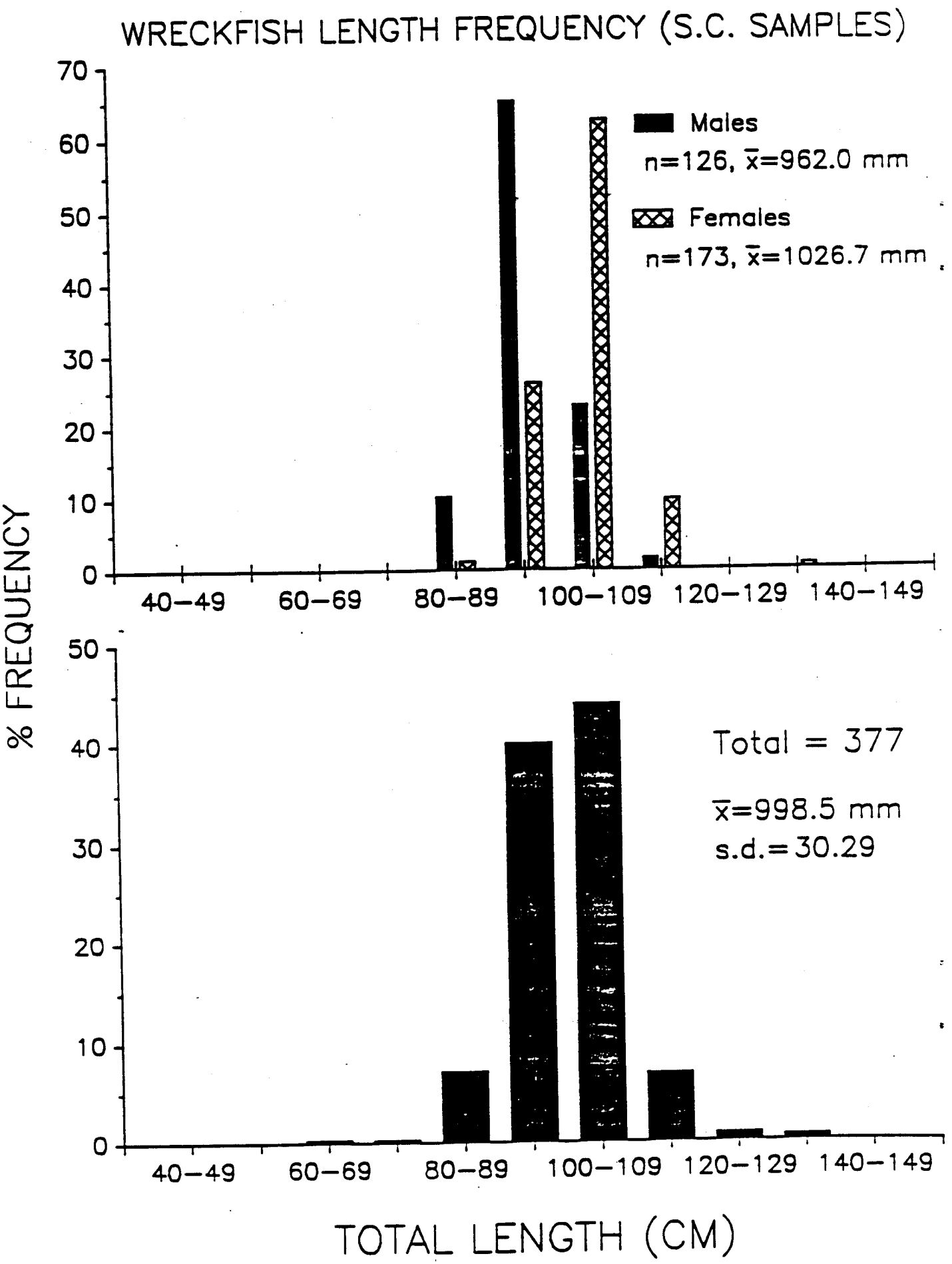


FIGURE 6. FROM SEDBERRY, ULRICH AND APPLEGATE (1991)

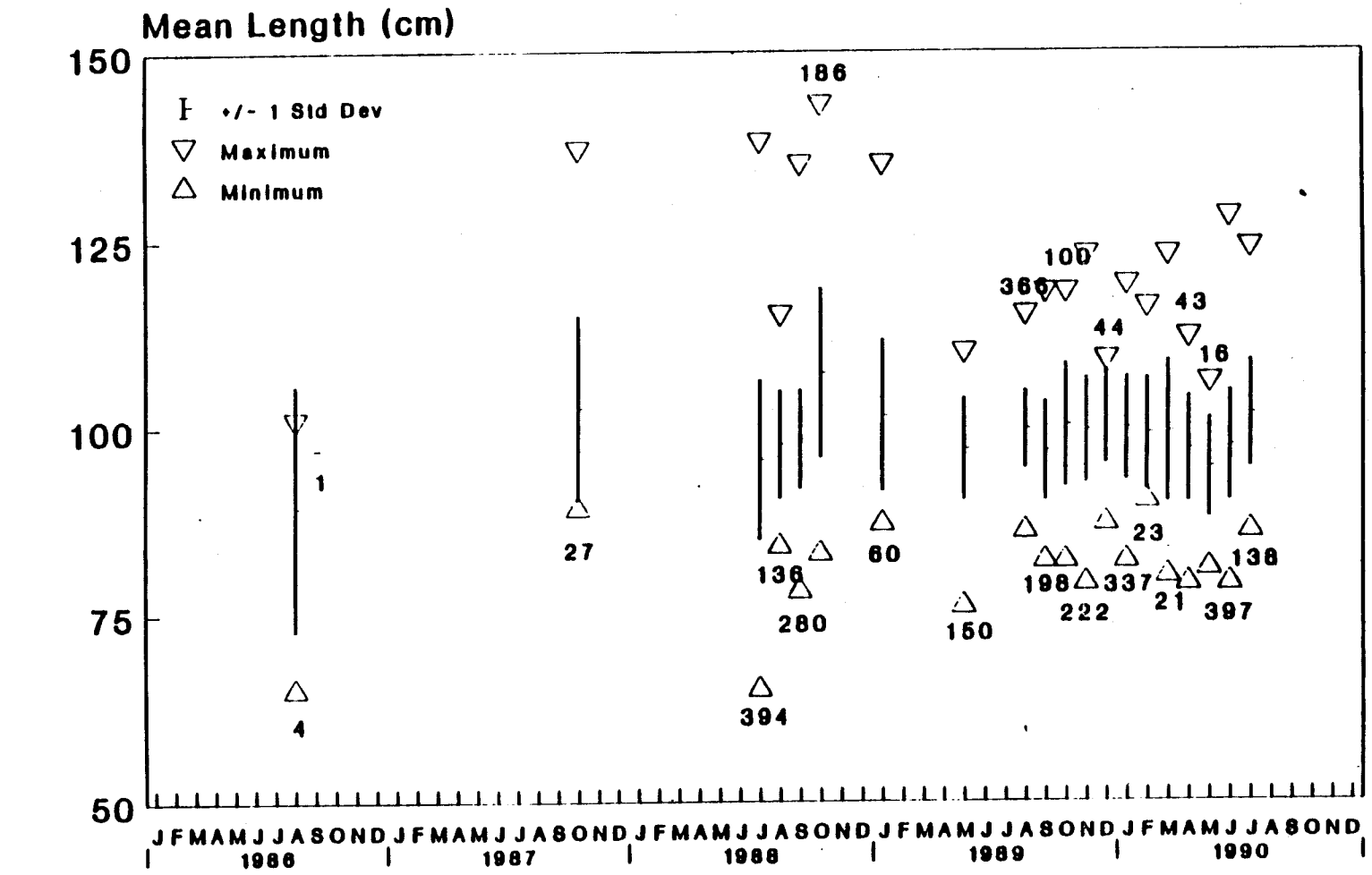


FIGURE 7. FROM SEDBERRY, ULRICH AND APPLEGATE (1991)

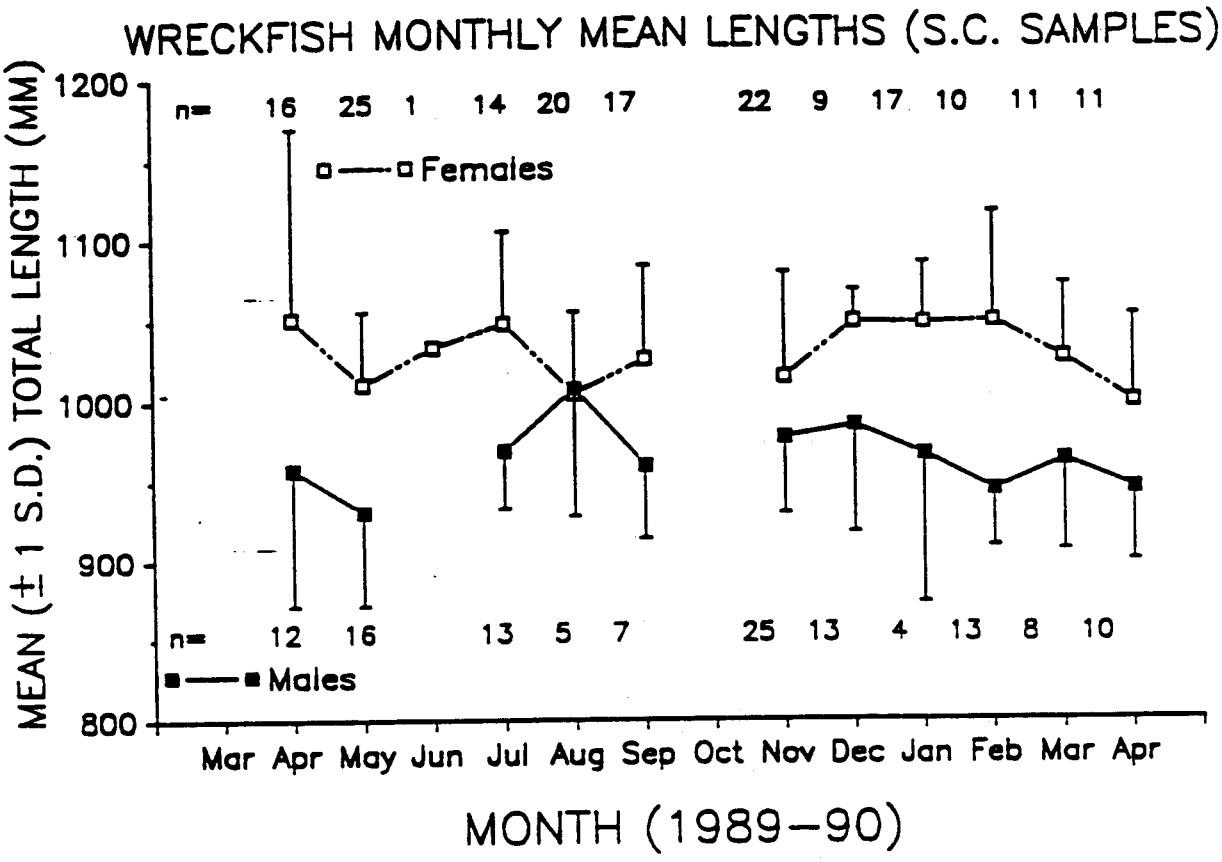


FIGURE 8. FROM SEDBERRY, ULRICH AND APPLEGATE (1991)

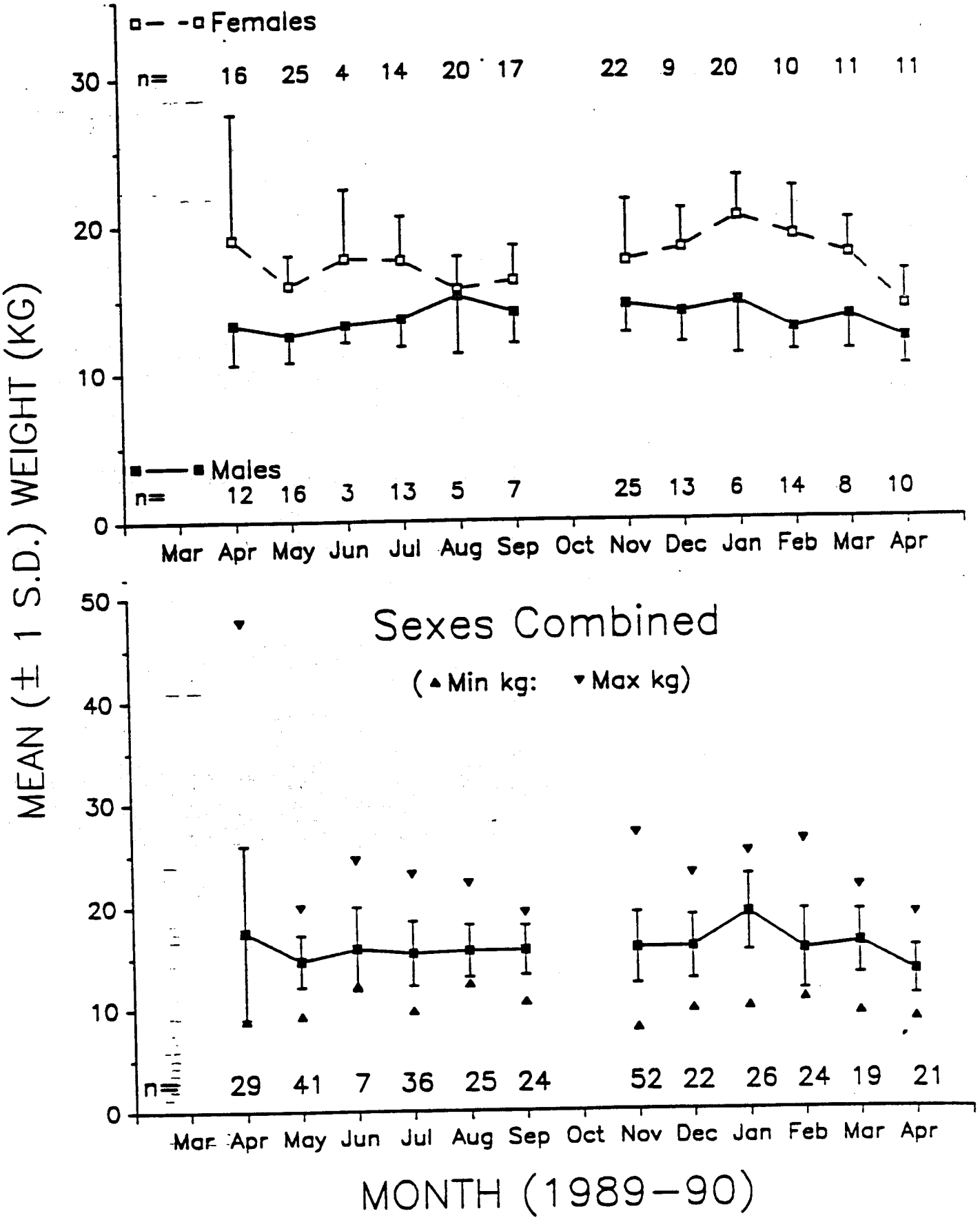


FIGURE 9. FROM SEDBERRY, ULRICH AND APPLEGATE (1991)

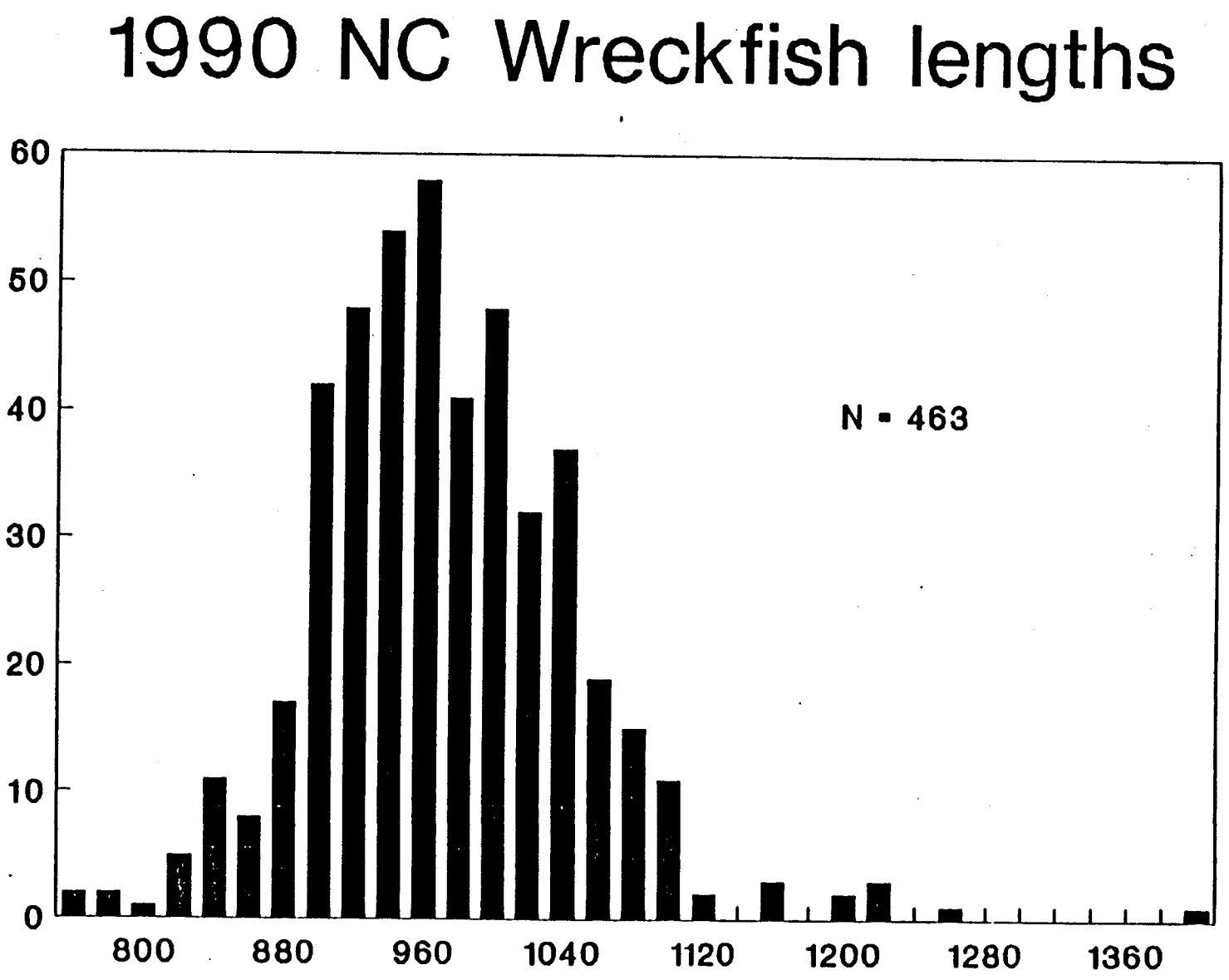


FIGURE 10. FROM FRITZ ROHDE (North Carolina Div. Marine Fisheries)

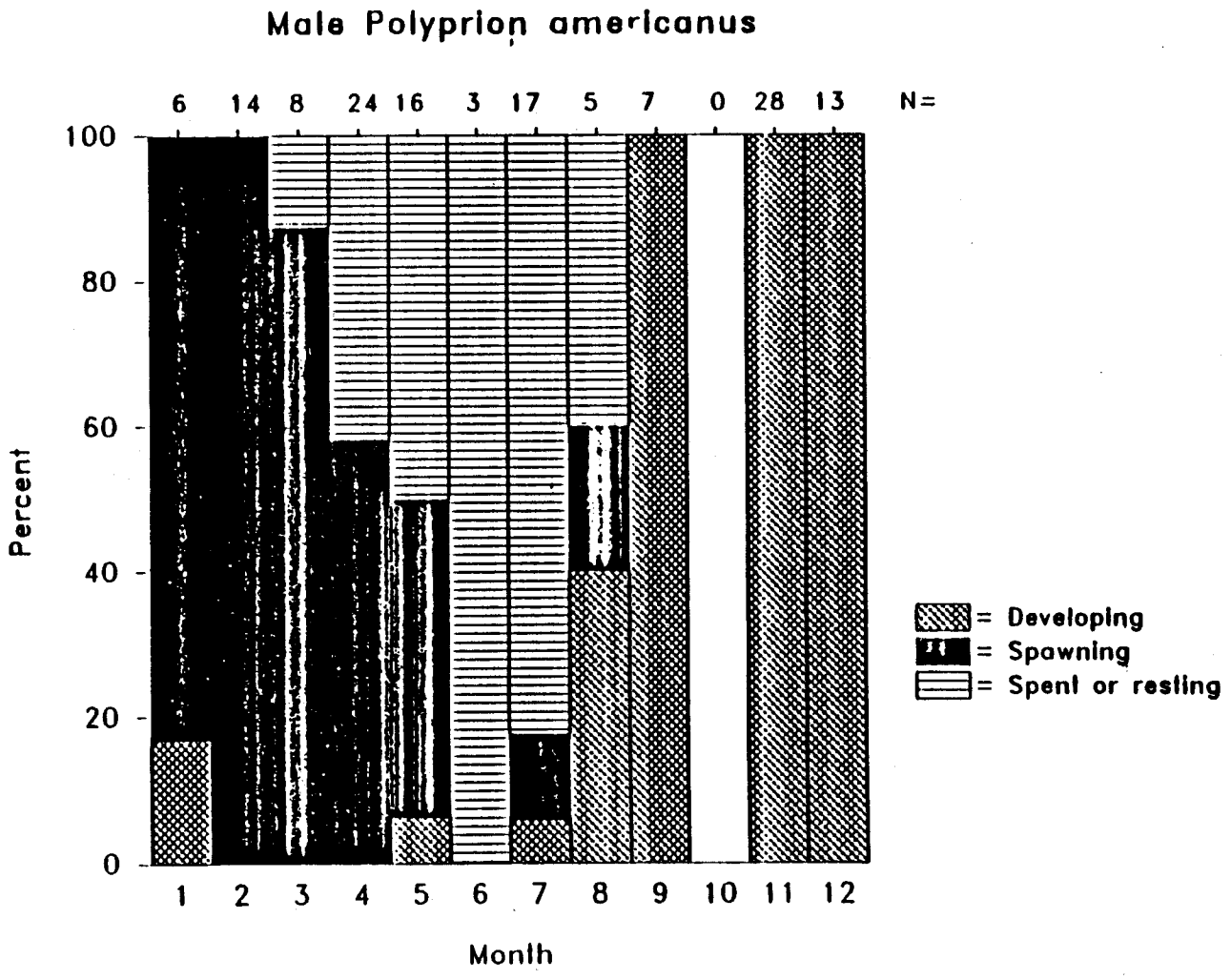


FIGURE 11. FROM DAVE WYANSKI (SCMRRI)

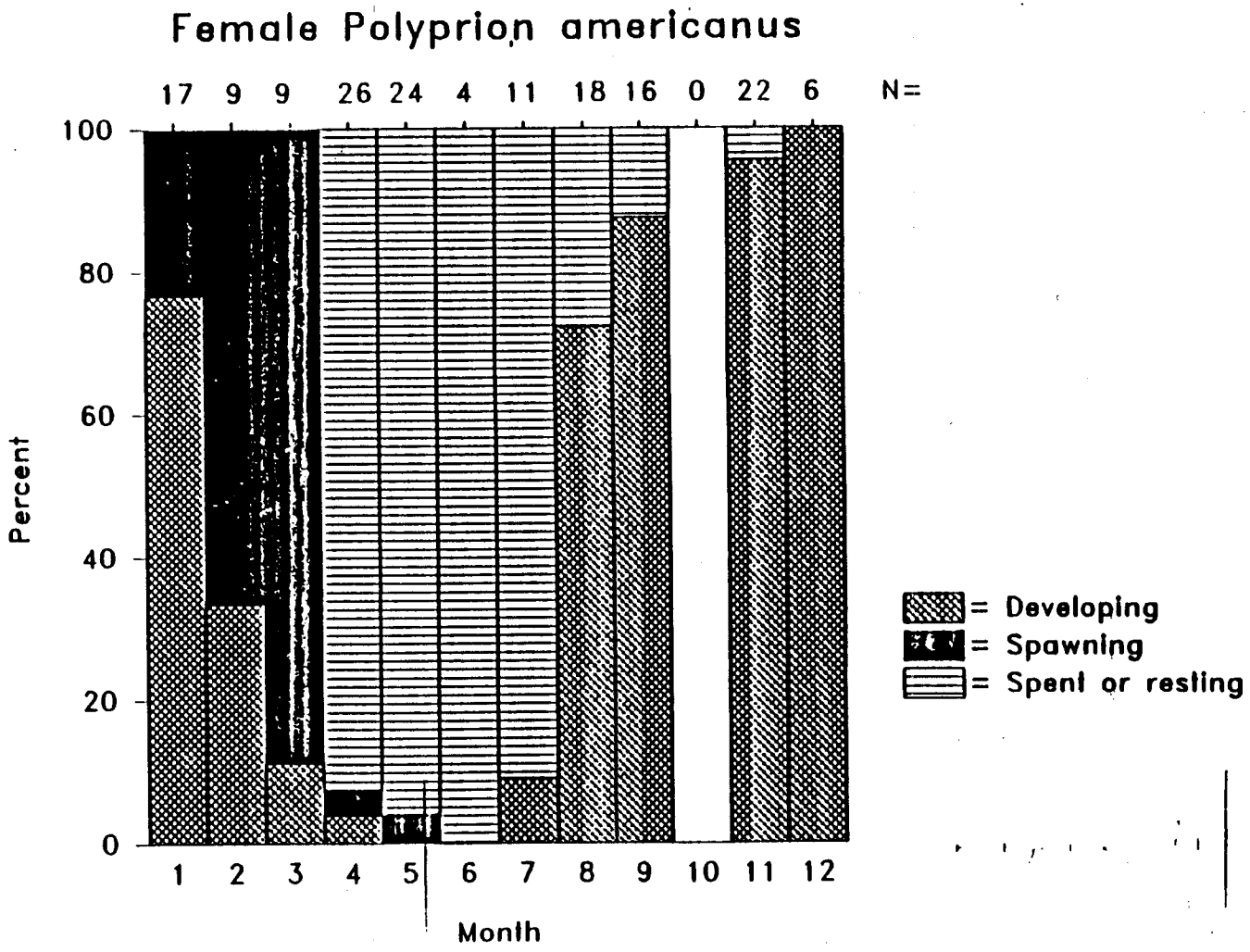


FIGURE 12. FROM DAVE WYANSKI (SCMRRI)

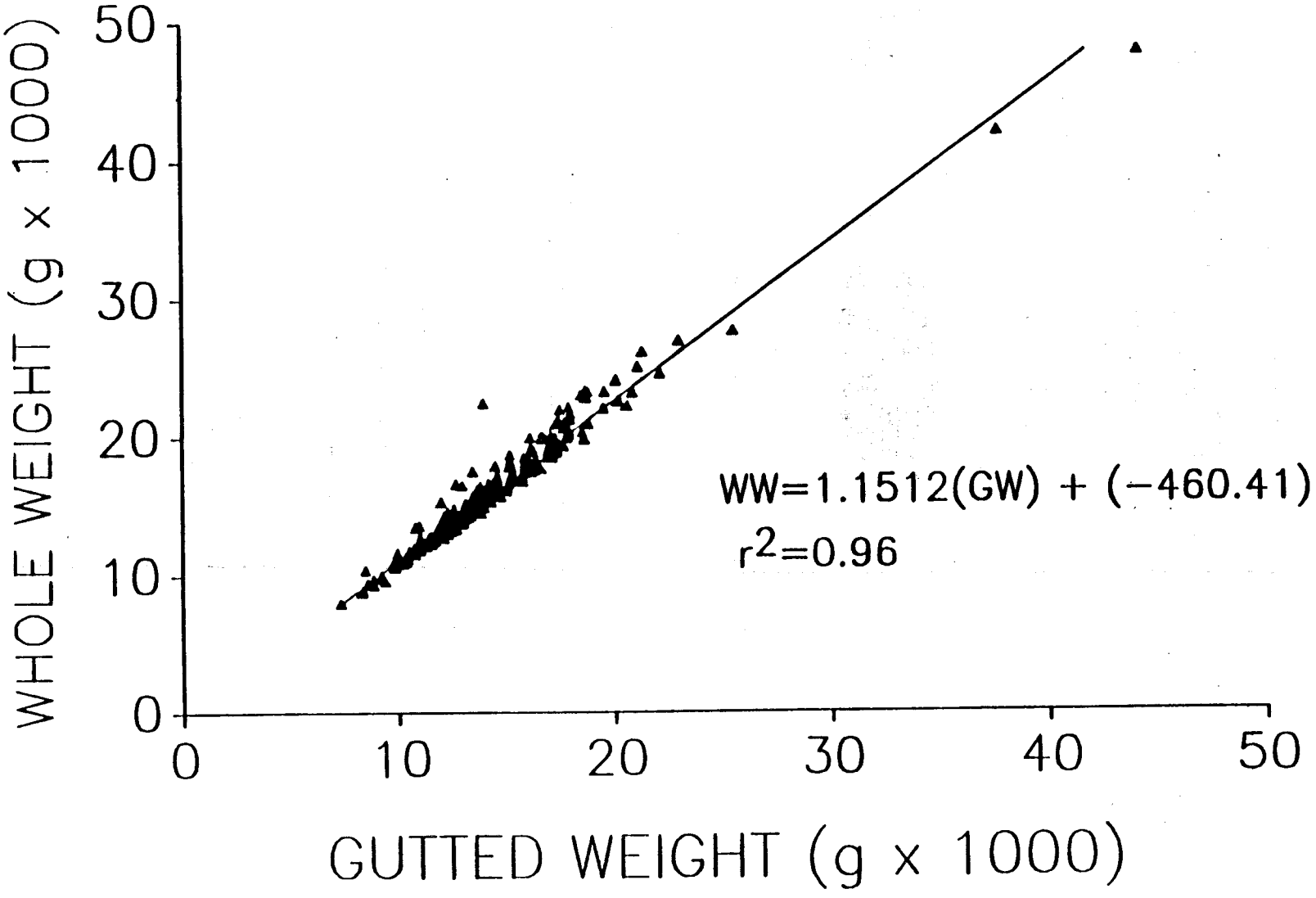


FIGURE 13. FROM SEDBERRY, ULRICH AND APPLEGATE (1991)

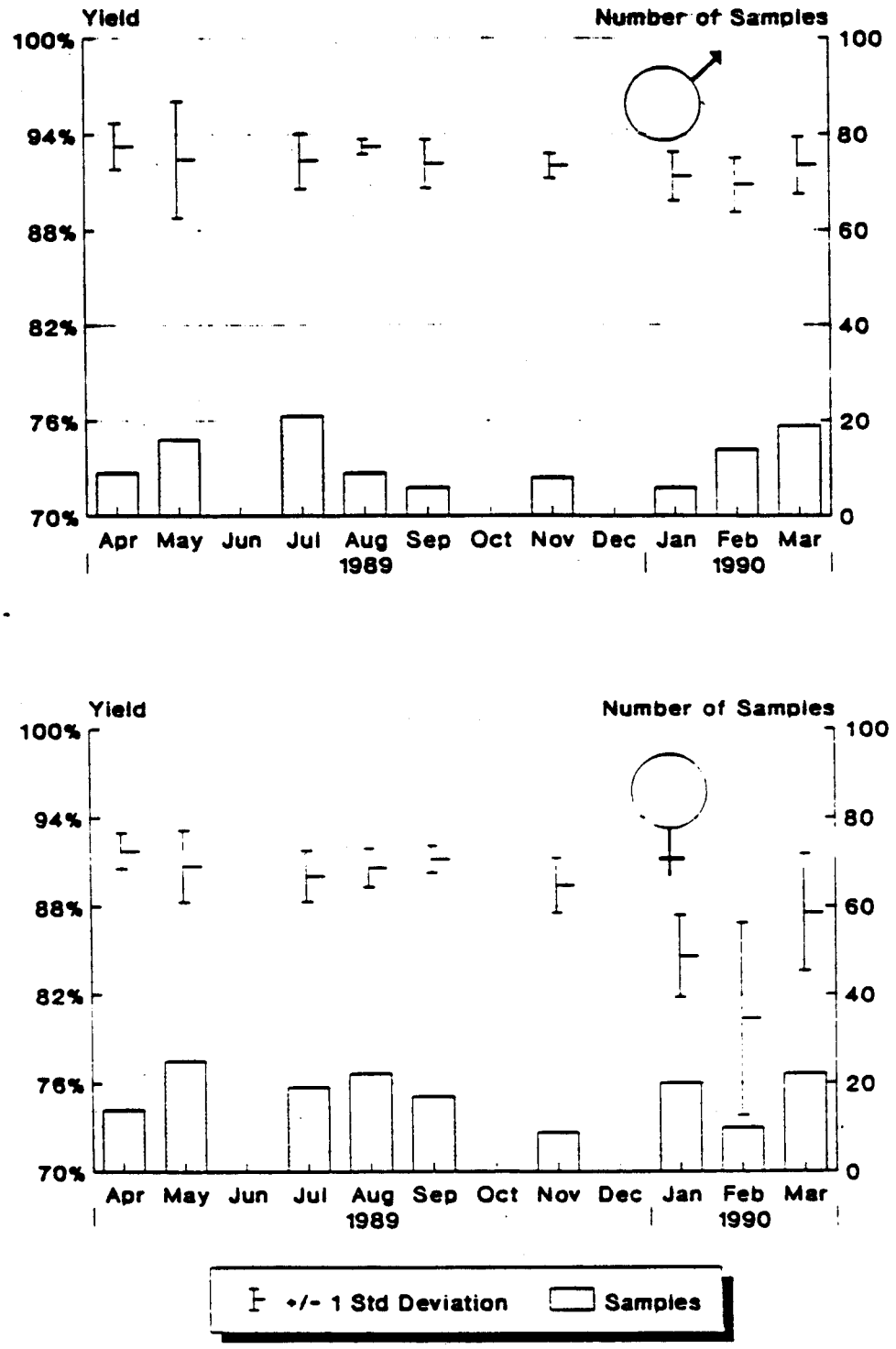


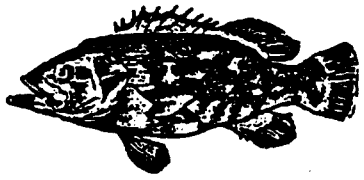
FIGURE 14. FROM SEDBERRY, ULRICH AND APPLEGATE (1991)

Figure 15. Prototype of an individual quota coupon.

FRONT

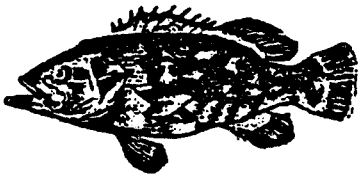
000000147 FISH HOUSE SIDE

WRECKFISH
ITQ
200 LB



000000147 FISHERMAN'S SIDE

WRECKFISH
ITQ
200 LB



BACK

000000147 FISH HOUSE SIDE

_____
Cancellation signature

_____
Date of sale

_____
Federal wreckfish dealer permit #

000000147 FISHERMAN'S SIDE

_____
Cancellation signature

_____
Date of sale

Sale Endorsement

_____ _____
Buyer Permit #

_____
Seller

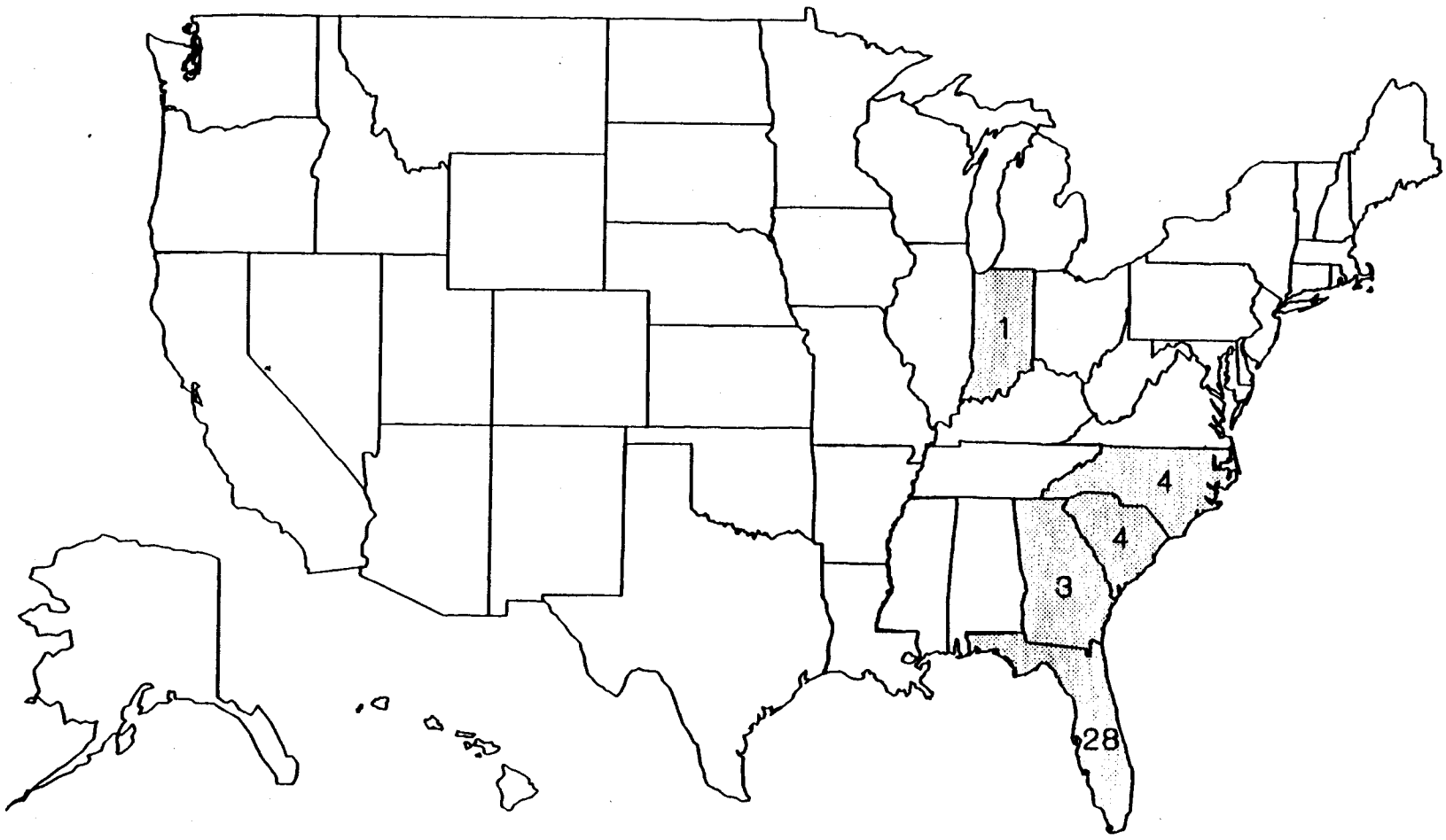
_____ _____
Buyer Permit #

_____
Seller

_____ _____
Buyer Permit #

_____
Seller

Figure 16. **South Atlantic Wreckfish Permits**
Number of Operators by State of Residence



Permit Year 04/16/91-04/15/92
Information through 05/31/91

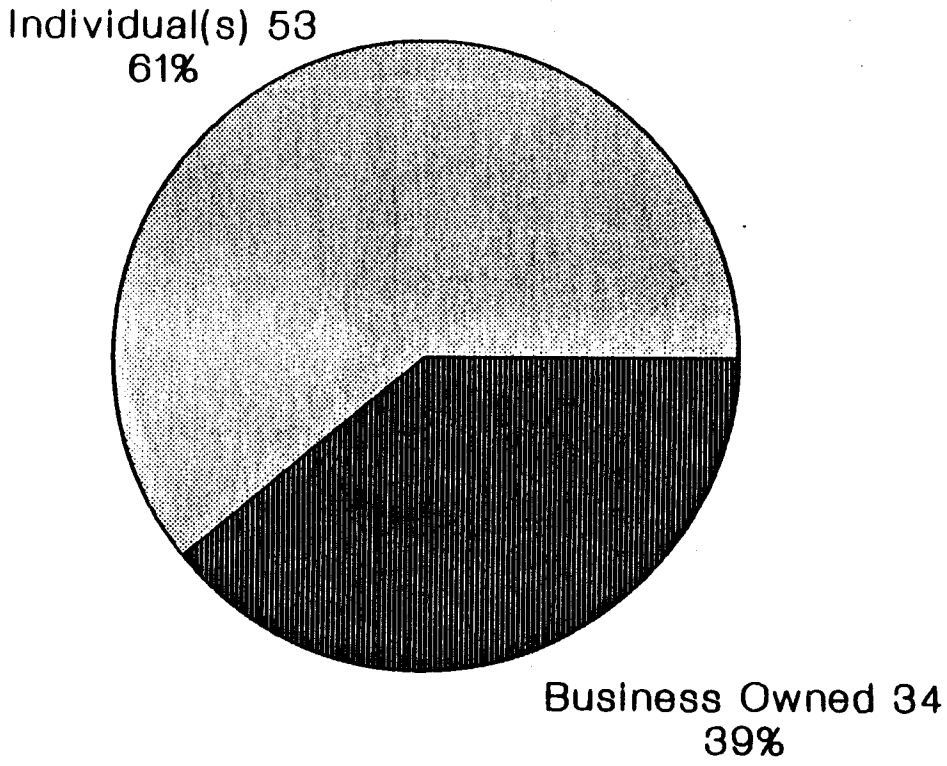
Source: Federal Fisheries Permit Report SERO/NMFS 1991

Figure 17. **South Atlantic Wreckfish Permits**
Number of Owners by State of Residence

Permit Year - 04/16/91-04/15/92
Information through 05/31/91

Source: Federal Fisheries Permit Report SERO/NMFS 1991

Figure 18. **South Atlantic Wreckfish Permits**
Ownership of Vessel



Permit Year - 04/16/91-04/15/92

Information through 05/31/91

Source: Federal Fisheries Permit Report SERO/NMFS 1991