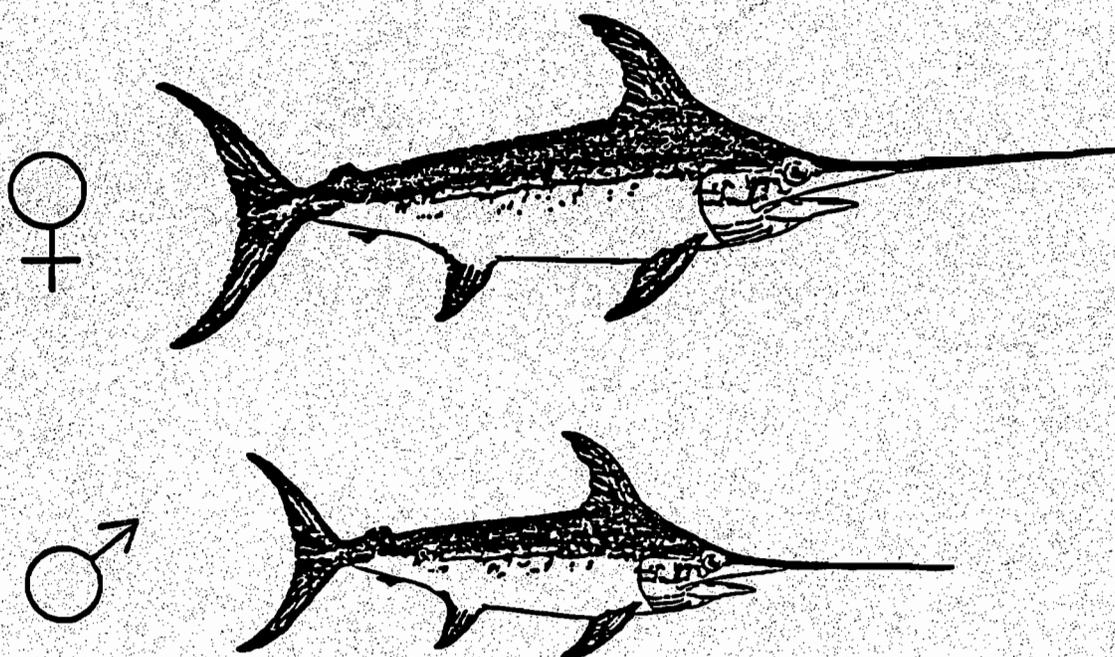


**FISHERY MANAGEMENT PLAN,
REGULATORY IMPACT REVIEW,
INITIAL REGULATORY FLEXIBILITY
ANALYSIS,
AND FINAL ENVIRONMENTAL IMPACT
STATEMENT
FOR ATLANTIC SWORDFISH**

FEBRUARY 1985



PREPARED BY THE

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IN COOPERATION WITH

**CARIBBEAN FISHERY MANAGEMENT COUNCIL
GULF OF MEXICO FISHERY MANAGEMENT COUNCIL
MID-ATLANTIC FISHERY MANAGEMENT COUNCIL
NEW ENGLAND FISHERY MANAGEMENT COUNCIL**

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Prepared By The
South Atlantic Fishery Management Council
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In Cooperation With

Caribbean Fishery Management Council
Gulf of Mexico Fishery Management Council
Mid-Atlantic Fishery Management Council
New England Fishery Management Council

Financial assistance for producing this document was provided by grant funds from the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, under Public Law 94-265, the Magnuson Fishery Conservation and Management Act (MFCMA).

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1.0 INTRODUCTION

This Fishery Management Plan is based on a source document which contains the detailed scientific, technical and other supportive documentation on which the management regime is based. The numbering system in the FMP is the same as the source document for the major headings in Sections 5.0 through 8.0. The source document is available for review at the following locations:

South Atlantic Fishery Management Council
Southpark Building, Suite 306
1 Southpark Circle
Charleston, South Carolina 29407-4699

New England Fishery Management Council
Suntaug Office Park, 5 Broadway (Route 1)
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Gulf of Mexico Fishery Management Council
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St. Petersburg, Florida 33702

National Marine Fisheries Service
Southeast Fisheries Center
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Miami, Florida 33149

National Marine Fisheries Service
Northeast Regional Office
14 Elm Street
Gloucester, Massachusetts 01930

National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

National Marine Fisheries Service
Page 2 Building
3300 Whitehaven St., N.W.
Washington, D.C. 20235

Definitions of terms used in this document:

Age At Entry: Age at which swordfish are first vulnerable to the predominant fishing gear (longlines) which is age two, 26-43 pounds dressed weight. Also referred to as age liable to capture and age of recruitment to the fishery.

Carcass: Swordfish after it has been gutted and the head and fins removed.

Catch per unit of effort (CPUE): The total number or weight of fish harvested by a defined unit of fishing effort in a given time period.

Domestic annual harvest (DAH): The capacity and the extent to which fishing vessels of the U.S. will, on an annual basis, harvest the optimum yield. For swordfish DAH (1983) was approximately 9.3 million pounds.

Dressed weight (Carcass weight): Weight of carcass after fish are gutted and head and fins are removed (dressed weight = 0.75 x whole weight).

Environmental Impact Statement (EIS): Required by the National Environmental Policy Act of 1969 whenever major Federal actions may significantly affect the quality of the environment, including the human environment. A draft (DEIS) and a final (FEIS) environmental impact statement are prepared.

Executive Order 12291 (E.O. 12291): Directs agencies to develop or revise informal rulemaking procedures to ensure that regulations are necessary, appropriate, and cost effective.

Fishery Conservation Zone (FCZ): The area in which the U.S. asserts exclusive fishery management authority, established by the Magnuson Fishery Conservation and Management Act of 1976: "The inner boundary of the FCZ is a line coterminous with the seaward boundary of each of the coastal states, and the outer boundary of such zone is a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured."

Fishing effort: The amount of fishing activity measured in this plan primarily by the resulting "fishing mortality" as estimated by yield-per-recruit analyses or other forms of size structure analysis.

Fishing mortality: Instantaneous rate of fishing mortality calculated in yield-per-recruit analysis. It is that portion of total mortality attributable to fishing. It is equal to total mortality minus natural mortality. It is the primary measure for stock assessment and important for management considerations in this FMP.

Food and Drug Administration (FDA): Federal agency that determines and enforces health standards.

FDA Action Level: Maximum allowable mercury concentration in seafood measured in parts per million (ppm) (1971-78=0.5 ppm; 1978-present=1.0 ppm).

Fishery Management Plan (FMP): Prepared by a Fishery Management Council to aid in managing a particular fishery, as directed by the MFCMA.

Growth Overfishing: The harvesting of a fish stock to the point that the harvest is less than the maximum possible (by weight) with constant recruitment. Growth overfishing can be controlled by limiting fishing mortality on all size fish and/or by increasing age at entry (age liable to capture) to the fishery which reduces fishing mortality on smaller fish. Growth overfishing is defined in this FMP as an existing combination of fishing mortality (fishing effort) and age liable to capture such that an increase in age liable to capture or a decrease in fishing mortality (fishing effort) will significantly increase yield. Growth overfishing is an established scientific definition measured by yield-per-recruit analyses but is not considered to be "overfishing" in the context of National Standard One of MFCMA.

ICCAT: International Commission for the Conservation of Atlantic Tunas

ICES: International Commission for the Exploration of the Seas

Incidental Catch: Catch other than the target species; also called bycatch. Incidental species taken with swordfish longlines include marlin, sailfish, tuna, and sharks. Swordfish is an incidental catch of foreign longline fishing for tuna and foreign squid trawling.

Internal rate of return (IRR): The discount rate that produces a present value (PV) of zero for a stream of future values (FV) over a number of years. It is the primary measure in this plan of the economic value of delaying the harvest of smaller fish until they are larger. This delay is treated as an "investment problem." Fishermen "invest" by foregoing the harvest of small fish and receive a return on that investment in the future in terms of larger fish that are more valuable. The internal rate of return calculates the value of that investment.

JVP: Joint Venture Processing.

Magnuson Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.) (MFCMA): Established the FCZ and eight Regional Fishery Management Councils to prepare, monitor, and revise fishery management plans.

Maximum sustainable yield (MSY): The largest quantity (by weight) of fish that can be harvested annually without reducing its long-term production potential.

Maximum Yield-Per-Recruit (YPR): Maximum YPR is comparable to maximum yield (MY) for the purposes of management which is comparable to MSY if there is constant recruitment.

National Marine Fisheries Service (NMFS): A division of the National Oceanic and Atmospheric Administration, Department of Commerce, responsible for conservation and management of fisheries.

Natural Mortality: Instantaneous rate of natural mortality calculated in yield-per-recruit analysis. It is equal to total mortality minus fishing mortality or that portion of total mortality attributable to all causes except fishing.

Net: Drift entanglement net.

Overfishing: Fishing effort above the level which will produce MSY, resulting in catches less than MSY. See growth overfishing and recruitment overfishing.

Optimum Yield (OY) (defined by MFCMA): "The amount of fish (1) which will provide the greatest overall benefit to the Nation with particular reference to food product and recreational opportunity; and (2) which is prescribed as such on the basis of the maximum sustainable yield from such fishery as modified by relevant economic, social, or ecological factors." Optimum yield for swordfish is defined in terms of the harvest that results while not exceeding the catch of a maximum number of small swordfish.

Preliminary Fishery Management Plan (PMP): Management plan prepared by the Secretary of Commerce to manage the harvest by foreign fishermen in the FCZ until a FMP has been prepared by a regional Fishery Management Council.

Recruitment: Number of fish growing into the smallest harvestable size category each year.

Recruitment overfishing: The harvesting of a stock to the point that reproduction by the remaining brood stock is inadequate to produce as many fish as the habitat can support. Recruitment overfishing is an established scientific definition that is not measured by YPR analyses. Recruitment overfishing is considered to be "overfishing" in the context of National Standard One of MFCMA.

Regional Director (RD): Southeast Regional Director of the National Marine Fisheries Service.

Regulatory Impact Review (RIR): An assessment of the economic impacts of proposed government regulations.

Secretary: Secretary of Commerce.

Section 7 Consultation: As specified by Section 7 of the Endangered Species Act of 1973, each Federal Agency shall, through consultation with the NMFS and/or the Fish and Wildlife Service, as appropriate, ensure that actions authorized, funded, or carried out by such agency are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of the critical habitat of such species.

Stock: A group of fish manageable as a unit. For purposes of this FMP, the swordfish stock is defined as swordfish in the western North Atlantic.

Total Allowable Level of Foreign Fishing (TALFF): The portion of the optimum yield on an annual basis which will not be harvested by U.S. vessels. OY minus DAH. For swordfish, the TALFF is zero because the fishery is fully exploited by U.S. fishermen.

Total mortality: Instantaneous rate of mortality calculated by yield-per-recruit analysis. It is equal to the sum of natural mortality and fishing mortality. Total mortality represents the total instantaneous mortality from both natural causes and fishing.

Variable season closure (VSC): Time and area closures to regulate the harvest of small swordfish. The method of calculating the lengths of closure in each area results in no closures if more preferred methods to regulate the catch of small fish (voluntary actions by fishermen or a minimum size limit) are effective in controlling the catch of small fish.

Western North Atlantic: FAO Statistical reporting areas 21 and 31 (Figure 8-12, Source Document, Part II, p. 8-84). This area is bounded on the west by the North, Central and South American land masses and on the east by a line running from the eastern coast of South America at 5°00' N out to 40°00' W, north to 36°00' N, west to 42°00' W, north to 59°00' N, west to 44°00' W and continuing north to Greenland.

Whole weight (Round weight): Weight of fish before heading or gutting.

Yield-per-recruit (YPR): A theoretical calculation based on known or assumed growth rates, natural and fishing mortality rates that allows an estimate of relative yield from a fishery without knowing landings. It does not permit a calculation of total landings but it is possible to calculate the relative amount of fishing effort and landings compared to maximum yield-per-recruit which is comparable to MSY given constant recruitment. Its primary use in this plan is to calculate the relative increases in yield and revenue from controlling the harvest of small swordfish.

A short primer on YPR:

Two major approaches exist for the problem of determining yield from a fishery: (1) surplus production models and (2) yield-per-recruit analysis.

Surplus production models are descriptive. They are based on population growth curves that assume the rate of population growth is related to population size and that catch per unit effort (CPUE) is a valid index of population size. Catch and effort data are used to derive a yield curve from which maximum sustainable yield (MSY) can be calculated.

The major shortcoming of this approach for management is that only one datum point can be generated each year. Approximately 10 years of data are required which can result in a post-mortem of the fishery by the time enough knowledge exists to implement regulations. Even when historical catch records exist, they are often available for only a portion of the range and there are further problems with the accurate estimation of fishing effort.

Yield-per-recruit analysis is based on an analytical rather than a descriptive model. This approach predicts yield according to the growth pattern of individual fish rather than the growth of the entire population. The only prerequisite information is ages of fish at different lengths and natural mortality. Yield is not calculated in terms of total weight per year from the fishery. Instead, an index of yield, rather than an absolute total weight is calculated. This index is called yield-per-recruit.

The advantage of YPR analysis is that it is extremely rapid compared to surplus production modeling and does not require catch-per-unit effort data. It allows a quick assessment of the stock using basic biological information.

All mathematical abstractions designed to simulate natural phenomena are at the mercy of their imperfectly met assumptions, and neither of the two approaches are exempt from this imperfection. YPR analysis is not subject to some of the delays imposed by surplus production models but fulfills the basic management task of monitoring the stock and estimating the relative yield from a fishery with different regulations.

Yield-per-recruit analysis has the advantage of being able to estimate yield by size fish. This is important for swordfish because larger fish not only weigh more in pounds than smaller fish but they are more valuable per pound. There is a well documented market preference for larger swordfish. This means that even if management measures do not significantly increase the yield of the fishery by total weight landed, there can still be substantial economic benefits from the pounds being embodied in larger fish. Yield-per-recruit analysis can measure these benefits because it estimates the catch by size fish.

INFORMATION

ANALYSIS

RESULTS

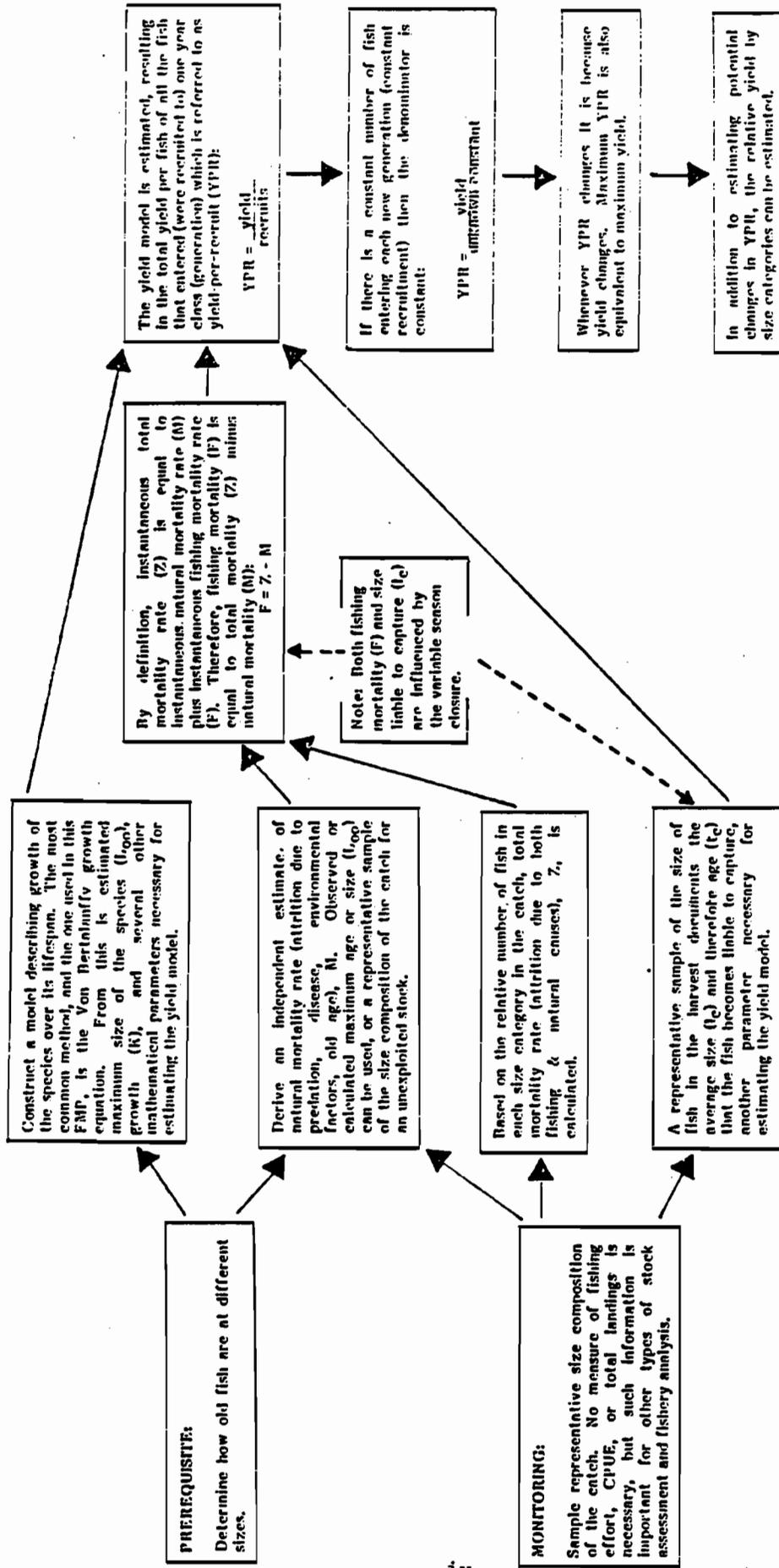


Figure 1. How yield-per-recruit works.

2.0 SUMMARY OF THE SWORDFISH PLAN

Fishing methods. Swordfish are caught by (1) longlines, (2) harpoon, (3) drift entanglement nets and (4) rod and reel, and incidentally caught by (5) foreign tuna longlines and (6) foreign squid trawls. Reported domestic landings (1983) were 9.3 million pounds (8.7 million by longlines, 0.6 million by harpoon). The sport rod and reel fishery increased in the late seventies but is now very small. Total foreign longline swordfish bycatch in the FCZ has decreased from the 1980 level (8,075) to approximately 402 fish in 1984. Total foreign trawl swordfish bycatch was approximately 176,000 pounds in 1982 and decreased to approximately 86,000 pounds in 1983.

Fishery status. The fishery is in or near a state of growth overfishing. This is known from an established scientific technique that monitors the fishery by age characteristics of the stock (yield-per-recruit analysis). Optimum yield is defined in terms of not exceeding the harvest of a maximum number of small fish.

If the increasing harvest of small fish is not restricted, further growth overfishing will occur. This will reduce total landings and will also reduce total revenue to the industry because the changing age structure of the stock will produce fewer large fish which have a higher value per pound. Even without growth overfishing there are economic and biological advantages to delaying the harvest of small fish until they are larger.

Optimum yield. Optimum yield is defined as the harvest that results when no more than the estimated 33,750 swordfish under 50 pounds dressed weight are harvested (1980 level). In 1983 an estimated 39,718 swordfish under 50 pounds dressed weight were caught. Optimum yield measured in numbers of small swordfish may be revised by amending the regulations when better scientific information becomes available.

Regulating U.S. fishing. Domestic landings of small swordfish are controlled by a variable season closure (VSC). The VSC closes fishing months with the highest concentrations of small fish relative to total catch in each area. The length of the closures in each area are based on the percentages of small fish caught in each area.

The VSC is actually a "back drop" measure to control the harvest of small fish if other more preferred methods such as the voluntary reduction in the catch of small fish or a minimum size limit are not effective. The computation of the VSC is such that if for whatever reason the catch in numbers of small fish is expected to be below the optimum yield number of small fish then there is no closure. The lengths of the closures in each area are adjusted annually based on the catch of small fish. It is possible to have combinations of voluntary actions by fishermen, a minimum size limit, and adjusted closures to reduce the catch of small swordfish.

Projected 1985 closures. The following are projections of closures in 1985 based on 1983 data. These projections will be revised after March 15, 1985 to incorporate 1984 data.

North of Cape Hatteras: Begin
November 6, 1985 for 24 days

Cape Hatteras - Georgia/Florida: Begin
October 15, 1985 for 47 days

Georgia/Florida - Gulf of Mexico: Begin
November 1, 1985 for 60 days

Gulf of Mexico - Texas/Mexico: Begin
November 1, 1985 for 37 days

Puerto Rico and U.S. Virgin Islands: Begin
November 1, 1985 for 60 days

The plan requires that the previous year's data and analysis be updated by March 15 of the following year. The latest update before the first closure (October/November 1985) will be by March 15, 1985 and the lengths of the closures for 1985 will be based on that update. The closures could be longer or shorter than what has been predicted, depending on whether more or less small fish (under 50 pounds dressed weight) were caught in 1984 than 1983 and whether there is new evidence that a minimum size limit or other action will effectively curtail the catch of small fish. The computation of the VSC automatically takes into account any other action that reduces the catch of small fish such that there may not be a closure.

Prohibitions and exemptions. All swordfish caught for sale must be landed whole or as carcasses. In a closed area: fishing for swordfish by other than exempt gear is prohibited; the possession of swordfish shoreward of the outer boundary of the FCZ is prohibited; the landing of swordfish taken by other than exempt gear is prohibited. The importation of any swordfish taken from the western North Atlantic is prohibited during a closure. No longlining or netting is allowed at night in a closed area. No vessel with longlines or nets can possess swordfish in a closed area. Daylight longlining for species other than swordfish can continue in closed areas but the swordfish bycatch must be released.

Harpoon gear is exempt from the closure if the closure occurs between June and October. Minimum size for harpooned swordfish during any closure is 125 pounds dressed weight. Monthly harpoon landings are restricted to their historical (1973-83) levels during closures. The traditional handline fishery in the Caribbean is allowed an incidental catch limit of 1 swordfish per trip during their closure. Fish caught by the traditional handline fishery in the Caribbean may be sold. Rod and reel gear is exempt from the closure but the fish cannot be sold.

Regulating foreign fishing. Swordfish measures in the preliminary fishery management plan for billfish and sharks (1978) and amendments to that plan (1982 and 1983) with some modifications are adopted into this plan. These include the provision that no swordfish may be retained and seasonal closures to avoid gear conflicts. In addition, the foreign bycatch of swordfish while tuna longlining or squid trawling is restricted. The quota (number of fish hooked) for the foreign longline swordfish bycatch is 1,136 fish in the Atlantic and Caribbean and 400 fish in the Gulf of Mexico. The foreign squid trawl bycatch is limited to the 1982 ratio of swordfish to

target catch in the foreign squid trawls in the New England and Mid-Atlantic regions (number swordfish/metric tons of squid). Any restrictions that apply to U.S. fishermen also apply to equivalent foreign fishing such as the VSC and daytime fishing restriction for longlines.

Statistical reporting. All boats must obtain a permit to retain swordfish for sale. The fishery is primarily monitored with data collected by technicians aboard a sample number of U.S. commercial swordfishing boats randomly selected to participate in the data collection program. Participation is mandatory for vessels selected. Reporting of landings by individual carcass weight is mandatory for vessels retaining swordfish for sale landed in Puerto Rico or the U.S. Virgin Islands.

Other species and coastal zone consistency. The Section 7 Consultation was initiated, a biological assessment prepared and submitted. The biological assessment was reviewed and it was concluded that the proposed management measures would not affect endangered/threatened species. The FMP and coastal zone consistency determination have been sent to individual states for CZM consistency.

Comments requested by:

3.0 ENVIRONMENTAL IMPACT STATEMENT (EIS)

() Draft

(X) Final Environmental Statement

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Name of Action: (X) Administrative

() Legislative

ENVIRONMENTAL IMPACT STATEMENT

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List of Preparers

The FMP, RIR, IRFA and EIS were prepared by the South Atlantic, New England, Mid-Atlantic, Gulf of Mexico and Caribbean Fishery Management Councils with principal input from South Atlantic Council staff. Development was an integrated effort and individuals cannot be identified relative to preparation of specific sections.

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Loretta J. Glatfelter Word Processor Operator

The source document and addendum, which contain the detailed scientific, technical and other supportive documentation on which this management regime is based, was prepared by staff of the South Atlantic Fishery Management Council, with input from the following fishery experts.

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Peter Eldridge, Ph.D. Applicable Experience:	Fishery biology and population dynamics

Interim Working Panel Members

During 1984 the "working panel" described in this plan was convened to begin work on the subjects they will be addressing on an ongoing basis once the plan is implemented. Their first official report is due March 15, 1985 in time to modify the first closures that are now scheduled to begin in October/November 1985.

Council members (Chairmen of swordfish committees):

Allen Branch, SAFMC (lead Council)
Lester Smith, NEFMC
James McHugh, MAFMC
Walter Fondren, GMFMC
Jose Campos, CFMC

Industry advisory members (appointed by the Councils):

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James Vogel, MAFMC
Robert Pelosi, SAFMC
Melvin Siegel, GMFMC and cooperative data source
Mike Montella, cooperative data source
Roy Merritt/Becky Phillips, cooperative data source

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Ed Houde
Emory Anderson
Joseph Powers
Ray Conser

NOAA/NMFS Assistance

Extensive time and effort over the years by the following persons has made our job more effective and productive.

Craig O'Connor, NOAA GC SER
Rod Dalton, NMFS, SERO

List of Agencies, Organizations, and Persons to Whom Copies of the Statement are Sent

U.S. Army Corps of Engineers
U. S. Department of Commerce
Office of Coastal Zone Management
U.S. Department of the Interior
Mineral Management Service
U.S. Department of State
U.S. Department of Agriculture
U.S. Department of Transportation
Coast Guard
U.S. Department of Energy
U.S. Environmental Protection Agency
Center for Environmental Education
Embassy of Japan
Embassy of Spain
Fishery Management Councils
Florida Marine Fisheries Commission
Florida League of Anglers
Gulf and South Atlantic Fisheries Development Foundation
Mid-Atlantic Fisheries Development Foundation
Atlantic States Marine Fisheries Commission
Gulf States Marine Fisheries Commission
State Resource Agencies (5 Council area)
Southeastern Fisheries Association
N.C. Fisheries Association, Inc.
Sea Grant Advisory Services (5 Council area)
Organized Fishermen of Florida
State Coastal Zone Management Agencies (5 Council area)
Marine Mammal Commission
Sport Fishing Institute
National Coalition for Marine Conservation
Shinnecock Marlin & Tuna Club, Inc.
Fisheries Agency of the Government of Japan
Federation of Japan Tuna Fisheries Co-Operative Associations
Conservation Council of Angling Clubs
New York Sportfishing Federation
Japan Tuna Association
Stuart Sailfish Club

Draft Statement to EPA:

February 25, 1983

Final Statement to EPA:

4.0 REGULATORY IMPACT REVIEW (RIR)

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5.0 THE FISHERY MANAGEMENT UNIT

5.1 Description of the Species

The swordfish, Xiphias gladius, also known as broadbill, has a stout body, large eyes, and a large mouth with the upper jaw prolonged into a sword. The color is a dark metallic-purplish above, dusky below, and the sword is black above and lighter below.

5.2 Range of the Fishery

The swordfish is considered to be a single species over its worldwide distribution in temperate and tropical zones. Commercial catches of swordfish are taken primarily in temperate zones in the summer and secondarily in tropical and subtropical zones in winter. Swordfish are caught in the FCZ's of the Western Pacific, Pacific, New England, Mid-Atlantic, South Atlantic, Gulf of Mexico and Caribbean Councils.

5.3 Management Unit

The management unit is the population of swordfish in the western North Atlantic. Data to calculate the variable season closure and data reporting by technicians, aboard U.S. vessels (Section 10.3) cover fish caught in state waters, FCZ, and outside the FCZ. Areas closed to U.S. fishing by the variable season closure (Section 10.1) are state waters and the FCZ. Prohibition of the possession of swordfish during the variable season closure (Section 10.1) applies shoreward of the outer boundary of the FCZ. Data reporting by observers aboard foreign vessels with a by-catch of swordfish and all management measures applying to foreign vessels (Section 11.1) are for the FCZ.

5.4 Rationale for Choosing This Unit

While swordfish have a world-wide distribution there is evidence that there is a "Western North Atlantic" stock that can be treated as a unit for management purposes. Based on 1982 FAO data (latest available from all countries fishing in the western North Atlantic), approximately 71 percent of the swordfish harvested from the western North Atlantic are taken by

U.S. fishermen (Table 1). Of this amount none was taken outside the FCZ and 0.4 percent was taken from state waters. The U.S. and Canada together accounted for almost 90 percent of the annual western North Atlantic swordfish harvest between 1978 and 1982. This trend is expected to have continued through 1984 (Tables 1 and 2).

Swordfish are separated from other billfish for purposes of management because virtually all swordfish are taken on longline or with harpoons commercially, while virtually all billfish are taken on rod and reel recreationally.

6.0 PROBLEMS

1. Growth overfishing as measured by yield-per-recruit analysis is occurring or probably about to occur. This reduces landings by weight and significantly reduces landings by value because there are fewer larger fish preferred by the market. Since 1980 there has been an increase (both relative and absolute) in the catch of smaller fish (under 50 pounds dressed weight). There would be a gain in weight and value landed if these fish were harvested at a larger size.
2. There is intense competition for fishing space that results in gear entanglement and loss. This occurs between:
 - o domestic longliners
 - o domestic longliners, drift nets, and fixed lobster gear in the northeast
 - o domestic longliners and foreign tuna longliners
3. There is an incidental swordfish catch by foreign tuna longlines and squid trawls that is lost to domestic fishermen.

Table I. Swordfish catches (pounds) from the western North Atlantic.* (Source: FAO, Yearbook of Fishery Statistics.)

	1978	1979	1980	1981	1982
Canada	6,730,643	6,547,662	4,153,466	1,272,054	2,078,938
Cuba	881,840	220,460	471,784	350,531	235,892
Japan	593,037	577,606	815,702	683,426	568,787
Korea Republic	24,251	a	a	a	57,320
Morocco	a	a	a	a	a
Poland	13,228	a	2,205	a	a
Spain	a	a	a	a	4,409b
Togo/Ghana	a	a	a	a	a
USA	7,125,267	7,321,476	8,095,291	8,004,903	8,258,431
USSR	a	a	a	a	a
Venezuela	101,412	147,708	88,184	55,115	55,115
Portugal	a	a	a	a	a
France	a	a	a	a	a
Liberia	a	a	a	a	a
Other ^b	352,736	617,288	357,145	354,941	326,281
TOTALS	15,822,414	15,432,200	13,983,777	10,720,970	11,585,173

* FAO statistical reporting areas 21 and 31

a None reported

b FAO estimate

Table 2. Annual domestic swordfish landings (pounds whole weight) by Council area 1960-1983 and by management area 1977-1983.

	GMFMC	SAFMC	MAFMC	NEFMC	TOTAL ALL AREAS	MANAGEMENT AREA				
						GULF MEXICO	GA/FL TO GULF OF MEXICO	CAPE HATTERAS TO GA/FL	NORTH OF CAPE HATTERAS	TOTAL ALL AREAS
1960	-	-	69,000	942,000	1,011,000					
1961	-	-	72,000	829,000	901,000					
1962	-	-	67,000	867,000	934,000					
1963	-	1,000	423,000	2,331,000	2,755,000					
1964	-	483,000	1,113,000	1,456,000	3,052,000					
1965	-	524,000	1,391,000	788,000	2,703,000					
1966	-	77,000	425,000	855,000	1,357,000					
1967	-	-	404,000	641,000	1,045,000					
1968	-	-	216,000	389,000	605,000					
1969	2,000	-	40,000	336,000	378,000					
1970	346,000	-	18,000	268,000	632,000					
1971	1,000	1,000	4,000	73,000	78,000					
1972	-	-	-	541,000	541,000					
1973	14,000	-	7,000	873,000	894,000					
1974	86,000	-	76,000	3,353,000	3,515,000					
1975	149,000	-	149,000	4,294,000	4,592,000					
1976	391,000	-	187,000	3,408,000	4,248,000					
1977	2,321	262,000	222,278	1,306,000	1,763,599					
1978	52,708	1,559,470	511,000	5,027,000	7,145,178					
1979	378,000	2,384,147	343,554	4,412,000	7,517,701					
1980	1,725,975	3,469,715	589,313	2,651,000	8,436,003					
1981	1,164,504	3,658,644	596,232	2,373,029	7,792,409					
1982	1,255,775	4,251,728	1,081,892	2,442,255	9,011,650					
1983	716,731	4,163,042	1,458,155	2,925,954	9,263,882					
1977	2,321	113,000	0	1,648,278	1,763,599					
1978	52,708	536,000	584,164	5,972,306	7,145,178					
1979	378,000	1,391,000	822,711	4,925,990	7,517,701					
1980	1,725,975	2,308,042	845,097	3,556,889	8,436,003					
1981	1,164,504	2,718,871	688,345	3,220,689	7,792,409					
1982	1,255,775	2,946,805	1,158,358	3,670,712	9,011,650					
1983	716,731	2,817,983	1,181,144	4,548,024	9,263,882					

7.0 OBJECTIVES

1. The economic objective is to maintain high landings in the form of larger fish that are preferred in the market. This is accomplished by controlling the harvest of smaller fish.
2. The biological objectives are to prevent or reduce growth overfishing and to create a buffer against possible recruitment overfishing. This also is accomplished by maintaining a sufficient number of larger fish by controlling the harvest of smaller fish.
3. Obtain the necessary scientific information to continually monitor and refine the management of the swordfish fishery. This is accomplished by an onboard technician program on a sample number of commercial boats.
4. Monitor competition for space and user group conflicts for future management measures. This is also accomplished by the onboard technician program.
5. Minimize the impacts of foreign fishing on our domestic swordfish fishery. This is accomplished by minimizing the swordfish bycatch of foreign longliners and squid trawls consistent with the requirement to allow opportunities to harvest tuna or catch squid under a Governing International Fisheries Agreement (GIFA).

8.0 DESCRIPTION OF THE FISHERY

8.1 Description of Stocks

Distribution. The swordfish, Xiphias gladius, has a worldwide distribution.

Reproduction. Swordfish are heterosexual; however, there are no known external characteristics to separate males from females. Sex must be determined by examining the gonads in the body cavity. Age at first spawning is between four and five years. Estimates of sexual maturity off the Florida east coast are 21 kg (49.3 lb) for males and 74 kg (163.1 lb) for females. More recent work off South Carolina indicates that males become reproductively active between 12.7 and 17.0 kg (28.0 - 37.5 lb) dressed weight and that females become reproductively active between

21.0 and 28.8 kg (46.0-63.4 lb) dressed weight. Fecundity estimates range from 1 million to 29 million eggs produced per spawning. The primary spawning period in the western North Atlantic Ocean occurs in the late fall and winter. Three western Atlantic spawning areas have been identified: (1) Straits of Yucatan, (2) Straits of Florida, and (3) the Lesser Antilles.

Age and growth. Male and female swordfish appear to have different growth rates. Although one recent study concluded that the differences may be small, the very different growth parameters they reported for males and females suggested otherwise (Table 3). After age 2 females grow faster and reach a larger size than males. The sexes do not occur in equal proportions throughout their range. The proportions are reflected by longline landings. In the Gulf of Mexico and off the east coast of Florida there are more males than females. Moving north along the Atlantic coast to New England, females predominate over males (female/male ratio is approximately 1/1.7 in southern waters and 3/1 in northern waters).

Mortality. In the context of a yield-per-recruit analysis, total mortality (natural mortality plus fishing mortality) has been estimated from 0.36 to 0.45 for males, from 0.26 to 0.33 for females. Canadian estimates range from 0.12 to 0.65 for both sexes (which is applicable only for a constant sex ratio).

Natural mortality estimates are 0.27 for males and 0.14 for females. Canadian estimates ranged from 0.21 to 0.43 for both sexes.

The FMP assumes that the best estimates of total mortality for 1980 are 0.44 for males and 0.33 for females. These estimates were derived from fish taken in the Straits of Florida and are presumed to reflect total mortality throughout the management unit. The best estimates of 1980 fishing mortality are assumed to be 0.17 for males and 0.19 for females. It is expected that the fishery was not in equilibrium when these YPR parameters were estimated. Updated "transitional" estimates or estimates after the fishery is stabilized may produce different YPR parameters.

Size frequency data for 1980-1983 recently provided by fishermen and dealers to the Councils cannot support or refute any specific change in fishing mortality since 1980 by YPR analysis because the size frequencies are for sexes combined. Size frequency data must be separated by sex to accurately perform yield-per-recruit analyses. However, the 1980-83 size

Table 3. Age and growth estimates of males, females, and sexes combined (weights in pounds) predicted from Von Bertalanffy growth equations.

Age	Berkeley & Houde						Wilson & Dean*	
	Female		Male		Combined Sexes		Combined Sexes	
	Round Weight	Dressed Weight	Round Weight	Dressed Weight	Round Weight	Dressed Weight	Round Weight	Dressed Weight
1	22	16	26	20	24	18	25	19
2	43	32	48	36	45	34	43	32
3	73	55	70	53	72	54	66	50
4	108	81	92	69	100	75	93	70
5	148	111	120	90	134	101	121	91
6	188	141	147	110	168	126	151	113
7	241	180	167	125	204	153	181	136
8	300	225	181	136	240	180	210	158
9							239	179
10							266	200
11							292	219
12							315	236
13							338	254

GROWTH PARAMETERS

	Berkeley and Houde			Wilson & Dean		
	Female	Male	Combined Sexes	Female	Male	Combined Sexes
L_{∞} (cm)	340	217	297	291	155	257
K	0.095	0.195	0.105	0.10	0.66	0.13
t_0	-2.59	-2.04	-2.87	-3.20	0.42	-2.83

*Values presented were calculated from Von Bertalanffy growth equation parameters by Wilson & Dean. The resulting lengths were converted to weight from the following length-weight relationship:

$$W_t = 2.94 \times 10^{-6} L_t^{3.2828}$$

frequency data combined with landings data show a substantial increase in the catch of smaller swordfish (under 50 pounds dressed weight).

Larval ecology. Larvae occur at or near the surface during day and night and have been collected in every month of the year from the western North Atlantic. They feed on fish larvae and copepods. Juvenile and adult tunas, dolphins, mackerels, snake mackerels, flying fishes and billfishes prey on larval swordfish. Estimates of larval growth rates range from 0.6 to 2.0 mm (0.02 to 0.08 in) per day.

Food-chain. Adult swordfish are opportunistic predators on fish and squid from the surface to about 915 m (3,000 ft). Their vertical distribution is linked to the diurnal movements of their prey. The following species have been found in the stomachs of swordfish: (1) seven species of squid, (2) scads, (3) hake and cod, (4) butterfish, (5) bluefish, (6) sand lance, (7) round herring, (8) mackerels, (9) various deep water species and, (10) parrotfishes. Prey such as parrotfishes may imply that swordfish make feeding forays onto reef areas. Squids were not as important a food item in early studies (prior to 1974) and it is hypothesized that their current dietary importance reflects their steadily increasing abundance from Cape Hatteras to the Gulf of Maine.

Predator-prey. Swordfish do not seem to school and are generally classified as solitary. However, high catch rates at specific depths and locations indicate they are concentrated. Swordfish separate to some extent by size on the fishing grounds; larger fish occur further north and east of smaller fish. There is also some evidence that the proportion of smaller swordfish caught could be reduced by concentrating effort in the coldest water available. One recent study showed that: (1) 26 percent were less than 34 kg (75.0 lb) in waters below 20° C and (2) 61 percent were less than 34 kg in waters above 20° C.

Tunas, dolphins (Coryphaena), sharks, and other billfishes prey on larval and juvenile swordfish. Larval and juvenile swordfish are cannibalistic. Adult swordfish are preyed on by sharks (especially makos), sperm whales and killer whales.

The following parasites are found in swordfish: nematodes and leeches in the stomach, cestodes attached to the outer walls of the stomach, ectoparasites in muscle tissue, and external copepods.

Horizontal and vertical movements. Swordfish follow a cycle of being closer inshore during the day and offshore at night. They move down the water column during daylight hours and closer to the surface at night which appears to be related to light intensity.

Migrations. Swordfish spawn in the tropical and sub-tropical western North Atlantic then migrate to temperate waters along the edge of the continental shelf during spring. They migrate south in late autumn and winter to complete the cycle. This pattern is reflected by several long range tag returns from the Gulf of Mexico to Georges Bank and by seasonal fishing conditions in the Atlantic and Gulf. Evidence indicates that different age groups in the population may migrate differently, with large females participating in a reproduction migration in a north-south direction and younger fish migrating relatively short distances in response to temperature and feeding preferences. Medium sized fish (males and females) can migrate over larger distances motivated primarily by the search for food. Seasonal north-south migration patterns are also reported for the Pacific and eastern North Atlantic.

Stock definition. There are no clear means to separate stocks based on life histories, distributions, morphological characteristics, catch and effort records, parasites or diseases, or biochemical characteristics. Since swordfish are widely distributed and have complex migratory patterns, definitive answers on stock structure are not possible.

The strongest evidence in support of a Northwest Atlantic stock is from tag-recapture data. At least 60 swordfish tagged in the northwest Atlantic have been recaptured. All were recaptured in the northwest Atlantic. While extensive north-south coastal migrations have been documented through tagging, no trans-Atlantic recaptures have been reported, despite very intensive fisheries in the eastern Atlantic.

The strongest evidence for a single North Atlantic stock comes from Japanese longline data. In their directed tuna longline fishery, the CPUE of swordfish is relatively uniform, suggesting a continuous distribution of swordfish across the North Atlantic.

This FMP presumes there is one Northwest Atlantic stock. It is possible that there is more than one Northwest Atlantic stock. This FMP sets a high research priority on determining if there are multiple stocks (see Statistical Reporting, Section 10.3 and Research Needs, Section 12.3).

8.2 Description of Habitat

Swordfish are migratory oceanic carnivores ranging worldwide. In the five Council FCZ this includes the Gulf of Mexico, Caribbean Sea, Gulf Stream, and Atlantic Ocean

Habitat areas of particular concern. Swordfish spawning grounds are at or near the surface of oceanic waters relatively far from coastal sources of pollution. Offshore pollutants such as oil spills may be deleterious to the young stages. Swordfish can also be influenced by subsurface and substrate pollutants such as heavy metals, pesticides and radionuclides, through the food chain. Swordfish living on or near canyons of the continental shelf may be affected by pollutants carried through direct ocean dumping.

8.3 Fishery Management Jurisdiction, Laws and Policies

Management Institutions. The U.S. Department of Commerce, acting through the five eastern regional Councils; New England, Mid-Atlantic, South Atlantic, Gulf of Mexico, and Caribbean pursuant to the Magnuson Fishery Conservation and Management Act (MFCMA) (P.L. 94-265), has authority to manage swordfish stocks throughout the U.S. Fishery Conservation Zone (FCZ) in the Northwest Atlantic, the Gulf of Mexico, and the Caribbean Sea.

Treaties and International Agreements. The United States is a member of the International Commission for the Conservation of Atlantic Tunas (ICCAT). Because swordfish are caught by the tuna longline fishery, statistics on the catch are maintained by this commission. No plans exist to manage or regulate the swordfish fishery through international commissions.

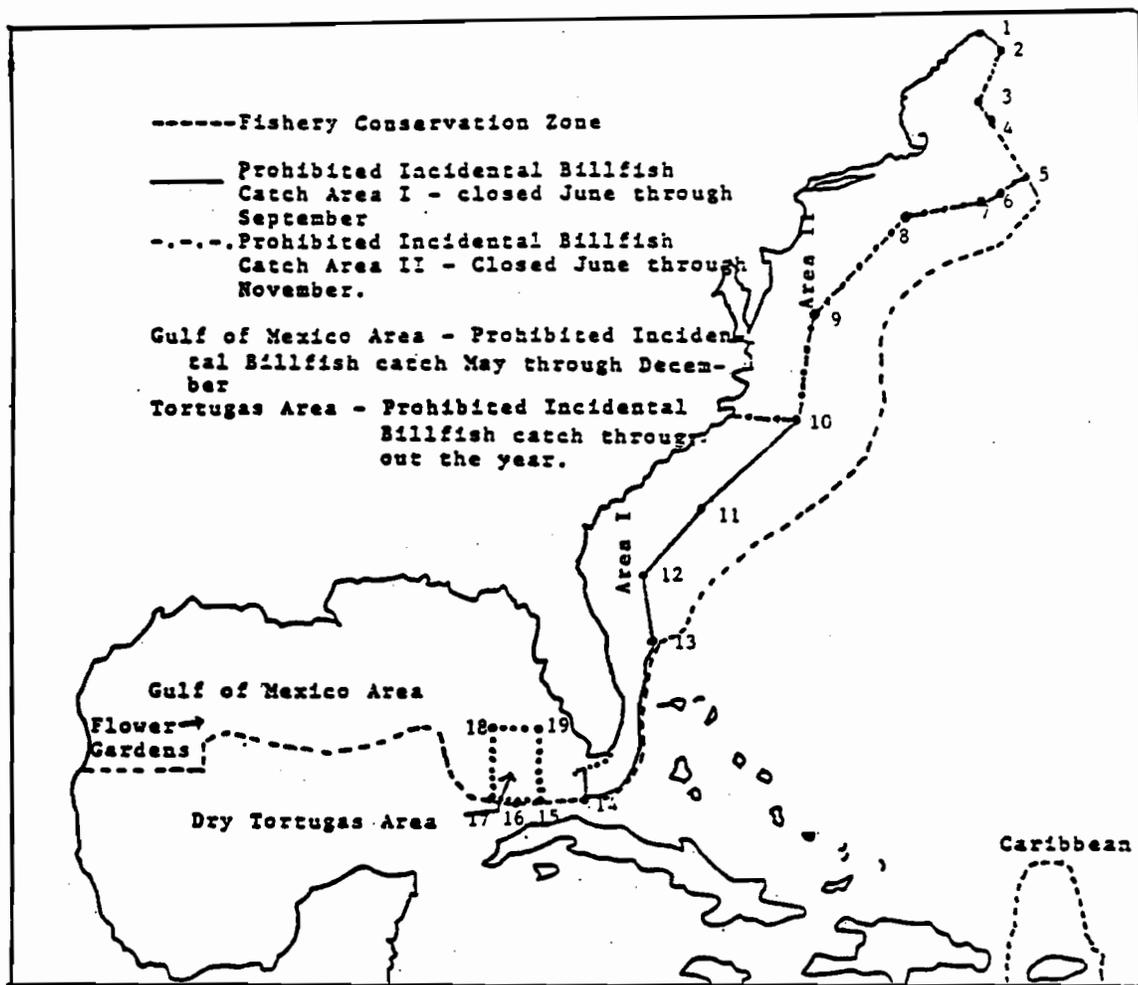
The Canadian government barred U.S. fishermen from the Canadian fisheries zone in June 1978 and the United States took similar action against Canadian fishermen shortly thereafter. By de facto agreement the two nations had maintained enforcement within the region claimed by

both countries. The recent World Court decision defined the boundary (Fig. 2) in this disputed area.

Federal Laws, Regulations and Agreements. The only federal law that relates to the management of the Atlantic, Gulf and Caribbean swordfish is the Magnuson Act. Until a Fishery Management Plan is approved by the Secretary of Commerce, this fishery will be managed through the Preliminary Fishery Management Plan for Atlantic Billfishes and Sharks, (CFR 50§ 611.60) prepared by the Department of Commerce. The Preliminary Fishery Management Plan for Atlantic Billfishes and Sharks (1978) and its amendments (1982 and 1983) include:

- (1) Implemented March 20, 1978. All swordfish must be reported and released.
- (2) Amendment implemented September 24, 1982. No foreign longlines which have an incidental catch of swordfish are allowed in the Atlantic FCZ out to 100 miles North of Cape Lookout June 1 -November 30 to the U.S./Canada boundary (Figure 2).
- (3) Amendment approved September 28, 1983, but not implemented. No foreign longlines which have an incidental catch of swordfish in the Atlantic FCZ are allowed out to 100 miles from Key West to Cape Lookout June 1 - September 30 (Figure 2).
- (4) Amendment approved September 28, 1983, but not implemented. The incidental catching of billfishes in the Gulf of Mexico area would be allowed from January 1 through April 30 with the exception of a window of area off the Dry Tortugas approximately 10,000 square nautical miles and located approximately 85 nautical miles west of Key West, Florida (Figure 2) which would be closed the entire year. Also, fishing by foreign vessels with bottom longline gear is prohibited throughout the year within the East and West Flower Garden Banks, an area of approximately 257 square nautical miles, located approximately 100 nautical miles southeast of Galveston, Texas, and 120 nautical miles south of Cameron, Louisiana.

Food and Drug Administration mercury action levels. In December 1970, the fishery was restricted by the Food and Drug Administration



<u>Point</u>	<u>Latitude</u> Shore at	<u>Longitude</u>
1	44°22'00"N	67°52'00"W
2	44°11'12"N	67°16'46"W
3	42°53'14"N	67°44'35"W
4	42°31'08"N	67°28'05"W
5	40°55'00"N	66°09'00"W
6	40°25'00"N	66°57'00"W
7	40°00'00"N	67°39'30"W
8	39°32'00"N	70°52'30"W
9	37°54'00"N	73°05'00"W
10	34°50'00"N	73°34'00"W
11	32°35'00"N	76°40'00"W
12	30°21'30"N	79°20'00"W
13	28°15'30"N	78°39'00"W
14	23°48'00"N	83°00'00"W
15	24°00'00"N	83°20'00"W
16	24°00'00"N	84°04'00"W
17	24°23'00"N	85°00'00"W
18	26°00'00"N	85°00'00"W
19	26°00'00"N	83°20'00"W

Figure 2.

Gulf of Mexico and Atlantic fisheries for billfishes and sharks.

(FDA) limit of 0.5 ppm of mercury. Enforcement of the 0.5 ppm mercury level amounted to a ban on swordfish. Imports were eliminated and domestic landings continued at a reduced rate.

On June 27, 1978, in response to the ruling of the U.S. District Court for the North District of Florida in two cases, the FDA issued an administrative guideline instructing its inspectors to take enforcement action only against fish with mercury levels in the edible parts exceeding 1.0 ppm. The decision was appealed. The American Swordfish Association, relying on the toxicological findings of the Florida court and on new consumption evidence prepared by the National Marine Fisheries Service, attacked the 1.0 ppm action level asserting that only an action level of 4.0 ppm was required. The 1.0 ppm was upheld and the court recognized that the action level could be changed in the future if consumption patterns reflected higher individual consumption through more concentrated markets, higher landings, and/or swordfish consumed in diets with other seafood.

State laws, regulations and policies. None of the States involved with this plan have laws concerning swordfish.

Local and other applicable laws, regulations and policies. No local or other laws, regulations, or policies are known to exist relative to the swordfish fishery.

8.4 Description of Fishery Activity

Early commercial development. Swordfish have been taken commercially in the northwest Atlantic since the 19th century. Until 1962 virtually all swordfish were harpooned and fishing was confined to waters between New York and Canada during summer months. Harpooning was limited by three conditions. First, calm seas were necessary to spot "finning" swordfish on the surface from the crows nest of a boat. Second, normally only larger swordfish (over 100 pounds dressed weight) are found near the surface. Third, swordfish fin on the surface only in northern waters (New York and north). In the mid-1960's light aircraft became common to spot swordfish. The pilot could cover more area and spot swordfish at greater depths (15-20 feet) than could be done from a crows nest.

In the early 1960's longlines were introduced to Canadians by Norwegian shark fishermen who caught substantial numbers of swordfish as an incidental catch. Before longlines the estimated total catch of swordfish in the northwest Atlantic was 2,800 metric tons (6.2 million lb). During the first few years of longlining, total U.S. and Canadian catches increased dramatically. Combined U.S and Canadian landings reached a high of over 8,000 mt (17.6 million lb) round weight in 1963 and then dropped off and stabilized at between 4,500 and 5,000 mt (9.9 and 11.0 million lb) round weight on an annual basis until 1970. From 1962 to 1970, harpoon landings in the Canadian fishery decreased in response to a decrease in effort. In 1970, the Canadian longline fleet was estimated at 58 to 67 vessels, fishing 6 million to 7 million hooks annually. The Canadian fishery accounted for 80 to 95 percent of the total reported catch during this period.

Catches by the Canadian fleet after 1962 included many more small fish. This trend toward the landing of smaller fish continued until the Canadian fishery closed in 1971 due to mercury restrictions. Until the summer of 1979, there was no reported commercial fishery for swordfish in Canada. Mercury restrictions were relaxed in Canada in 1980 as opposed to 1978 in the U.S.

The average dressed weight of fish landed prior to 1963 was approximately 90.7 kg (200 lb); in 1970, it was approximately 45.4 kg (100 lb). This change in size composition of the catch has been attributed to the introduction of longlines (harpoons select for large, female fish), as well as to the expansion of the fishing grounds into warmer waters where more small fish are taken and the fishing season is longer.

A Japanese longline fishery has existed in the Atlantic since 1956. During the period from 1966 to 1971, Japan reported annual landings of swordfish of around 1,800 mt (4.0 million lb). In contrast to the Canadian and U.S. longlines, which are fished primarily at night, Japanese longlines are fished during the day and night.

Mercury restrictions of 0.5 ppm (1971-1978). The commercial fishery suffered a severe setback in 1971 when the FDA issued interim guidelines limiting the permissible amount of mercury in swordfish to 0.5 ppm. The FDA guideline of 0.5 ppm was based on the following assumptions:

1. Daily mercury intake of 300 mcg/day is the threshold level at which clinical effects are observed in humans
2. 10 fold safety factor sets the threshold at 30 mcg/day
3. All mercury consumed is through seafood
4. All mercury consumed is methyl mercury
5. Average consumption of seafood is 60 g/day (2.1 oz)

Given these assumptions, then mercury consumption in all seafood cannot exceed 0.5 ppm to assure mercury consumption is not above 30 mcg/day: $(60 \text{ g/day})(0.5 \text{ ppm}) = 30 \text{ mcg/day}$.

Few swordfish pass the 0.5 ppm criterion. Based on a regression of mercury concentration by size fish (381 Canadian samples) the predicted mercury concentrations by fish size are shown in Table 4.

From 1971-78, some U.S. fishermen continued to fish for swordfish in spite of the threat that their catches would be confiscated by the FDA for sampling and testing and that most fish would not pass the 0.5 ppm restriction. Landings for this period are not accurate.

There is evidence from Canadian research cruises conducted in 1975 that average fish size and CPUE increased in northwestern Atlantic waters from 1970-75.

The Southern commercial fishery. In 1976, Cuban-Americans began a localized longline fishery off the coast of Florida. These were primarily small boats on one-night trips. Fleet size in 1977 was estimated to be 35 boats concentrated between Miami and Key West. Techniques used by the Cuban Americans were modified by Florida fishermen. The result was that a local fishery began to expand in this area. At least 100 vessels were estimated to be involved in the swordfish fishery by 1978.

Fishing after 1978 (mercury restriction of 1.0 ppm). The FDA 0.5 ppm action level was challenged in court in 1978. Partially based on a more detailed analysis of seafood consumption patterns developed by NMFS (Model for the estimation of the consumption of contaminants from aquatic foods, MECCA model) the action level was raised to 1.0 ppm. The most recent version of this technique is the NMFS Consumer Risk Simulation Model. It is likely that this form of consumer risk modeling will be the technical basis for future court challenges to increase or decrease the FDA action level.

Table 4. Mercury concentrations by size fish.

AVERAGE SIZE (LB DRESSED WEIGHT)	AVERAGE SIZE (LB WHOLE WEIGHT)	PREDICTED MERCURY CONCENTRATION (PPM)
66.65	88.87	0.6676
133.30	177.73	1.0190
199.95	266.60	1.3049
266.00	354.67	1.5552
333.25	444.33	1.7819
399.90	533.20	1.9916
466.55	622.07	2.1882

Commercial landings increased from 1.8 million pounds in 1977 to 7.1 million in 1978 and have continued to increase to 9.3 million in 1983 (Table 2). Actual landings are probably higher than the reported landings. Many fish are not sold through established reporting fish houses and legal difficulties with the FDA encourage under-reporting. Industry (Advisory Panel) estimates are 15 million pounds. While total landings are not reported, it is expected that recorded landings do accurately reflect the trends and distribution of the catch by area and season. The distribution in 1980 was approximately 2.7 million lb from New England; 0.6 million lb from the Mid-Atlantic Region; 1.2 million lb from North Carolina, South Carolina, and Georgia; 2.3 million lb from Florida East Coast; and 1.7 million lb from the Gulf of Mexico.

In 1981, 91.8 percent of the catch originated in the FCZ, 7.8 percent from international waters, and only 0.4 percent from State waters. During 1982, 99.6 percent originated from the FCZ and 0.4 percent from State waters with no reported landings from international waters. Landings for 1983 totaled 9.3 million pounds (Table 2) and the distribution was approximately 2.9 million (31.6 percent) from New England; 1.5 million (15.7 percent) from the Mid-Atlantic Region; 1.3 million (14.5 percent) from North Carolina, South Carolina and Georgia; 2.8 million (30.4 percent) from the Florida East Coast; and 0.7 million (7.7 percent) from the Gulf of Mexico.

Canadian catch estimates range from 2.9-3.9 million lb for 1981 and 4.7-6.2 million lb for 1982 based on extrapolated landings data from 15-20 percent of the entire fishery. These figures are larger than the FAO reported value in Table 1. The 1983 estimate is 4.8 million lb.

The presence of swordfish in the Caribbean area has been known from Japanese longline incidental catches and occasional landings in the recreational and local commercial fisheries. However, the landing of swordfish is such a rare event that they are grouped in the "other fish" category for landing statistics. The Department of Marine Sciences at the University of Puerto Rico conducted exploratory swordfishing during 1980. Swordfish abundance is expected to justify additional efforts. Several local fishing boats have obtained longlines and begun exploratory trips.

Recreational fishing. Sport fishing for swordfish has existed on the east coast of the United States since the 1920's. Prior to 1930, small boats caught swordfish off Martha's Vineyard and Nantucket by trolling. Few swordfish were taken with rod and reel. Prior to 1967 only about 50 swordfish were caught annually by rod and reel in about 1,000 attempts from Massachusetts to Long Island. The technique was to locate a fish on the surface during the day and then attempt to entice it to strike a bait.

The U.S. recreational fishery expanded during the late 1970s. New techniques were developed that are still being used today. Fishing is at night. Baits are drifted below the surface and artificial lights are used. This type of fishing requires the same heavy tackle used for tuna and other large billfish. Leaders are 15 to 30 ft (4.6 - 9.1 m) long, and rated at 150 to 300 lb (68.0 -136.1 kg) test and hooks are the 12/0 to 14/0 size. Line is typically 50 to 80 lb (22.7 - 36.3 kg) test.

Vessels used for rod and reel swordfishing are those used for tuna and other billfish. They range from 6.1 to 15.2 m (20 to 50 ft) depending on location. In Florida waters, because of the proximity of the Gulf Stream, smaller boats can fish for swordfish. Boats are both private and chartered.

Night fishing has proved to be more successful than daytime fishing and can be done over a wider geographic area but still has very limited appeal. As the stock became fully exploited by commercial longlines, catch rates dropped in the recreational fishery. The offshore nighttime activity is expensive and limited to a small number of anglers.

Estimates are that less than 2,000 swordfish had been taken in the history of sport fishing up to 1975. Since then annual tournaments have been held in a number of states. Tournaments started in Florida in 1977. Tournaments were held in South Carolina and New Jersey in 1978.

The Florida fishery reflects the relative expansion and then contraction of the recreational fishery after 1975 when nighttime fishing became popular. It was estimated that in 1976 approximately 25 to 30 swordfish were landed by rod and reel. Landings in 1977 are estimated to have been approximately 400 to 500 fish. Since 1978 recreational swordfishing and swordfish tournaments have declined because of decreasing catch rates.

Commercial Catch and Effort.

In June, 1984, all vessels intending to catch swordfish by methods other than rod and reel were required to obtain a permit from the NMFS Southeast Regional Director. As of January, 1985, 340 permit requests were received. This is presumed to be the total number of commercial swordfish vessels presently operating in the management area, and is believed to represent a decline since 1980. Despite this decrease, total effort is believed to have increased because many smaller boats have dropped out of the fishery and those remaining are larger, make longer trips, and set considerably more gear. Additionally, due to continuous improvements in gear, electronics, and fishing techniques the effectiveness of the effort unit has greatly increased. Although the limited amount of catch and effort data available for the domestic fishery suggest only a moderate decline in CPUE in recent years, considering the greatly increased (but unquantified) effectiveness of the effort unit, the real decline in CPUE may be considerable.

Recreational Catch and Effort. There has been a steady decline in the number of fish caught and catch per boat night from 0.44 in June 1977 to 0.11 in June 1980 based on southeast Florida swordfish recreational fishing tournaments. Initially, recreationally caught fish weighed more than longline fish but recent catches have similar weights. This is probably due to the fact that recreational rod and reel fishing is now conducted like commercial longline fishing (at night with artificial lights).

Foreign Catch and Effort in the U.S. FCZ. There is no directed foreign fishing for swordfish, but swordfish are caught as an incidental catch in the foreign longline tuna fishery and the foreign trawl fishery for squid.

Only Japanese longliners have fished for tuna within the FCZ (Table 5). The resulting billfish incidental catch (including swordfish) has been regulated since January 1978 by the Preliminary Fishery Management Plan for Atlantic Billfishes and Sharks (PMP). Since 1978 the Japanese longline bycatch of swordfish that was hooked and released has declined. This has been the result of fewer boats fishing in the FCZ. Initial mortality of hooked swordfish ranged from 63-77 percent. Actual mortality may be considerably higher because some fish die after release.

Table 5. Foreign longline bycatch of swordfish.

	<u>ATLANTIC</u>		<u>GULF</u>		<u>TOTAL</u>		
	<u>Japanese data</u>	<u>Observer data</u>	<u>Japanese data</u>	<u>Observer data</u>	<u>Japanese data</u>	<u>Observer data</u>	<u># permits</u>
1978	4,222	5,639	770	987	4,992	6,626	30
1979	1,347	1,999	2,450	2,426	3,797	4,425	35
1980	2,843	3,660	2,068	4,415	4,911	8,075	41
1981	6,314	1,321*	2,148	480*	8,462	1,801*	54
1982	1,136	1,028*	0	0	1,136	1,028*	19
1983		249		0		249	6
1984		402		0		402	

*These are preliminary data obtained with less than 100 percent observer coverage. Near 100 percent coverage was accomplished in 1982. There was 100 percent observer coverage in 1983 and 1984.

The only other source of swordfish bycatch by foreign vessels in the U.S. FCZ is squid trawls. Data on the incidental catch of swordfish in the foreign squid trawl fishery are updated in Table 6. Although the observed 1983 bycatch (42,000 lb) is only slightly lower than 1981 and 1982 levels, the extrapolated total bycatch is about half the reported 1982 value. This is most likely due to a reduction in the number of foreign vessels trawling for squid off our coast as joint ventures have increased in importance.

Foreign Catch and Effort In the Management Unit. Canada is the principal foreign country catching swordfish in the management unit. In 1983 Canada's directed fishery landed an estimated 4.83 million lb of swordfish. No estimates of effort are available.

Japan catches swordfish in the management unit as a bycatch of their directed tuna fishery. From 1977 to 1980 Japanese effective effort increased steadily from 15.7 million hooks to 31.4 million hooks while CPUE showed a steady decline from 0.047 to 0.027 fish per 100 hooks during the same period. Japanese reported landings in the western North Atlantic declined from 815,702 lb in 1980 to 568,787 lb in 1982.

Small catches of swordfish from the management unit are also reported by Cuba, Korea, Spain, and Venezuela.

Incidental Catch. Sharks, tunas, and other billfish species are caught incidentally in the domestic longline swordfish fishery. One domestic longline vessel reported 13 sailfish, 42 white marlin, and 3 blue marlin while taking 3,837 swordfish from 1974 to 1978.

Swordfish longlines set at night and hauled before daylight have lower incidental billfish catches than longlines fished during daylight hours.

Marine Mammals/Endangered Species. The Section 7 consultation was initiated and a biological assessment prepared and submitted. The biological assessment was reviewed and it was concluded that the proposed management measures would not affect endangered/threatened species. Marine mammals and sea turtles are caught infrequently by longlines. Observer data from Japanese longliners indicate that 12 turtles and no marine mammals were caught in 199 sets (451,902 hooks) during 1979 in the Gulf of Mexico. The percent mortality of animals hooked ranged from 10-50 percent. During 1979, in the Atlantic during 295 observed sets (663,551 hooks), 17 turtles and five marine mammals were caught.

Table 6. Foreign squid trawl bycatch of swordfish.

<u>Year</u>	<u>Observed Harvest (lb)</u>	<u>Projected Total Harvest (lb)</u>	<u>Number of boats</u>
1980	43,793	144,522	113
1981	49,152	162,207	108
1982	47,366	176,298	117
1983	42,022	85,888	54

During 1979, the observed incidental turtle catch ranged from a high of 12 in the Gulf of Mexico area to two in the South Atlantic. There were no incidental catches reported in New England. Catches in 1980 varied from nine in the Mid-Atlantic to one in the South Atlantic.

The introduction of drift nets in the northeast since 1980 may affect turtles and marine mammals. There have been no documented cases of swordfish drift nets catching mammals or turtles.

Rapid Evolution of Fishing Gear and Practices

Swordfishing and associated fishing practices have undergone very rapid technical changes starting with the introduction of longlines. Harpooning has also become more refined, particularly in the use of spotter planes. A recent change from multifilament to monofilament main lines makes it possible to fish in excess of 40 miles of longline. Hooks have been spaced increasingly farther apart, now often 10 and rarely more than 20 hooks per mile are set with lights attached. Navigational equipment (Loran C, Satellite navigation, radar) is now common. Instruments to monitor water temperature and movement (surface and depths) are common. Radar reflectors and radio beacons are used to track the drift and set of gear. Radio communication between boats distributes important fishing information. New methods are still evolving. They range from refinements of leaders, hooks, baits, and artificial lights to carrying onboard planes for harpoon spotting and the use of drift entanglement nets. These rapid technological changes appear to be bumping up against the limits of the resource. It is not anticipated that more efficient fishing methods will produce substantial increases in production. However, without continuing technological change it is unlikely that U.S. production can effectively compete with foreign swordfish imports if and when FDA mercury restrictions are relaxed, allowing increased imports.

The high level of ongoing commercial experimentation will likely produce the need for changes in management to keep pace with the fishery. The two most immediate developments have to do with the possibility that longliners can target larger swordfish, and the use of drift entanglement nets. Fishing selectivity offers the possibility of a minimum size limit; the use of nets requires monitoring to determine if there is an undesirable bycatch.

Target fish by size. The most important immediate ramification of the rapid technological change that has occurred has to do with the harvest of smaller fish. As fishing effort has increased there has been a substantial increase in the catch of small fish. Until recently most fishermen have argued that it was not possible to effectively target swordfish by size with longlines. This eliminated the likelihood of a minimum size limit or gear restrictions being effective in controlling the harvest of small fish. Now some fishermen believe that they can more effectively target fish by size. This has rekindled interest in a minimum size limit. A NMFS analysis of existing data to determine the ability to target fish by size and the resulting effectiveness of a minimum size limit will be completed by May, 1985.

Drift entanglement nets. Commercial experimentation has recently produced an entirely new fishing method, drift entanglement nets. Two California boats have used these nets in New England since 1980 with 2-5 other boats trying them at various times.

The nets, patterned after thresher shark nets used in California, are made of 18 in stretch mesh, 70 mesh (90 ft) deep and approximately one mile long. Depth is controlled by floats. One end always remains attached to the boat. If the net is not tethered to the boat it tends to ball up.

The net is set at dusk and pulled at dawn. The time required to haul the gear varies from 1 to 3 hours. Vessels harpoon during the day and gill net at night.

Twenty sets were made during 1980 in the vicinity of Georges Banks. The average catch was 2.5 swordfish per set with a mean weight of 129.7 kg (286 lb). In comparison, the mean weight of swordfish harpooned during the day was 117.0 kg (258 lb). The incidental catch did not include any billfish other than swordfish and did not include any small fish. A pilot whale was caught in the net but released.

Eight net sets were observed in September 1984 by Council staff near the northeast peak of George's bank. There was considerable variability in

the catch. The typical set consisted of 1-2 swordfish, 2-4 mako sharks, 2-5 albacore, 3-6 yellowfin tuna, 10 or more skipjack tuna, and varying numbers (0-15) of hammerhead and blue sharks. These limited observations are insufficient to draw any definitive conclusions about the bycatch.

Operating characteristics of the net were also observed. The net cannot be safely fished or hauled back in over 20 knots of wind. One end must remain attached to the boat at all times or it balls up. It is difficult, if not impossible, to regularly fish both the net and longlines on the same days with only one crew. Crew must often tend the net all night when wind and current conditions change. Also, any complications in the early morning haulback of the net delays the longline haulback which jeopardizes the longline catch.

The drift net as it is presently used complements harpooning in the northeast because harpooning is done during the day. Net catches of swordfish are seldom as large as those on longlines but the net does not require expensive bait or artificial lights. However, the net costs over \$10,000 and requires considerable aft deck space and vessel modification.

California experience with drift nets. The drift net fishery in California targets thresher sharks and has an incidental catch of swordfish. Other species caught include blue sharks, makos and a few striped marlin. Nets are 20.3-40.6 cm (8-16 in) and more recently up to 50.8 cm (20 in) stretch mesh, 1.61 km (1 mi) long and 20.1 m (66 ft) deep. They are fished 2.7-3.7 m (9-12 ft) below the surface. Boats harpoon during the day and fish drift entanglement nets from dusk to dawn. This extends the fishing season for approximately two months longer than the harpoon season because while fish are not "finning" at the surface they are in the area. Prior to September 15, 1980, a harpoon permit was free and there were 979 permits. After September 15 the cost of a permit was \$150, which reduced the number of permits to 408. Of the 408 harpoon permits, 94 were issued to boats with gill net permits. The total number of gill net permits is 165.

The California Legislature delegates authority to manage specific fisheries to a Commission and this was the case with swordfish. When drift gill nets were introduced the Commission prohibited their use; however, in September 1980 the Legislature reviewed the situation and lifted the

prohibition with two restrictions. Swordfish landed from drift gill nets cannot exceed 25 percent of the cumulative catch of harpoon caught swordfish and the incidental catch of striped marlin cannot exceed 10 percent of the striped marlin caught by the recreational rod and reel fishery.

8.5 Description of Economic Characteristics of the Fishery

The economic characteristics of the fishery closely track the evolution of the fishery. Prior to FDA restrictions swordfish was primarily an imported, modestly priced, frozen product (approximately 20 million pounds per year). There was national distribution to many of the major cities including inland population centers such as Chicago. The relatively small New England harpoon fishery supplied higher priced fresh swordfish to a local summertime tourist/vacation market. Like veal, swordfish has been marketed more as a restaurant item than a home consumption product. This should make swordfish markets (and prices) sensitive to general economic conditions (like most restaurant items or other "luxury products").

From 1971 until 1982 there had been virtually no importation of swordfish because of the FDA mercury action level. Since 1982 there has been a small but growing volume of frozen imports. Recent imports apparently are a result of less FDA enforcement. While the action level was 0.5 ppm (1971-78) virtually no imports could pass FDA inspection. Even after the action level was raised to 1.0 ppm in 1978 few imports would pass.

The FDA 1.0 ppm action level has been difficult to enforce on U.S. production. The result has been that U.S. swordfishing has had the advantage of developing since 1978 in a market protected from frozen imports. During this time domestic markets have expanded and quality control has increased the demand. The result has been that ex-vessel prices have increased, exceeding \$5.00 per pound at times in 1983 and 1984.

Influence of imports on prices. Future prices will undoubtedly be influenced by the availability of lower priced foreign imports. The future of imports will be determined by the FDA mercury action level and enforcement activities.

Influence of seasonal production on prices. U.S. fresh fish prices show seasonal trends. Prices are inversely related to domestic production. This means that prices are the highest in periods of low production (winter) and lowest in the months of highest production (summer and fall).

Influence of seasonal production on the price spread by size. In addition to all prices being inversely related to production, during seasons of high production (summer, fall) the price spread between small and larger fish increases. During periods of low production (winter) the price spread between small and larger fish decreases. The average annual price spread in 1983 was approximately \$.25 per pound between rats (0-24 lb dressed weight), pups (25-49 pounds dressed weight), medium (50-99 pounds dressed weight) and markers (100 plus pounds dressed weight).

The preference for larger fish is based on several characteristics. Larger fish have a preferred taste and texture. Larger fresh fish also have a longer "shelf life" in restaurants, and a higher meat yield. The well established market preference for larger fish is the economic basis of this plan to delay the harvest of small fish until they are larger.

Probable Future Condition of the Fishery. The fishery does not yet appear to be in economic equilibrium. That means swordfishing will probably continue to attract more boats. Furthermore, there is a strong history of innovation with gear and fishing practices that will likely continue. More boats with more effective gear will lead to higher exploitation rates. The result will be that relatively more smaller fish will be harvested. If there is a trend by gear selectivity and/or fishing practice to target smaller fish then even a greater number of small fish will be harvested.

The 1980-83 size frequency data show what has happened over the last three years. One way to make quantitative predictions about the future is with theoretical yield models given assumed future changes in fishing activity. Based on 1980/81 yield-per-recruit values, if fishing mortality continues to increase then total landings (by weight) will decline (only slightly) but those landings will be comprised of a larger number of smaller fish (Table 7). This assumes there is no change in the size that swordfish are first liable to capture. There would be substantial losses if

Table 7. Influence of fishing effort on total revenue.

MARKET CATEGORY (dressed weight)	MEAN 1980 Ex-vessel price/lb (Florida)	AGE OF FISH (YR)		FEMALES	Percent decrease in revenue from 1980	Annual Dollar loss if 1980 landings are 8 million pounds	Annual Dollar loss if 1980 landings are 15 million pounds
		Less than 25 lb	0.0-1.4				
PUPS							
Less than 25 lb	1.55		0.0-1.4		Base	-	-
SMALL							
25-49 lb	1.80		1.5-2.8		0.71	91,448	171,465
MEDIUM							
50-99 lb	2.05		2.9-4.6		1.79	230,552	432,285
LARGE							
Over 100 lb	2.30		4.7+		3.11	400,568	751,065
					4.72	549,976	1,031,205
					6.54	842,352	1,579,410
					8.51	1,096,088	2,055,165
					10.61	1,366,568	2,562,315
					12.80	1,648,640	3,091,200
					15.02	1,934,576	3,627,330
					17.27	2,224,376	4,170,705

Fishing Effort (F Level) increasing at a rate of 10% 1980	Percent of Industry Revenue from each size category of female swordfish			Pups	Percent decrease in revenue from 1980	Annual Dollar loss if 1980 landings are 8 million pounds	Annual Dollar loss if 1980 landings are 15 million pounds
	Small	Medium	Large				
F=.19	7.42	16.45	73.27	2.86	Base	-	-
F=.21	7.95	17.39	71.55	3.11	0.71	91,448	171,465
F=.23	8.49	18.34	69.79	3.38	1.79	230,552	432,285
F=.25	9.05	19.28	68.01	3.66	3.11	400,568	751,065
F=.28	9.63	20.18	66.23	3.96	4.72	549,976	1,031,205
F=.31	10.21	21.06	64.45	4.28	6.54	842,352	1,579,410
F=.34	10.78	21.90	62.70	4.62	8.51	1,096,088	2,055,165
F=.37	11.35	22.68	60.99	4.98	10.61	1,366,568	2,562,315
F=.41	11.92	23.40	59.33	5.35	12.80	1,648,640	3,091,200
F=.45	12.46	24.06	57.73	5.75	15.02	1,934,576	3,627,330
F=.49	12.99	24.64	56.22	6.15	17.27	2,224,376	4,170,705

swordfish were first harvested at a smaller size and conversely substantial gains if smaller fish were not harvested until they were larger. This is discussed in detail later because it is the focus of the proposed management regime. Estimates of the weight and dollar gains of delaying the harvest of small fish are in Section 10.5.

8.6 Description of Businesses, Markets and Organizations

Associations and Organizations. The American Swordfish Association (ASA), founded in 1976, is composed of commercial dealers, processors and fishermen on the Eastern and Gulf coasts.

Organized Fishermen of Florida (OFF) was formed in 1967 as a statewide nonprofit trade association.

The National Fisheries Institute (NFI), founded in 1945, is a trade association with approximately 950 member companies including producers, distributors, wholesalers, importers and canners of fish and shellfish.

The Southeastern Fisheries Association, headquartered in Tallahassee, Florida, consists of producers, distributors and suppliers of seafood in the South Atlantic and Gulf of Mexico area.

The Sport Fishing Institute, located in Washington, D.C., promotes the conservation of sport fish and is supported by manufacturers of fishing tackle, boats, sporting goods, petroleum and other related products.

The Sport Fishery Research Foundation, located in Washington, D.C., has the objective of financially supporting research on the sport fisheries.

The International Game Fish Association in Fort Lauderdale, Florida, has more than 10,000 members. The Association supports programs to encourage and further the study of marine game fish angling and compiles a worldwide history of marine game fishing.

National Coalition for Marine Conservation has as its goals the protection of the marine environment and the development of effective management programs.

There are a number of active sport fishing clubs along the Atlantic and Gulf coasts whose members participate in the sport fishery for swordfish and other billfishes.

Fishery Cooperatives. In 1981, there were 39 fishery cooperatives on the Atlantic Coast and Gulf of Mexico. A few of these cooperatives,

located mainly in New England and in Florida, have swordfishing members. Cooperatives engaged in swordfishing during 1978 and 1979 include the Point Judith Cooperative in Rhode Island, the Provincetown Fisherman's Cooperative in Massachusetts, the New Bedford Seafood Cooperative in Massachusetts, and the Fort Pierce Cooperative in Florida.

Labor Organizations. Most swordfishing is done by independently-owned or family-owned boats operating on shares. There are no known union crews on swordfish vessels. There is minimal processing except dressing the fish at sea by the crew.

Foreign Investment. There is no available information to indicate foreign investment in swordfishing.

Fishing businesses. Most fishermen sell their catch to fish houses or dealers. Vessels unload at fish house docks or meet refrigerated trucks dispatched to landing locations. Less than 10 fish houses/dealers handle more than 50 percent of the total landings.

Independent vessels appear to be less attached to particular fish houses than occurs in more conventional fisheries. Price information is known between dealers and boats offshore. Considerable strategy is involved to sell high volume production from long trips at the best possible price.

Markets. Virtually all swordfish are landed as fresh carcasses and remain in this state to the final buyer. Carcasses are steaked for smaller quantities. Dealers track the purchase and disposition of individual carcass. Quality control is essential. Improper handling at any stage can be detected and influences price and market acceptability. This record keeping allows an individual carcass to be tracked from the vessel to the final consumer.

8.7 Description of Social and Cultural Framework of Domestic Fishermen and Their Communities

Education of fishermen. Interviews indicate that fishermen who participate in the swordfish fishery are not different from other types of fishermen. Ethnic backgrounds of offshore fishermen in major New England fishing ports include Portuguese, Italian, Norwegian and Canadian. Approximate age of offshore fishermen in New England ports ranges from 40-55.

Recreational fishery. It has been estimated that there are between 17,373 and 21,980 boats in the billfish fishery. Assuming an average of three to four anglers per boat, there are from 50,000 to 85,000 participants in the billfish fishery. This is the population of anglers that have the necessary equipment for offshore swordfishing but only a very small number actively engage in this nighttime sport. Swordfishing grounds are 112.6 to 160.9 km (70 - 100 mi) offshore along much of the Atlantic Coast, making the costs for swordfishing higher than for most other species.

Economic Dependence on Commercial or Marine Recreational Fishery and Related Activities. It is estimated that there are at least 340 commercial swordfish vessels. There are approximately 312-315 longline vessels and between 25 and 28 harpoon vessels and approximately 22 spotter airplanes. It is estimated that approximately 1,400 fishermen (based on an average crew size of 4) derive a majority of their income from swordfishing. Many combination fishermen report that swordfish accounts for a major part of their total revenues.

9.0 CAPACITY DESCRIPTORS

9.1 Yield-per-recruit analysis

Since 1981 the development of this FMP has relied on a yield-per-recruit analysis on fish from the Straits of Florida as a baseline for the status of the stock. General conclusions were that females were exploited near maximum yield-per-recruit (YPR) and that males were exploited below maximum YPR. This meant that increasing fishing on females would decrease total landings by weight and average size harvested. Increasing fishing on males could slightly increase landings by weight but would also decrease the average size harvested. There is no way to selectively harvest fish by sex, therefore any increase in fishing would have the net effect of not significantly increasing (or possibly decreasing) total landings by weight (males and females) and would reduce the size of fish harvested (males and females).

9.2 Estimate of Maximum Sustainable Yield

Maximum sustainable yield is theoretically the maximum harvest in pounds that can be sustained. Its actual estimation is normally based on a

series of catch and effort trends over a long time period. These trends have not been documented for swordfish. The best estimate is likely near the actual landings in 1980 when females were estimated to be near maximum yield-per-recruit. Recorded landings in 1980 were approximately 8.4 million pounds. Recorded landings decreased slightly in 1981 and then gradually increased to approximately 9.3 million pounds in 1983. Actual landings may be considerably larger than recorded landings due to under-reporting. However, the trend indicating the fishery is near the range of maximum production is probably accurate.

The only way landings can significantly increase above recent (1980-83) catch levels is by increasing the age at entry into the fishery (size first liable to capture). The goals of maintaining maximum landings consistent with having those landings embodied in larger fish are the biological and economic objectives of the plan. The yield-per-recruit analysis showed that the most effective way to maximize yield and maintain large fish was to increase the age at entry into the fishery (size first liable to capture). This amounts to controlling fishing on smaller fish (both sexes). Another way is to control fishing on all sizes. This latter strategy was chosen during plan development from 1980-82. The strategy was to use time and area closures to control total landings. There was no known way to selectively control fishing on smaller fish until size frequency data for all areas became available in 1983. These new size frequency data, voluntarily provided to the Councils by fishermen and dealers, showed a monthly trend in the size of fish caught in all areas. It became apparent that if fishing was controlled during months of high concentrations of small fish in all areas that this would better serve the biological and economic objectives of the plan.

9.3 Recent Commercial Size Frequency

Size frequency data for all areas were provided to the Councils by fishermen and dealers subsequent to public hearings held in 1983. It had always been recognized that a major limitation of the only available yield-per-recruit analyses for this five Council management plan is that the analyses were based on fish exclusively from the Straits of Florida. There

were no data to verify if the size frequency observed in Florida in 1979-80 was representative of the entire western North Atlantic fishery (management unit).

New South Carolina data. From 1978-83 South Carolina recorded the carcass weight of 40,366 swordfish landed in South Carolina. Unfortunately, there is no way to identify the sexes of the carcasses; therefore a valid yield-per-recruit analysis could not be done. However, the South Carolina data for the sexes combined (1980-83) showed two things. First, since 1980 the size frequency of the catch landed in South Carolina has shifted considerably (average size declined from 73 to 66 pounds dressed weight). Second, since 1979 the age liable to capture (age or size at entry to the fishery) has decreased from the 40-50 to 20-30 pound dressed weight class as indicated by the mode in the size frequency distributions. When this was combined with an increasing total catch it meant substantially more small fish (under 50 pounds dressed weight) were being caught. This re-emphasized the importance of finding a strategy to control fishing on small fish as compared to a strategy to control fishing on all size fish.

New data from Florida, Gulf of Mexico, and North Carolina northwards. The South Carolina data were presented at meetings with fishermen and dealers and at public hearings (March-April, 1984). People from areas other than South Carolina reported different size frequencies. Many fishermen were dissatisfied with the strategy to use time and area closures to control total landings. A better alternative was to use closures to control the catch of small fish. They had data to show the months with concentrations of small fish. Since then they have provided the Councils with their confidential size frequency data for all areas. Annual comparisons for 1980 and 1983 are shown in Figure 3 and Table 8. The total catch (by number) of small fish depends on the levels of total landings as well as the percent of small fish in the catch.

Monthly landings patterns. The increasing catch of small fish is a trend the plan will reverse through closures during months with high concentrations of small fish (Tables 11-14, Section 10). Size frequency analyses which show both the annual and the monthly trends were derived from data voluntarily provided to the Councils by fishermen and dealers.

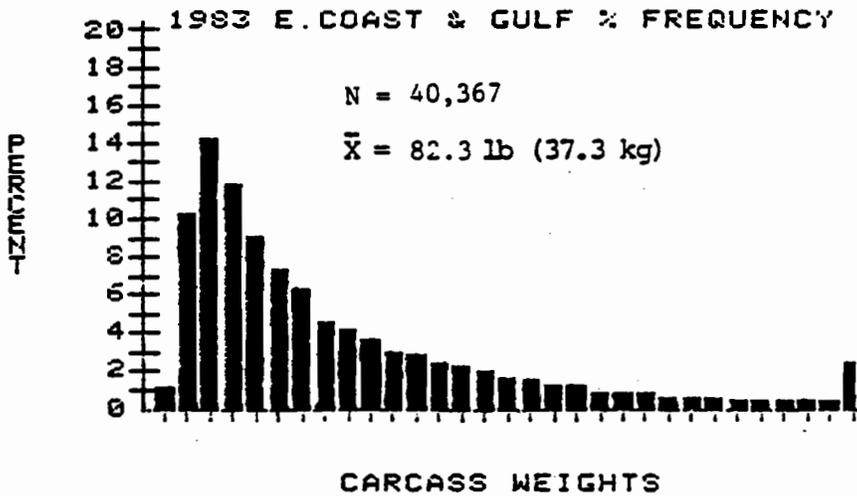
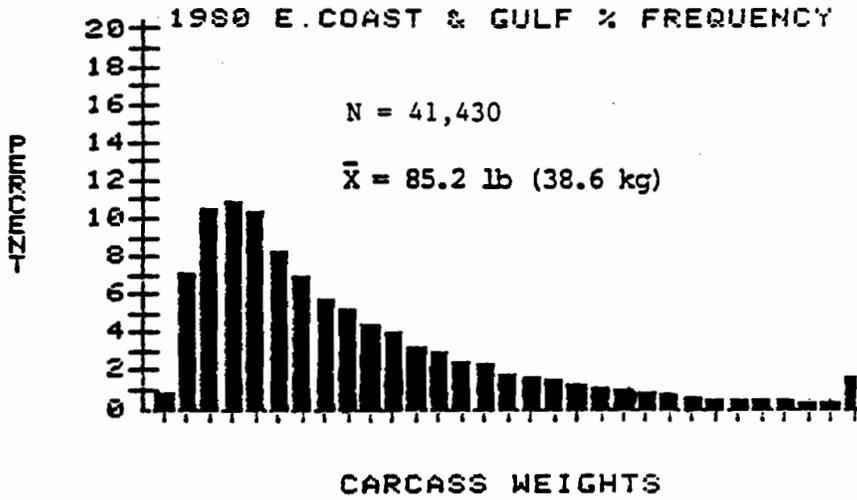


Figure 3. Composite size frequency histograms for 1980 and 1983.

Table 8. Change in swordfish sizes from 1980-83.

AREA	1980			1983		
	Average size	% under 50 lb	Number under 50 lb	Average size	% under 50 lb	Number under 50 lb
NE&MA ¹	89.7	34.57	10,281	96.2	30.86	10,942
SA ²	73.4	48.36	4,176	66.1	64.79	8,683
FL-EC ³	97.5	32.44	5,759	89.0	41.05	9,893
GM ⁴	58.0	60.64	<u>13,534</u>	41.5	78.75	<u>10,200</u>
All Areas Total			33,750			39,718

17.68% Increase from 1980 to 1983 in the number under 50 lb

1. Atlantic North of Cape Hatteras
2. Atlantic South of Cape Hatteras to Florida/Georgia
3. Florida/Georgia to Dry Tortugas (Straits of Florida)
4. Dry Tortugas to Texas/Mexico (Gulf of Mexico)

Ramifications of the 1980-83 size frequencies. The size frequency data and reported landings support two important theoretical predictions of the yield-per-recruit models. In the flat-topped range of yield-per-recruit, where the fishery is presumably operating, both total landings and average size are not very sensitive indicators.

Also, the economic loss associated with catching small fish is not accurately reflected by either total landings or average size. At this time the most important management conclusions that can be drawn from the size frequency data have to do with the estimated increase in the catch (total number) of small fish and the resulting economic benefits that would occur if these small fish were not harvested until they were larger. The size frequency data focus the plan on the objective of controlling the harvest of small fish.

9.4 OPTIMUM YIELD

It is not possible to specify optimum yield in terms of standard measures of stock condition for the same reasons that it is not possible to specify quantitative estimates of maximum sustainable yield or maximum yield-per-recruit. Optimum yield is therefore specified in terms of reversing the documented 1980-83 trend in the increasing harvest of smaller swordfish (under 50 pounds dressed weight).

Recommended optimum yield. Optimum yield is defined as the harvest that results when no more than the optimum number of fish under 50 pounds dressed weight are harvested. This number is 33,750 fish, the number of fish less than 50 lbs harvested in 1980. Optimum yield is tied to the resulting number of small fish to provide a numerical estimate for monitoring purposes. The resulting harvest cannot be accurately measured because historically swordfish landings have been under-reported to avoid problems with the mercury issue. Additionally, the actual harvest may increase or decrease as long as the optimum number of fish under 50 pounds dressed weight is not exceeded. The optimum number or weight criteria (for 1985 fish under 50 pounds dressed weight) may be changed by regulatory amendment if it is justified by the procedures described in the plan.

Rationale for the optimum yield. Any reversal in the trend of catching a larger number of small fish or increasing the size at entry is

consistent with the economic and biological objectives of this plan. Smaller fish will have an opportunity to gain weight and will be more valuable per pound. At the same time, this delay in harvest will offer a buffer against recruitment overfishing because a larger number of fish will survive to reproductive maturity.

The theoretically optimum reduction in the catch of small fish (based on growth, mortality, and market preferences) has not been determined. The decision to reduce the catch of small fish to the 1980 level is based primarily on the fact that these are the only years for which the increasing trend in the catch of smaller fish has been documented. Also, the only published yield-per-recruit by sex indicates that females were near or at maximum yield-per-recruit in 1980. As better data and analyses become available as a result of this plan, the optimum number of small fish (males, females, or sexes combined) and the specified size criteria may be altered.

9.5 Optimum Yields Considered and Rejected

Optimum yields that were rejected fall into two categories: first, those that would result in conditions that are incompatible with the goals of this plan (optimum sizes to reduce mercury concentration); second, specifications of optimum yield in conventional stock assessment terms (sustainable yield or yield-per-recruit) because there are insufficient data for the required analyses. This second category (determining sustainable yield and yield-per-recruit) is actually a long term research objective of this plan. The intent of the plan is to eventually collect the data necessary to better evaluate the economic and biological goals of the plan using established stock assessment parameters.

Quota on total landings that would accomplish FDA goals. The present FDA action level of 1.0 ppm for mercury is based on U.S. consumption patterns of swordfish that occurred with reported landings of approximately four million pounds. The extent to which increased landings increase individual consumer risk depends on the extent to which higher landings are dispersed in the market. The councils considered a quota low enough to eliminate the need for FDA action. No quota is sufficiently low because even at very low landings some people eat enough swordfish to exceed the FDA guidelines.

Encourage growth overfishing that would reduce the average size of fish to a size that would accomplish FDA goals. Increasing fishing effort would reduce the average size of fish landed; smaller fish have lower mercury concentration. In order to sufficiently reduce mercury concentration, severe growth overfishing of females is required which may cause recruitment failure. Fishing down the stock to meet this objective would cause a severe loss of industry revenue because larger fish are preferred in the market. This would also place domestic production at a disadvantage with imported larger swordfish. It is doubtful that economic returns would allow the fishery to expand sufficiently to achieve this objective. Fishing effort would have to increase while both total landings and value per pound would be reduced. This could only be achieved by subsidizing the fleet.

Total landings that result in theoretical maximum yield. In the context of the yield-per-recruit analysis this would be landings that maximize the yield-per-recruit for each sex. There is no fishing gear that can selectively harvest by sex. Minimum size limits are not possible because the majority of swordfish are landed dead. This alternative is consistent with the biological objective to provide a buffer against recruitment overfishing, but it is not consistent with the economic objective defined in terms of the market preference for larger fish. The economic objective (market preference for larger fish) will likely call for greater restriction on the catch of small fish than the biological objective.

Close fishing areas to influence the size or sex of fish caught by longlines. There is not sufficient information to close fishing areas based on the expected size and sex composition of fish encountered in different areas. Even if this were possible, small gains in potential landings (by weight) would be at the expense of eliminating fishing opportunities for whole regions.

Maximize yield-per-recruit for female swordfish. A strategy during plan development was to maximize the YPR for females. This amounts to focusing on the size frequency of females and treating the catch of males as a bycatch. Regulating the catch of females at maximum YPR would then automatically result in the regulation of males at something less than maximum YPR unless fishing could target swordfish by sex.

This strategy was superseded by the strategy to reduce the catch of small fish (both sexes) when the new size frequency data from all areas

became available. Controlling fishing on all size females would produce more pounds and bigger fish than controlling fishing on all size males, but controlling fishing on smaller fish of both sexes produces the largest potential increase in landings by weight and larger fish.

9.6 Domestic Annual Harvest (DAH)

From 1980-83 reported domestic landings reached and stabilized at around 9 million pounds. Any significant increase in landings is unlikely and if an increase occurred it would be at the expense of producing more smaller fish. Therefore DAH, measured by weight landed, is approximately 9 million pounds whole weight. DAH is also defined in terms of the number of small fish. In 1983 approximately 39,718 fish under 50 pounds dressed weight were harvested.

9.7 Expected Domestic Annual Processing (DAP)

Swordfish are sold as carcasses, either fresh or frozen. They are dressed at sea by the crew. Landside processing entails only refrigeration and transportation. Therefore, domestic annual processing capacity tracks harvesting capacity.

Domestic harvest currently exceeds the OY level, therefore no surplus is available for joint venture. Consequently, the amount of swordfish available for JVP is zero.

9.8 Total Allowable Level of Foreign Fishing (TALFF)

There is no TALFF. Total allowable level of foreign fishing is OY (33,750 fish under 50 pounds dressed weight) minus the domestic annual harvest (estimated to have been 39,718 fish under 50 pounds dressed weight in 1983). There are likely to be restrictions placed on domestic fishermen (variable season closure) to decrease the domestic annual harvest (measured in terms of number of fish under 50 pounds caught in 1983) to the optimum level (measured as the number of fish under 50 pounds caught in 1980). This precludes the possibility of a TALFF.

10.0 ALTERNATIVE DOMESTIC FISHERY MANAGEMENT MEASURES AND REGULATORY IMPACT REVIEW

Executive Order 12291. "Federal Regulation" established guidelines for promulgating new regulations and reviewing existing regulations. Under these guidelines each agency, to the extent permitted by law, is

expected to comply with the following requirements: (1) administrative decisions shall be based on adequate information concerning the need for and consequences of proposed government action; (2) regulatory action shall not be undertaken unless the potential benefits to society for the regulation outweigh the potential costs to society; (3) regulatory objectives shall be chosen to maximize the net benefits to society; (4) among alternative approaches to any given regulatory objective, the alternative involving the least net cost to society shall be chosen; and (5) agencies shall set priorities regularly with the aim of maximizing the aggregate net benefit to society, taking into account the condition of the particular industries affected by regulations, the condition of the national economy, and other regulatory actions contemplated for the future.

In compliance with Executive Order 12291, the Department of Commerce (DOC) and the National Oceanic and Atmospheric Administration (NOAA) require the preparation of a Regulatory Impact Review (RIR) for all regulatory actions which either implement a new fishery management plan or significantly amend an existing plan, or may be significant in that they affect important DOC/NOAA policy concerns and are the object of public interest.

The RIR is part of the process of developing and reviewing fishery management plans and is prepared by the Regional Fishery Management Councils with the assistance of the National Marine Fisheries Service (NMFS), as necessary. The RIR provides a comprehensive review of the level and incidence of impact associated with the proposed or final regulatory actions. The analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve problems. The purpose of the analysis is to ensure that the regulatory agency or Council systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way.

The RIR serves as the basis for determining whether the proposed regulations implementing the fishery management plan or amendment are major/non-major under Executive Order 12291, and whether or not the

proposed regulations will have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (P.L. 96-354).

Regulatory Flexibility Act. The purpose of the Regulatory Flexibility Act (RFA) is to relieve small businesses, small organizations, and small governmental entities from burdensome regulations and recordkeeping requirements.

Paperwork Reduction Act. The purpose of the Paperwork Reduction Act (PRA) is to control paperwork requirements imposed on the public by the Federal government. The authority to manage information collection and recordkeeping requirements is vested with the Director of Office of Management and Budget. This authority encompasses establishment of guidelines and policies, approval of information collection requests and reductions of paperwork burdens and duplications.

Small Business Administration. The Small Business Administration (SBA) defines a small business in the commercial fishing activity, classified and found in the Standard Industrial Classification Code, Major Group, Hunting, Fishing and Trapping (SIC 09), as a firm with receipts up to \$2.0 million annually.

SBA defines a small business in the charter boat activity to be in the SIC 7999 code, Amusement and Recreational Services, not elsewhere classified as a firm with receipts up to \$3.5 million per year.

Management measures that apply to domestic fishermen

These are the management measures agreed upon by all five Councils that are the basis of the FMP to regulate domestic swordfishing. They apply to the entire management unit:

- o Management Measure #1: Variable season closure and annual adjustments of the closures (by notice in the Federal Register) to achieve optimum yield
- o Management Measure #2: Procedures for evaluating and restricting specific fishing practices in the future by regulatory amendments
- o Management Measure #3: Statistical reporting and procedures for altering data reporting in the future by regulatory amendments

Procedures for Implementing Changes by Notice Action

Increasing or decreasing the closure based on the annually updated VSC calendar will be accomplished by a rule-related notice. If the closure occurs during the traditional harpoon season (June - October) the notice will also specify the historical catch (cap) that occurred in that time period and advise that the harpoon fishery will be closed when that cap is attained.

The working panel is the formal body through which information is provided to the five committee chairmen. This does not preclude information being provided by the advisory panels, scientific and statistical committees, Council staffs, general public, etc. It merely establishes a procedure whereby the necessary analyses are prepared annually. The previous year's landings and size frequency data are to be provided to the working panel by February 1 of each year. By March 15th of each year the working panel will provide a report to the five committee chairmen. The committee chairmen will then prepare recommendations for Inter-Council and/or Council action. Each Council submits the number of days to be closed in conformance with the updated VSC calendar to the Southeast Regional Director by April 15th. The proposed changes are published as a notice in the Federal Register and the Southeast Regional Director implements closures by May 1st. If the proposed changes are contentious, additional time for public input can be provided.

Procedure for Implementing Changes by Regulatory Amendment

Four categories of actions have been identified to be implemented by regulatory amendment: (1) future modifications of fishing gear included or excluded from the VSC; (2) changes to the computational base of the VSC (e.g. change in definitions of "small fish," change in divisional boundaries for VSC area, and change from small fish index to small female fish index); (3) additional restrictions on fishing practices (e.g. drift entanglement nets, minimum size limits, and spawning closures); and, (4) statistical reporting (e.g. mandatory landings, change in level of onboard technician coverage and alternatives to the onboard technician program). The examples provided do not limit regulatory amendments to only these examples; they are presented to illustrate the kinds of changes possible.

The working panel (and other groups such as advisory panels, scientific and statistical committees, Council staffs, general public, etc.) upon becoming aware of a problem in the fishery covered by one of the identified categories prepares a report which is presented to the five committee chairmen. The report is to include but not be limited to: (1) identification of the problem; (2) how it is covered in one of the identified categories; (3) proposed alternative measures; and, (4) analysis of the impacts of proposed alternatives. The five committee chairmen, advised by the working panel, are responsible for approving (by a vote of 4 of 5) recommendations to be taken to the Inter-Council committee and/or Councils for their consideration. Changes to the plan must be approved by all five Councils. This procedure does not restrict the agenda of any committee or Council meeting discussing swordfish. Working panel recommendations are still only one source of recommended changes.

The Councils review the alternative management regimes and determine which is most appropriate to meet the objectives of the FMP, least burdensome to those concerned, and most likely to correct the problem. A notice of the Councils' proposed recommendation for regulatory action, the analyses, and rationale is made available for public review. The Councils then hold public hearings following which final recommendations and analyses of the impacts are prepared and submitted to the Southeast Regional Director. The Southeast Regional Director, in consultation with the Southeast Regional Attorney, reviews the action to determine that it falls inside the scope and objectives of the FMP. The Southeast Regional Director would advise the NMFS Office of Fisheries Resource Management in Washington of his intent to submit the necessary regulatory changes and analyses for processing through National Marine Fisheries Service, National Oceanic and Atmospheric Administration/Department of Commerce, Office of Management and Budget to the Office of the Federal Register. This procedure will provide the opportunity for public input at several junctures: (1) at each of the Council meetings; (2) at the public hearings; and (3) during the comment period following the date of publication of the regulations.

10.1 Management Measure #1: Variable Season Closure (VSC)

The variable season closure is designed to indirectly regulate the catch of swordfish under 50 pounds dressed weight by closing times and

areas when concentrations of these small fish are caught. Ideally the best method to control the harvest of smaller fish is directly with a minimum size limit that requires small fish to be released. Unfortunately this is not possible at this time. Available information indicates that there are no fishing strategies (e.g. hook size, location) that will selectively avoid small fish. Most swordfish hooked on longlines are landed dead. Time and area closures are presently the only way to delay the harvest of small fish until they are larger when more pounds can be landed at higher value per pound because larger swordfish are preferred in the market. The disadvantage of time and area closures is that they delay the harvest of some large fish as well as small fish. The variable season closure is a method to calculate time and area closures that minimize and equitably distribute the undesirable but necessary delay in the harvest of large fish to achieve the over-riding advantage of delaying the harvest of small fish.

The VSC is an incentive program. The intent is to channel existing commercial fishing experimentation towards finding ways to avoid catching small fish. The calculation of the VSC is designed to automatically reduce closures when fishermen, by whatever means they discover, reduce their catch of small fish.

Fishing gear included and excluded from the VSC. The variable season closures (time and area closures) apply to all fishing methods other than conventional rod and reel and harpoons. There is also a one fish per trip exemption for traditional Caribbean handline fishing. Fish caught by the traditional handline fishery in the Caribbean may be sold.

Recreational rod and reel exemption. Conventional recreational rod and reel are exempt from the VSC because there are many diverse fishermen catching fewer than 500 fish per year. Time and area closures would be difficult and costly to enforce and the exemption of rod and reel will not seriously alter the ability of the variable season closure to achieve optimum yield (control the number of small fish harvested). Rod and reel caught fish cannot be sold during the variable season closure. This no sale provision is to prevent the at-sea transfer of fish from commercial longline vessels to recreational rod and reel boats during the closures.

Harpooning exemption. Harpoon gear is exempt from the closure if the closure occurs during the historical harpoon season which is between June and October. Harpooners are exempt because they only take preferred larger fish and their annual landings have averaged about 800,000 pounds in recent years. Harpoons are only used in the Northeast. Their use is limited by a short summer season in a relatively small geographical area during calm weather where swordfish fin on the surface. While the variable season closure treats all longliners as equally as possible, the closed season could have an unequal effect on harpooners because they are so weather dependent. If a closure occurred during the best summer weather days the closure would be more severe for harpooners than longliners who are less weather dependent.

Harpooners are not allowed to have operable longlines or nets aboard their vessels during the VSC. There is a 125 pound minimum size (dressed weight) for harpooned fish during the VSC. Harpooners seldom take fish smaller than 125 pounds and this size is readily identifiable from the surface. This minimum size is to prevent the at-sea transfer of fish from commercial longline vessels to harpoon vessels.

It is unlikely that the harpoon fishery will expand significantly due to geographical (New England only), seasonal (summertime daylight hours) and weather (calm sea) limitations. Also the recent World Court decision transferring the northeast portion of Georges Bank to Canada, will mean the loss of important harpooning grounds to U.S. fishermen.

Landings indicate that the harpoon fishery has averaged approximately 800,000 lb annually from 1974-1983 (Table 9). This is approximately 9 percent of total landings (all areas) but is approximately 28 percent of New England landings in 1983.

To limit the potential increase in harpoon landings during the VSC when longliners cannot keep swordfish, the harpoon fishery is capped at its historical (1973-83) level. The cap is the average monthly harpoon landings (1973-83) excluding the highest and lowest years (Table 10).

The proposed time and area closures are at times that will not adversely affect harpooning in the immediate future. Closures will be in the fall after the harpoon season is over. However, if in the future, the VSC expands into active harpooning months then the historical monthly

Table 9. Swordfish harpoon landings (in pounds) for the years 1974 through 1983. (Source: Dick Schween, National Marine Fisheries Service, National Statistics Program, Washington, D. C.; Joan Palmer, National Marine Fisheries Service, Northeast Fisheries Center, Woods Hole, MA., personal communication.)

<u>Month</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
May					394	850				
June	3,243	40,682	23,038	32,269	143,108	136,583	160,623	51,732	2,213	85,268
July	165,012	92,776	141,067	247,966	539,130	549,681	380,833	338,661	73,392	213,437
August	598,676	474,692	238,227	246,853	599,653	406,209	295,392	395,751	155,094	230,797
Sept.	270,805	178,269	46,168	152,555	76,023	263,193	172,952	69,375		50,865
Oct.		19,382		1,781	6,375	28,875				21,250
Nov.	<u>3,463</u>			<u>877</u>						
Total	1,041,199	805,801	448,500	682,301	1,364,683	1,385,391	1,009,800	855,519	230,699	601,617

Table 10. Monthly average harpoon landings (1973-83) in pounds whole weight (excluding highest and lowest years).

	<u>1973-83</u> <u>MONTHLY AVERAGE</u>
June	64,490
July	264,860
August	360,825
September	126,175
October	6,099

averages will be the monthly quotas for the harpoon fishery during the VSC. If the closure extends into only some fraction of a harpoon month, then the harpoon quota will be that fraction of the month's historical landings. If the VSC occurs during harpooning months dealers will be required to make their records available. NMFS port agents will collect these landings data at a frequency sufficient to prevent exceeding the quota. If and when the quota is reached, the fishery will be closed by notice in the Federal Register.

Caribbean handline exemption. The traditional handline fishery for billfish in the Caribbean will be allowed the bycatch of one swordfish per trip during the variable season closure. The bycatch of swordfish by traditional Caribbean handline fisheries is such a rare event that this exemption will not seriously alter the ability of the variable season closure to achieve OY.

Future modification of fishing gear included or excluded from the VSC. Future inclusion or exclusion of any fishing gear from the VSC and other regulations can be addressed by timely regulatory amendments under Management Measure #2.

Fishing restrictions during the closures. The importation of any swordfish taken from the western North Atlantic is prohibited during a closure. During closures only conventional rod and reel and harpoon may be used to target swordfish. The intent is to allow longlining that targets species other than swordfish during the closures. Therefore, during the closures longlining is allowed during daylight hours (0500 - 1800 hours) so that tuna fishing can continue. Currently there are no domestic longliners fishing exclusively for tuna. Therefore, limiting longlining to daytime hours during closures will not place a burden on another existing fishery. Rather it will encourage domestic swordfish fishermen to develop a domestic tuna fishery, reducing (and possibly eliminating) the initial economic burden imposed by a closure. Experimental longline cruises determined that sets made during daylight hours produced only 1 percent of the swordfish while night sets produced 99 percent of the swordfish (Section 8.1.7.1, Source Document). No longlining or netting is allowed at night in a closed area. During the closure, all swordfish caught by other than rod and reel, harpoon, or handline in the Caribbean, must be released.

Possession prohibition during the closures. All swordfish caught at any time from the western North Atlantic and retained for sale must be landed whole (carcass). In a closed area fishing for swordfish by other than exempt gear is prohibited, the possession of swordfish shoreward of the outer boundary of the FCZ is prohibited, and the landing of swordfish is prohibited. Exceptions are fresh carcasses that are taken with exempt gear (rod and reel, Caribbean handline, or harpooned fish 125 pounds dressed weight during closures or swordfish caught outside the management unit (outside the western North Atlantic)). No vessel can possess swordfish with operable longlines or nets aboard the vessel in closed areas.

Data necessary to calculate the VSC calendar. The main data requirements are estimates of the number of small fish caught in each area by month. This information is not presently recorded by existing data collection programs. The best estimates are derived from two independent data sources. First, NMFS landings data (total pounds dressed weight) that are voluntarily reported by fish houses and recorded by month by state. Second, size frequency data by month by location that have been voluntarily provided by fishermen, fish houses and dealers to the Councils. These two data sets were combined to estimate the total number of small fish caught in each month in each area. Small fish were alternatively categorized as under 70 pounds, under 50 pounds, and under 25 pounds dressed weight.

Decision on what constitutes a small fish. The intent of the VSC is to delay the harvest of small fish for two reasons. The first reason is that a delay will produce more total pounds landed. The net gain by weight is the result of the extent to which the growth rate of surviving fish exceeds the loss of some fish through natural mortality. Estimates of yield-per-recruit which calculate these potential gains and losses are complicated because male and female swordfish grow at different rates and have different mortality rates. Accurate estimates of the potential gains from closures (delayed harvest) depends on the relative numbers of males and females in different areas. Because growth estimates by sex are not well established and because sex ratios by area by month are also not precise, gains in weight from a delayed harvest cannot be estimated. However, two general conditions are expected to hold. First, in the pre-adult and adult size

ranges (i.e., after recruitment), natural mortality is expected to be low and relatively constant. Second, swordfish follow a growth pattern in these ranges such that smaller fish grow faster than larger fish. These two characteristics lead to the conclusion that any given time delay in harvest will result in greater net gains (by weight) for smaller fish than larger fish. That is, delaying the harvest of a 25 pound fish for 6 months will result in a greater potential gain than delaying the harvest of a 50 pound fish. This holds for both males and females. Estimates of these gains are probably more precise for smaller fish because there is better agreement in the estimates of age and growth of smaller fish.

The potential increase in weight landed does not pinpoint exactly the size fish that should drive the VSC, only that there is a gain for both sexes of delaying the harvest up to at least 40 pounds for males and 160 pounds for females at reasonable levels of exploitation (F (males) = 0.5; F (females) = 0.26).

The second consideration is the market preference for larger fish. There is a substantial price differential for fish under or over 50-pounds. The greatest dollar gains from a delayed harvest come from allowing fish under 50-pounds (pups) to grow into the next market category. There are also gains from allowing medium fish 50-99 pounds to grow into the most valuable "marker" category (over 100 pounds). Estimates of these values are in Section 10.5.

Therefore, for purposes of this FMP small swordfish are defined as fish under 50 pounds dressed weight. This matches the existing market category of 0-49 pounds in the industry. Values for under 70 pounds and under 25 pounds are presented in Appendix B of the Source Document. In this FMP, the term "small fish" means fish under 50 pounds.

Division of the five Council areas. The division of the Atlantic, Gulf, and Caribbean for the purpose of time and area closures does not follow Council jurisdictional boundaries. The following divisions are based on landings patterns: New England/Mid Atlantic (North of Cape Hatteras), South Atlantic (Cape Hatteras to Georgia/Florida border), Florida East Coast (Georgia/Florida border to Gulf of Mexico), Gulf of Mexico, and the Caribbean (Puerto Rico and U.S. Virgin Islands).

Each of these areas have distinctly different monthly landings patterns by weight (Tables 11-14). These patterns have remained relatively stable from 1980-83 and are expected to remain stable in the near future. They reflect general fishery conditions including relative abundance, weather conditions, and alternative fishing opportunities. In New England and the Mid Atlantic, fishing is most concentrated in the summer. The season starts earlier and runs longer in the South Atlantic. The Florida East Coast has fishing all year. In the Gulf of Mexico, fishing is concentrated in the winter. There is not yet an established fishery in the Caribbean. Some commercial exploratory fishing in 1983-84 produced catches in December through February. Additional fishing is currently taking place; however, until a fishery develops it is assumed that it will be similar to the Florida East Coast.

Annual and monthly patterns of harvesting small fish (Tables 11-14) are unique for each defined area. These patterns, like those of total landings by weight, have been relatively stable from 1980-83 and are expected to remain stable in the near future. They are believed to reflect size composition by area by month. Migratory patterns are not known so they cannot be used to definitively explain seasonal size frequencies in each area at this time.

Future modification of fish size or boundaries. The size fish chosen to drive the VSC, divisional boundaries for VSC areas, seasonal landings by weight, or small fish are all subject to refinement as part of the ongoing data collection and analysis of this plan. If and when these values change with new data the calculation of the VSC calendar will change accordingly. This will not alter the intent of the plan.

Calculation of the small fish index. Total landings and size frequency data sets are used to calculate a small fish index. This is the catch of small fish (under 50 lb dressed weight) taken in each month expressed as a percent of each region's annual catch.

The monthly pattern of the small fish indexes by area (Tables 11-14) is the foundation for the variable season closure management strategy to reduce the catch of small fish. Relatively more small fish are caught in the fall months in all areas (Tables 11-14 and Figure 4).

Table 11. New England and Mid-Atlantic small fish index.

	1980-83 MONTHLY LANDINGS INDEX*	1983 SMALL FISH INDEX		
		<u>POUNDS LANDED CARCASS WEIGHT</u>	<u>PERCENT 50 lb AND UNDER</u>	<u>NUMBER 50 lb AND UNDER</u>
JANUARY	0.00	0	0	0
FEBRUARY	0.00	0	0	0
MARCH	0.00	0	0	0
APRIL	0.29	32,876	0.32	113
MAY	2.05	84,975	0.87	308
JUNE	9.93	457,100	1.90	674
JULY	19.45	630,710	2.09	741
AUGUST	24.15	779,282	7.53	2,670
SEPTEMBER	18.63	613,304	5.60	1,986
OCTOBER	18.09	582,462	4.94	1,752
NOVEMBER	5.78	199,958	6.91	2,450
DECEMBER	1.63	<u>30,351</u>	<u>0.70</u>	<u>248</u>
TOTALS		3,411,018	30.86	10,942

*Monthly landings index = percent of total weight of all landings for the years 1980-83.

Table 12. South Atlantic small fish index.

	1980-83 MONTHLY LANDINGS INDEX*	1983 SMALL FISH INDEX		
		<u>POUNDS LANDED CARCASS WEIGHT</u>	<u>PERCENT 50 lb AND UNDER</u>	<u>NUMBER 50 lb AND UNDER</u>
JANUARY	0.04	1,391	0.17	23
FEBRUARY	0.34	0	0.00	0
MARCH	0.38	7,873	0.33	44
APRIL	4.27	53,540	3.49	468
MAY	11.81	169,156	11.09	1,486
JUNE	11.91	109,359	7.16	959
JULY	17.19	89,212	4.90	657
AUGUST	19.71	108,063	9.33	1,317
SEPTEMBER	16.10	108,282	10.04	1,346
OCTOBER	12.64	170,972	13.50	1,809
NOVEMBER	5.06	64,762	3.84	515
DECEMBER	0.57	<u>3,250</u>	<u>0.44</u>	<u>59</u>
TOTALS		885,858	64.79	8,683

*Monthly landings index = percent of total weight of all landings for the years 1980-83.

Table 13. Florida East Coast small fish index.

	1980-83 MONTHLY LANDINGS INDEX*	1983 SMALL FISH INDEX		
		<u>POUNDS LANDED CARCASS WEIGHT</u>	<u>PERCENT 50 lb AND UNDER</u>	<u>NUMBER 50 lb AND UNDER</u>
JANUARY	4.81	138,895	4.61	1,111
FEBRUARY	4.60	98,196	3.52	848
MARCH	7.09	53,204	2.98	718
APRIL	13.35	433,871	3.83	923
MAY	16.61	414,393	4.11	991
JUNE	12.84	349,909	4.09	986
JULY	11.67	193,868	2.03	489
AUGUST	6.40	90,331	2.87	692
SEPTEMBER	6.73	77,907	1.89	455
OCTOBER	6.07	86,403	3.76	906
NOVEMBER	5.26	94,832	4.22	1,017
DECEMBER	4.59	<u>81,680</u>	<u>3.14</u>	<u>757</u>
TOTALS		2,113,487	41.05	9,893

*Monthly landings index = percent of total weight of all landings for the years 1980-83.

Table 14. Gulf of Mexico small fish index.

	1980-83 MONTHLY LANDINGS INDEX*	1983 SMALL FISH INDEX		
		<u>POUNDS LANDED CARCASS WEIGHT</u>	<u>PERCENT 50 lb AND UNDER</u>	<u>NUMBER 50 lb AND UNDER</u>
JANUARY	13.83	125,732	10.66	1,381
FEBRUARY	22.04	158,413	15.46	2,002
MARCH	18.02	94,694	7.32	948
APRIL	13.34	45,188	0.00	0
MAY	6.34	28,493	0.00	0
JUNE	4.16	6,014	0.00	0
JULY	3.03	2,456	0.00	0
AUGUST	1.69	2,471	0.00	0
SEPTEMBER	1.84	2,233	0.00	0
OCTOBER	1.86	1,760	0.00	0
NOVEMBER	4.46	26,819	5.12	663
DECEMBER	9.41	<u>43,276</u>	<u>40.19</u>	<u>5,206</u>
TOTALS		537,548	78.75	10,200

*Monthly landings index = percent of total weight of all landings for the years 1980-83.

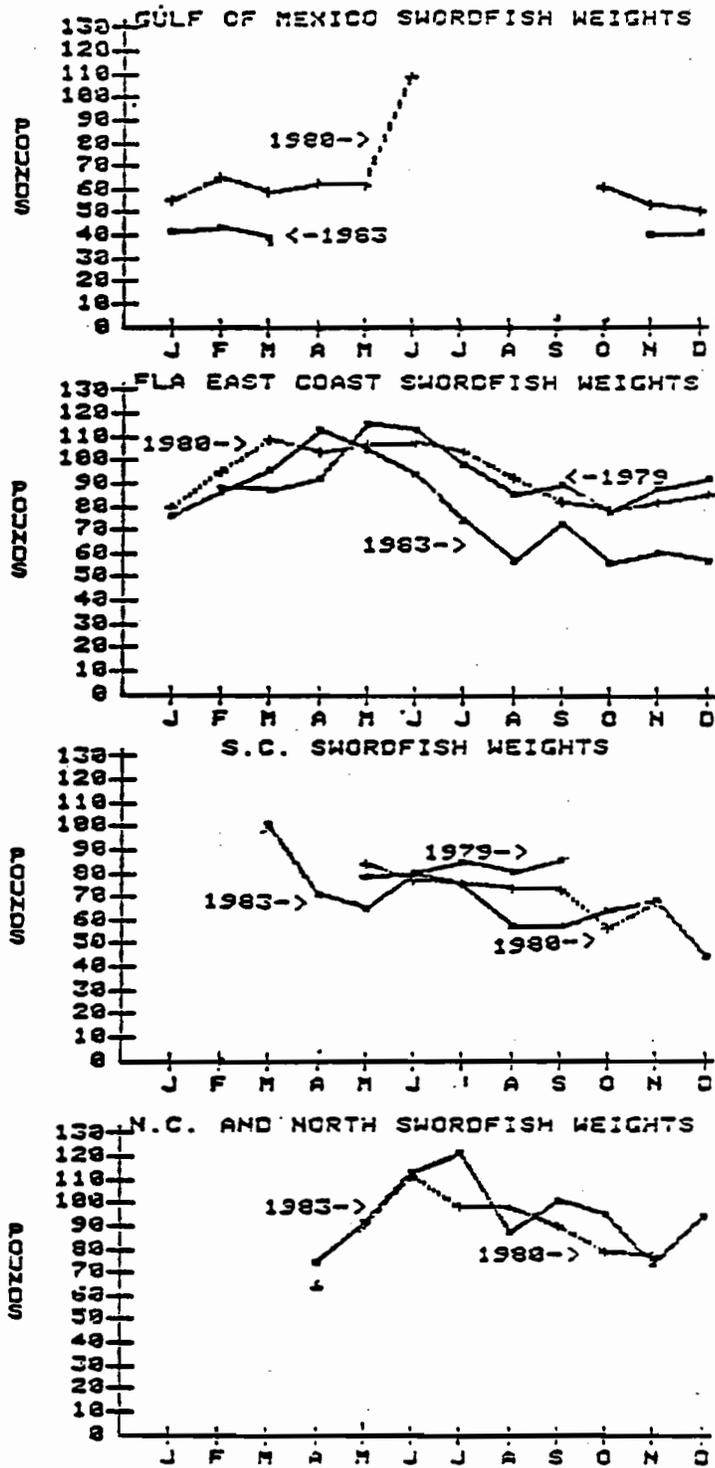


Figure 4. Average size (dressed carcass weight) by month by area.

Calculation of the change in the catch of small fish. Calculation of the annual increase or decrease of small fish by region is simply the small fish index (percent) times a region's annual landings (total number of fish). The change (percent and total number) of small fish by region from 1980 to 1983 is shown in Table 15. In 1980, 43.0 percent of the total catch by number (33,750 of 78,448 fish) were under 50 pounds dressed weight. In 1983, 46.2 percent of the total catch by number (39,718 of 85,912 fish) were under 50 pounds dressed weight. The 17.7 percent increase for all areas combined (33,750 in 1980 to 39,718 in 1983) equates to the target reduction of 15.03 percent in the catch of small fish in all areas combined necessary to achieve optimum yield.

Distribution of the burden to reduce the catch of small fish between regions. The necessary total percent reduction in small fish (15.03%) is achieved by distributing the burden according to the percent of small fish caught in each area (Table 15). The percent decrease in small fish required for all areas (15.03% from 1980-83) is multiplied by the percent of small fish in each area to arrive at the percent reduction that each individual area must achieve. This number multiplied by the total number of fish landed in that region gives the number of fish under 50 pounds that must be reduced. This number can also be derived by multiplying the necessary percent reduction (15.03%) by the number of small fish landed in the region.

Calculation of the VSC calendar. The intent of the plan is to restrain the number of small fish caught. The VSC calendar (Table 16) calculates the number of actual calendar days that must be closed (no swordfishing) in each area to reduce the catch of small fish by the necessary amount. This is predicated on the number of days in the previous year it took to catch the specified number of small fish.

Important economic and social considerations for choosing closure times. The VSC calendar (Table 16) calculates the number of days that must be closed for different starting dates for the closure. Each Council used their VSC calendar to evaluate the advantages and disadvantages of alternative starting dates.

Table 15. Percent reduction in number of small fish required by each area based on the the small fish index.

AREA	1980		1983		% REDUCTION REQUIRED FOR EACH AREA
	% UNDER 50 lb	NO. UNDER 50 lb	% UNDER 50 lb	NO. UNDER 50 lb	
NE & MA	34.57	10,281	30.86	10,942	4.64
SA	48.36	4,176	64.79	8,683	9.74
FL-EC	32.44	5,759	41.05	9,893	6.17
GM	60.64	<u>13,534</u>	78.75	<u>10,200</u>	11.84
ALL AREAS		33,750		39,718	

Table 16. VSC calendar based on the small fish index for fish under 50 lb carcass weight. Number of days that must be closed to fishing in 1985 with alternative starting months for the closure. Any one row must be chosen.

	NE & MA		SA		FL-EC		GM	
	Days closed to achieve required % reduction	Resulting % decrease in landings by weight	Days closed to achieve the % reduction	Resulting % decrease in landings by weight	Days closed to achieve the % reduction	Resulting % decrease in landings by weight	Days closed to achieve the % reduction	Resulting % decrease in landings by weight
APRIL	123	34	52	13	56	27	251	23
MAY	94	35	33	13	54	26	221	26
JUNE	67	37	57	27	73	27	190	19
JULY	45	30	52	31	96	26	160	15
AUGUST	22	17	36	22	82	17	129	12
SEPTEMBER	29	18	33	17	72	15	98	10
OCTOBER	33	18	26	11	56	10	68	8
NOVEMBER	24	5	190*	*	60	10	37	7
DECEMBER	237	30	171	24	59	9	11	3

*SA could close 30 days in November and 17 days in October to reduce the percentage of fish under 50 lb by 11.45%. This would represent a 12% reduction based on MLI lb. All calculations are based on an earlier 1983 estimated reduction of 5.42 for NE & MA, 11.45 for SA, 7.26 for FL-EC, and 13.92 for GM. Final values for 1985 closures will be recalculated with 1984 data.

Conforming to the swordfish calendar (number of days for a given percent reduction) achieves the primary economic and biological objectives associated with reducing the catch of small fish. Choosing when to close in conformance with the swordfish calendar takes into account all the other relevant social and economic considerations for each region.

The VSC is a mechanism whereby the impacts of closures can be equitably distributed among areas with varying fishing patterns. The flexibility of the VSC allows it to be simple or complicated depending on common or different starting dates. The Councils decided that for simplicity, enforceability, and to discourage the movement of boats from closed to open areas, all area closures would begin on or near the same date. Lengths of the closures (ending dates) vary, based on the swordfish calendar. It was agreed to avoid "no credit" months in regions where the percentage of landings is so low that there is no "credit" for closing the month. These are primarily the winter months (January-March) in the New England, Mid Atlantic and South Atlantic.

Three major factors were considered by each Council in choosing closure times. The first and most important consideration was to minimize the loss (delay) in harvest of all fish (total weight landed) and still achieve the required percent reduction in the catch of small fish. The resulting percent loss (delay) in the harvest of total weight with alternative closures that achieve the necessary reduction in the catch of small fish is shown in Table 16. October or November starting dates for closures result in the smallest losses (5-8%) of total landings in each area (Table 16). Choosing a starting date in April or May would result in larger losses in landings by weight (13-35%).

Fortunately the fall months are when most of the small fish are caught. Therefore, this is the preferred time to close for all areas because this is the time period that minimizes the length of the closures necessary to achieve a given reduction in the catch of small fish. Other months could theoretically be closed (in conformance with the VSC calendar) but an area would have to pay a premium price in terms of longer closures (foregoing more total landings) to achieve the necessary percent reduction in the catch of small fish (Table 16).

The second consideration in choosing closure times was swordfish markets. Closing times with high concentrations of small fish has the advantage of being the same times when value per pound is low because smaller fish are less valuable per pound than larger fish. It would have been preferable from a marketing perspective to stagger the closures such that there was always fresh fish available. However, this produces undesirable fleet migrations and enforcement problems. The best alternative for concurrent (overlapping) closures are the highest production lowest price per pound months which are in the fall because there is an inverse relationship between prices and total production (as well as a positive relationship between price and size). This is also the time that small fish have the lowest market value relative to large fish.

The third consideration in choosing closure times was vessel mobility. The intent of each Council was to minimize, to the extent practical, the movement of boats from closed to open fishing areas. The rationale is that minimum mobility will most evenly distribute the burden of closures throughout the fleet. This objective was achieved by all Councils agreeing on closures that overlap as much as possible. An additional consideration is that northern boats do not move south in the summer (when the northern fishery is best). However, southern boats frequently migrate north in the summer. Closures in the summer would result in longer closures in the south than the north (according to the VSC) which would encourage southern boats to move north. Closures in the fall do not encourage southern boats to move north because of deteriorating offshore weather conditions. In the fall northern boats migrating south move into longer closures in the south than the north such that the migrating vessels do not avoid closures.

An additional advantage of a fall closure is that tuna (yellowfin and bigeye) are apparently most available then. Since daytime tuna longlining will be permitted during closures, swordfish longliners will have an alternative fishery in which they can participate without incurring major gear expenses. This will help minimize the economic burden on domestic longliners while encouraging development of a domestic tuna fishery.

Choice of closure times. The last four months of the year are the best candidates for concurrent (overlapping) closure times because these months: (1) produce the smallest loss (delay) in the harvest of total weight while achieving the necessary reductions in the catch of small fish, (2) are the lowest value per pound season because of small fish and total landings, and (3) will not promote vessel migrations to avoid closures. Based on these considerations, the Councils chose to start all the closures as near November 1 as possible. Whether or not all closures start before, on, or after this date depends on the required lengths of the closures.

The Caribbean Council does not have enough swordfish landings to calculate a VSC calendar. They have adopted the Florida East Coast calendar for two reasons. First, they anticipate similar fishery conditions to those that have developed in Florida. Second, if the Caribbean tracks the Florida closure they will avoid undesirable migrations of Florida boats to the Caribbean during the Florida VSC.

Predicted Closures for 1985. Based on the estimated increase in the catch of small fish from 1980 to 1983, the following periods would be closed in conformance with the VSC calendar in 1985. The length of the 1985 closures will be adjusted to reflect the increase from 1980 to 1984 rather than 1980 to 1983 when the 1984 data are available.

<u>Area</u>	<u>Closed Fishing</u>
North of Cape Hatteras	Nov 7-30
Cape Hatteras to Georgia/Florida Border	Oct 16-Nov 30
Georgia/Florida Border to Gulf of Mexico	Nov 1-Dec 30
Gulf of Mexico	Nov 1-Dec 7
Puerto Rico and U.S. Virgin Islands	Nov 1-Dec 30

Final determination of actual closures for 1985. In accordance with the annual update specified by this plan, the first update will be completed by March 15, 1985 and the results will apply to the 1985 closures. If at that time more or fewer small fish were caught in 1984 than 1983 (compared to 1980) then the 1985 closures will be adjusted accordingly. Should fishing patterns and/or the monthly distribution of small fish significantly change, the closures may need to be adjusted by shifting the dates slightly, either forward or backward consistent with the criteria set forth in the plan.

Annual adjustment of closures by notice action. By April 15 of each year (beginning April 15, 1985) each Council will inform the Regional Director on which end of the closure they want the closure to be expanded or contracted in conformance with the VSC based on the previous year's catch of small fish.

Future closures (after 1985). The VSC is designed to be an incentive program for fishermen to find other ways (new gear or fishing practices) to voluntarily reduce their catch of small fish. At this time there is considerable doubt that any gear or fishing practice can effectively select for larger fish. Fishing location is the most important determinant of the size of fish caught. Vessel congestion at the better fishing locations (where larger fish concentrate) means that at times the only alternative is to fish less desirable locations where there are higher concentrations of smaller fish.

However, the rapid evolution of fishing gear and practices in this fishery suggests that if there is a strong incentive to not catch smaller fish such as avoiding or reducing the lengths of the closures then fishermen will discover how to do it.

Whenever the catch of small fish is reduced relative to the optimum yield target level during the open seasons the VSC will be reduced accordingly. The reopening of closed days will take into consideration documented changes in the catch of small fish. An example would be that the increase in the catch of small fish from 1980 to 1983 calls for closures that reduce the catch of small fish by 15.0 percent. If, after the closure was in effect, there was a 15.0 percent reduction in the catch of small fish during the open season, it would eliminate the closure (if the same 15 percent reduction was expected to occur during the re-opened time period).

The VSC is also designed to automatically adjust for future management measures that aid in reducing the catch of small fish. For example, if a minimum size limit or vessel quotas of small fish were to become workable (small fish could be avoided or released alive), the computational procedures for the VSC automatically would reduce or eliminate closures.

Ideally the catch of small fish ultimately will be controlled by fishermen voluntarily adopting new fishing gear and practices to avoid

closures. At that point the VSC would accomplish the economic and biological goals of the plan simply by providing an incentive to avoid catching small fish to avoid closures.

Regulatory amendment to alter the computation of the variable season closure. Three general principles have guided the development of the variable season closure. First, there are simultaneous biological and economic advantages to maintaining a population structure and resulting harvest of larger fish. More total pounds of fish can be harvested at a higher value per pound. Available yield-per-recruit models indicate that these biological and economic advantages are best achieved by reducing the catch of small fish (increasing the size at which fish are harvested).

Second, encouraging fishing practices that avoid small fish or target larger fish is the best way to achieve these biological and economic advantages. The best way to do this is to set target reductions in the catch of small fish and strongly encourage fishermen to voluntarily explore methods to reduce their catch of small fish. The incentive is to avoid closure. A time and area closure during periods when concentrations of small fish are caught is the best regulatory method available at this time if fishermen do not find methods to reduce their catch of small fish. In the future, a minimum size limit may supplement or substitute for time and area closures to achieve target reductions in the catch of small fish if hooked small fish can be released alive.

Third, the burden of time and area closures should be equitably distributed among all areas.

It is possible that new data on the sizes and sex ratios of fish in each area by month could reveal other computational bases for the VSC that would better serve the primary economic and biological goals of the plan. An example of this might be to base the VSC on the number of fish caught by size and sex rather than just size.

Modifying the computation of the VSC would produce a different VSC calendar for each area, but these closures could still be consistent with the three main principles of the VSC.

The intent is that if data and analysis become available to modify the computation of VSC in a fashion that better achieves the economic and

biological goals of the plan then this could be done by regulatory amendment.

Monitoring and evaluation by a working panel. The variable season closure requires regular scientific attention to arrive at timely annual estimates of the catch of small fish in order to use the VSC calendar to calculate the lengths of the closures for the coming year.

The VSC calendar must also be annually updated to reflect the correct size composition of the catch by area by month during the open season should there be a need to expand the closure times. In addition, there is the need to evaluate alternative computations for the VSC when new stock assessment data and analyses become available. There may also be a need to alter data collection to accommodate new stock assessment requirements or to evaluate specific fishing gear or practices.

The high level of ongoing attention required by this plan is complicated by the fact that it is a five-Council plan requiring the approval of all Councils for any changes. Normal Inter-Council committee meetings for five Councils are very expensive and complicated to arrange. Therefore, the five swordfish committee chairmen will meet as a subgroup to formulate recommendations to be taken to Inter-Council committee or Council meetings. To assist them, a special "working panel" will be created to advise the five committee chairmen.

The working panel will include (1) no more than six scientists with demonstrated knowledge about the stock assessment of swordfish including at least one staff scientist from NMFS, (2) one advisory panel member from each Council, (3) a representative of the Scientific and Statistical Committee from each Council (SSC) and (4) one staff member from each Council. Staff, SSC representatives and advisory panel members will be appointed by their respective Councils. Scientists will be appointed by the Inter-Council swordfish steering committee or by the five committee chairmen. Each Council is not required to make their allotted appointments if they are satisfied with representation appointed by other Councils. By March 15th of each year the working panel will provide a report to the five committee chairmen. The chairmen will then prepare recommendations for Inter-Council committee and/or Council action. The working panel report is to include but not be limited to the following:

1. Update of the VSC calendar.
2. Recommended modifications of the calendar.
3. Biological status of the stock including recommendations for future stock assessment.
4. Economic evaluation of the fishery.
5. Recommended changes in data collection and analysis.

In addition to the annual report, the working panel may, at any time, also consider proposed regulatory amendments to this plan under Management Measures numbers 2 or 3.

The five committee chairmen (Council members) advised by the working panel are responsible for approving (by a vote of 4 of 5) recommendations they want to be taken to the Inter-Council committee and/or Councils for their consideration. All changes in the plan must be approved by all Councils. This will provide an opportunity for public comment. This procedure does not restrict the agenda of any committee or Council meeting discussing swordfish. Working panel recommendations are still only one source of recommended changes.

10.2 Management Measure #2: Procedures for Restricting Fishing Practices by Regulatory Amendment

Gear and fishing practices will be monitored. Vessels employing new methods (or any practice in the process of change or not fully understood) may be required to carry an onboard technician or directly provide information to document their activity. Should any fishing practice result in: (1) an undesirable bycatch level (for example billfish or mammals), (2) conflicts with other gear such as interference or competition for space, (3) changes that would upset the variable season closure, or (4) changes that could complement the variable season closure, such as targeting larger fish, then modification of the regulations may be justified. Such modifications can be accomplished by regulatory amendment.

New types of mandatory reporting may also be necessary to evaluate fishing practices. Reporting requirements (Management Measure #3) may also be altered by regulatory amendment to collect information that would be used to evaluate specified types of fishing practices.

This measure is designed to offer future timely responses to a wide variety of situations that are likely to occur. Some of these circumstances are anticipated, but there is not yet sufficient information to arrive at appropriate measures. The following are examples of possible future restrictions and data collection that could be implemented by regulatory amendment. This management measure is not limited to these examples.

Drift entanglement nets. Three of the five Councils do not believe that currently there is sufficient information to justify restricting drift entanglement nets. However, there is well founded concern that drift entanglement nets may have an undesirable bycatch in many areas. On June 11, 1984 NMFS began an observer program on drift entanglement nets as a result of a five Council request under Section 303(e) of MFCMA. Data collection as specified in this program will continue under the swordfish plan until sufficient data are available to evaluate drift entanglement nets.

Spawning closures. Spawning closures are one means of limiting effort on adult fish. Current information does not clearly identify areas and times of spawning nor does it suggest that inadequate recruitment is currently a problem. However, should this situation change in the future, methods to maintain adequate numbers of adult spawners will be actively considered.

Minimum size limits. A minimum size limit and increasing the size at capture by hook size were considered and rejected because there is not sufficient evidence that released fish would survive or that gear modification or other practices can selectively target larger fish or avoid smaller fish. If evidence supporting these or other strategies becomes available, a minimum size could be an important complement to or substitute for the variable season closure. The lengths of the closures would be automatically adjusted through the computational procedure for the VSC.

10.3 Management Measure #3: Statistical Reporting Requirement

The primary reporting requirement for all areas is a commercial permit with an onboard technician program to collect scientific information on a sample number of commercial vessels (primarily longliners). A permit is required for anyone wishing to retain swordfish for sale. Permits

are available from the Southeast Regional Director and are issued annually. This is in addition to an observer program for drift entanglement nets, sample reporting by recreational fishermen in the Mid-Atlantic, and mandatory commercial landings reporting in the Caribbean.

Onboard technician program. The primary purpose of placing technicians aboard vessels on a sample number of trips is to collect biological data for age and growth analysis and to determine sex ratios by size and area. This information is the basis for predicting gains from delaying the harvest of any size fish.

Hard body parts are needed to age swordfish and thus to determine the age structure of the population. Three age and growth studies have been conducted recently but their results are not in agreement. The accuracy of mortality rate estimates and yield-per-recruit analysis is ultimately dependent upon the age analysis. Estimates of these parameters largely will determine our ability to monitor the status of the stock. This in turn will allow evaluation of the economic and biological benefits of fishing restrictions and modification of the regulations to better accomplish the objectives of the plan.

The best structure for aging is not yet known; therefore, both fin spines and otoliths must be collected. These structures must be removed at sea and keyed to the size and sex of individual swordfish.

Sex ratios are known to differ by area. It appears that growth and mortality rates are different for males and females. Therefore, stock assessment and monitoring must consider the sexes separately. Sex can only be determined internally by examining the gonads before the fish are dressed.

Rationale for using onboard technicians. Collecting hard body parts and ensuring that each sample is properly labeled and keyed to the correct fish is time consuming and requires considerable care. Improperly collected or labeled parts are of no value. Mislabeled material usually cannot be identified as such and analyses based on these data will lead to erroneous conclusions. In addition, it is essential that each fish sampled be sexed and measured.

To maintain a high quality product, swordfish must be dressed and iced immediately after being brought aboard the vessel. Sex must be determined at that time from internal organs that are discarded. Body parts to age fish (e.g., anal fin spines and/or otoliths) must be removed, labeled, and preserved for laboratory examination. Fish must be weighed and measured. Body parts, sex determination, and measurements must match up for each individual carcass that is examined.

In addition to the basic biological data, the technician would collect other critical data on size selectivity of fishing gear or techniques, survival of hooked swordfish, and bycatch data that may alter the plan. These studies are described under research needs (Section 12.3). The onboard technician program also provides the opportunity to determine the accuracy of information voluntarily submitted under the auspices of the swordfish plan.

The Councils recognize that an at-sea technician program will be costly and considered the following alternatives before ultimately concluding that only the at-sea technician program provides the necessary information. If at any time a more cost effective alternative than onboard technicians, that provides the necessary information, becomes available, it will be adopted by regulatory amendment.

Alternatives Considered and Rejected

Interview fishermen with existing port agents. Utilizing existing port agents to interview fishermen would not provide the hard body parts needed for age analysis or allow the determination of the sex composition by area. Fishermen would be put in the position of providing incidental catch and fishing practice information that may ultimately lead to restrictions. This alternative was rejected because it would not provide the necessary information.

Require fishermen to maintain a logbook. A logbook program could provide information on fishing practices and bycatch but with the same potential shortcomings as discussed with the port agent alternative. This would not provide the hard parts or sex composition information. This alternative was rejected because it would not provide the necessary information.

Require that swordfish be landed with head, fins, and ovaries intact. The swordfish industry has developed a high quality, high priced product. To maintain that quality, swordfish must be dressed and iced immediately after being brought aboard the vessel. Requiring that they be landed with the head, fins, and ovaries intact would result in an inferior product that is worth less. The government could offer to pay the difference in price but the the industry probably would not be willing to put an inferior product on the market. The government could also purchase the swordfish needed for the sampling program. This would involve 2,442 fish (at a 3 percent sampling level) for a total weight of 200,977 pounds (average weight in all areas for 1983 = 82.3 lb dressed weight). Using the average price of \$3.11 per pound for 1983, this would represent a cost of \$625,038. The price per pound has continued to increase and the cost in 1985 would be higher.

Both alternatives were rejected because neither would provide the necessary information on size selectivity of fishing, survival of hooked swordfish, and bycatch data. Additionally, neither would provide the opportunity to verify the accuracy of the size frequency information being submitted on a voluntary basis. Purchasing the fish outright would be more costly than the onboard technician program.

Require fishermen to collect hard parts and determine sex. When a fish is brought aboard it is dressed and iced immediately to maintain a high quality product. Sex must be determined at that time from internal organs that are discarded. Body parts to age fish must be removed, labeled and preserved. Fish could be measured but not weighed until they are off-loaded at the dock. Body parts, sex determination, and measurements must match up for each individual carcass which means that the fishermen would have to tag each carcass. It is unlikely that fishermen will have sufficient time to properly collect and record this material. It is possible that these tasks could be performed by trained fishermen but it is difficult to train fishermen to sex swordfish without having whole fish to use for demonstration. Such whole fish are not readily available because swordfish are landed dressed. A training program would not be simple, the quality of the data could not be controlled, and it would be expensive. In addition, reliable records of the bycatch and fishing practice information as discussed above would not be available.

This alternative was rejected because it would not provide all the necessary information and it would be a complex and costly program. It was recognized that some fishermen would prefer to see a program of this type in lieu of carrying an onboard technician. However, the Councils concluded that potential inaccuracies and lack of control over data thus collected, combined with the cost and problems associated with a training program, outweighed the benefits of the alternative.

Operation of the Onboard Technician Program

The onboard technician program will operate in the following way. All fishing boats that intend to catch swordfish for sale or by methods other than conventional rod and reel must obtain a permit from the NMFS Southeast Regional Director. The permit application will require fishermen to report when and where they intend to fish in the future or have fished in the past. These declarations will not restrict fishermen in any way. The Regional Director will issue a permit. This permit must be carried aboard the boat. Vessels applying will be the universe from which a statistically valid sample will be drawn. The permit will be valid for the calendar year. All vessels selected to be sampled are required to participate subject to their capability to carry a technician. Actual number of vessels participating and the length and frequency of trips will be critical factors in the selection process. Where possible, the number of vessels will be grouped by region and trips will be selected using a random process. Every effort will be made to insure that a vessel will not be asked to carry a technician for more than one trip during the year. The observer program on drift entanglement nets is discussed elsewhere.

Sampling level and cost of the onboard technician program. Onboard sampling for size, sex and age structure, have the most intensive sampling demands. If observer coverage is adequate to accomplish these objectives it will suffice for the others. Tables 17-19 show the anticipated number of fish in each size class that would be sampled in each area at sampling intensities of 1, 3 and 5 percent (based on 1983 landings). A sampling intensity of 3 percent is adequate for estimating age structure and minimally acceptable for determining sex ratio by size class and area. This level is probably insufficient for accurately estimating total catch or mean CPUE by area and month.

Table 17. Estimated number of fish that will be sampled in each area and dressed weight class at 1 percent level of sampling.

<u>SIZE CLASS</u> (lb)	<u>GULF OF MEXICO</u>	<u>FLORIDA EAST COAST</u>	<u>SOUTH ATLANTIC</u>	<u>MID-ATLANTIC & NEW ENGLAND</u>
1-10	4	3	1	3
11-20	49	23	18	17
21-30	22	31	29	27
31-40	17	25	25	25
41-50	14	21	15	22
51-60	6	20	9	20
61-70	4	18	6	18
71-80	3	12	4	17
81-90	2	10	3	20
91-100	3	8	2	21
101-110	2	7	2	17
111-120	1	7	2	15
121-130	1	7	2	11
131-140	1	6	2	11
141-150	1	5	2	10
151-160	1	4	1	7
161-170	1	4	1	7
171-180	1	4	1	5
181-190	1	3	1	5
191-200	1	2	1	3
200+	2	22	9	26
Totals	<u>135</u>	<u>241</u>	<u>135</u>	<u>303</u>

Table 18. Estimated number of fish that will be sampled in each area and dressed weight class at 3 percent level of sampling.

<u>SIZE CLASS</u> (lb)	<u>GULF OF MEXICO</u>	<u>FLORIDA EAST COAST</u>	<u>SOUTH ATLANTIC</u>	<u>MID-ATLANTIC & NEW ENGLAND</u>
1-10	13	9	3	9
11-20	146	70	55	50
21-30	66	93	86	82
31-40	51	74	74	75
41-50	42	62	45	66
51-60	17	59	26	59
61-70	11	53	18	55
71-80	10	36	11	52
81-90	5	31	9	59
91-100	10	24	7	62
101-110	5	20	6	50
111-120	4	20	5	45
121-130	4	20	6	32
131-140	2	17	6	32
141-150	2	16	5	29
151-160	3	12	4	20
161-170	2	12	4	20
171-180	2	11	3	15
181-190	1	10	3	15
191-200	1	7	2	9
200+	6	67	27	77
Totals	404	723	405	910

Table 19. Estimated number of fish that will be sampled in each area and dressed weight class at 5 percent level of sampling.

<u>SIZE CLASS</u> (lb)	<u>GULF OF MEXICO</u>	<u>FLORIDA EAST COAST</u>	<u>SOUTH ATLANTIC</u>	<u>MID-ATLANTIC & NEW ENGLAND</u>
1-10	22	16	5	15
11-20	243	117	91	83
21-30	111	154	143	137
31-40	85	123	123	124
41-50	69	104	75	109
51-60	29	99	44	99
61-70	19	88	30	91
71-80	17	60	19	86
81-90	8	32	16	99
91-100	16	40	12	103
101-110	8	34	9	83
111-120	7	34	9	74
121-130	7	33	10	53
131-140	4	28	9	53
141-150	4	27	8	49
151-160	5	21	6	33
161-170	3	19	6	33
171-180	3	18	5	24
181-190	1	17	5	24
191-200	1	11	4	15
200+	9	112	45	129
Totals	671	1,207	674	1,516

Data derived from requests for permits to fish indicate the number of vessels by area in each month (Table 20). Average trip lengths were also derived from permit applications. During the active fishing months for each area, we estimate that vessels in the Gulf of Mexico, South Atlantic and the Mid Atlantic north take 1-2 trips per month, each lasting 11 days for the Gulf and 10 days elsewhere. Vessels on the Florida east coast take 2-3 trips per month, each of 7 days duration. The number of trips and days at sea required to obtain a 3 percent sample is given in Table 21. A total of 111 trips lasting 952 days is estimated to be required to obtain the minimal sample of 3 percent. At a cost of \$150 per day at sea the total cost of the onboard technician program will be \$142,800. Sampling at even this relatively low level need not be maintained every year. We anticipate that sufficient data for monitoring and refining the plan can be obtained by sampling at this level every two or three years with greatly reduced onboard sampling during intervening years. Thus the average annual cost of the onboard technician program will be considerably less than the figure given. Sampling intensity and frequency after the first year will be based on results of the initial year's program and modified as necessary by regulatory amendment.

Continuation of mandatory reporting begun under Section 303(e) of MFCMA. On January 31, 1984 the five Councils submitted a two-part request to the Secretary of Commerce to collect data that was necessary to complete this plan. First, a request for information on the number of vessels and their 1983 fishing patterns (time, area, gear) to complete an evaluation of the proposed onboard technician program. The permit and data collection program established by NMFS for all commercial swordfish vessels as a result of this request will be continued by this plan. It will be expanded to include the onboard technician program.

The second request was to place observers on vessels using drift entanglement nets to gather sufficient information to resolve differences of opinion between Councils on what should be done about nets. These nets are not currently used commercially on the east coast outside New England. Attempts to use them elsewhere apparently have not been profitable for swordfishing. They may be effective for the developing tuna

Table 20. Number of swordfish vessels by month, by gear and by area. (Source: Councils' Request to the Secretary of Commerce under Section 303(e) MFCMA. Data input and analysis by NMFS SEFC.)

	<u>LONGLINE</u>	<u>HARPOON</u>	<u>GILLNET</u>	<u>OTHER</u>	<u>COMBINATION</u>
<u>JANUARY</u>					
Gulf of Mexico	98	2	0	0	4
Florida East Coast	57	3	0	0	6
Jacksonville, FL to Cape Hatteras	2	0	0	0	4
Hatteras through New York	11	1	0	0	5
North of New York	7	4	0	0	1
Caribbean	2	0	0	0	1
TOTALS	<u>177</u>	<u>10</u>	<u>0</u>	<u>0</u>	<u>21</u>
<u>FEBRUARY</u>					
Gulf of Mexico	97	2	0	0	4
Florida East Coast	60	3	0	0	5
Jacksonville, FL to Cape Hatteras	2	0	0	0	4
Hatteras through New York	11	1	0	0	5
North of New York	6	4	0	0	1
Caribbean	1	0	0	0	2
TOTALS	<u>177</u>	<u>10</u>	<u>0</u>	<u>0</u>	<u>21</u>
<u>MARCH</u>					
Gulf of Mexico	66	2	0	0	2
Florida East Coast	81	3	0	0	8
Jacksonville, FL to Cape Hatteras	3	1	0	0	4
Hatteras through New York	14	0	0	0	6
North of New York	6	5	0	1	5
Caribbean	2	0	0	0	2
TOTALS	<u>172</u>	<u>11</u>	<u>0</u>	<u>1</u>	<u>27</u>
<u>APRIL</u>					
Gulf of Mexico	35	2	0	0	2
Florida East Coast	93	3	0	0	7
Jacksonville, FL to Cape Hatteras	8	1	0	0	4
Hatteras through New York	13	1	0	0	6
North of New York	11	6	1	1	5
Caribbean	?	0	0	0	2

Table 20. Continued

	<u>LONGLINE</u>	<u>HARPOON</u>	<u>GILLNET</u>	<u>OTHER</u>	<u>COMBINATION</u>
<u>MAY</u>					
Gulf of Mexico	24	2	0	0	2
Florida East Coast	37	3	0	1	7
Jacksonville, FL to Cape Hatteras	15	1	0	0	4
Hatteras through New York	20	2	0	0	10
North of New York	18	16	1	1	9
Caribbean	1	0	0	0	2
TOTALS	<u>165</u>	<u>24</u>	<u>1</u>	<u>2</u>	<u>34</u>
<u>JUNE</u>					
Gulf of Mexico	9	1	0	0	2
Florida East Coast	68	2	0	1	4
Jacksonville, FL to Cape Hatteras	28	0	1	0	1
Hatteras through New York	41	5	1	0	12
North of New York	40	79	0	0	34
Caribbean	3	0	0	0	1
TOTALS	<u>189</u>	<u>87</u>	<u>2</u>	<u>1</u>	<u>54</u>
<u>JULY</u>					
Gulf of Mexico	6	1	0	0	0
Florida East Coast	55	1	0	1	1
Jacksonville, FL to Cape Hatteras	29	1	1	0	0
Hatteras through New York	41	5	1	0	10
North of New York	49	88	0	0	38
Caribbean	2	0	0	0	1
TOTALS	<u>182</u>	<u>96</u>	<u>2</u>	<u>1</u>	<u>50</u>
<u>AUGUST</u>					
Gulf of Mexico	7	1	0	0	1
Florida East Coast	48	1	0	1	2
Jacksonville, FL to Cape Hatteras	29	0	0	0	1
Hatteras through New York	45	5	1	0	12
North of New York	53	90	0	0	39
Caribbean	2	0	0	0	1

Table 20. Continued

	<u>LONGLINE</u>	<u>HARPOON</u>	<u>GILLNET</u>	<u>OTHER</u>	<u>COMBINATION</u>
<u>SEPTEMBER</u>					
Gulf of Mexico	10	2	0	0	1
Florida East Coast	50	1	0	1	3
Jacksonville, FL to Cape Hatteras	27	0	0	0	1
Hatteras through New York	54	5	1	0	11
North of New York	49	84	0	0	39
Caribbean	1	0	0	0	3
TOTALS	<u>191</u>	<u>92</u>	<u>1</u>	<u>1</u>	<u>58</u>
<u>OCTOBER</u>					
Gulf of Mexico	22	1	0	0	2
Florida East Coast	58	1	0	0	3
Jacksonville, FL to Cape Hatteras	29	1	0	0	2
Hatteras through New York	54	1	0	0	11
North of New York	38	26	0	0	27
Caribbean	1	0	0	0	3
TOTALS	<u>202</u>	<u>30</u>	<u>0</u>	<u>0</u>	<u>48</u>
<u>NOVEMBER</u>					
Gulf of Mexico	54	2	0	0	2
Florida East Coast	55	2	0	0	3
Jacksonville, FL to Cape Hatteras	12	0	0	0	2
Hatteras through New York	31	1	0	0	11
North of New York	29	9	0	1	15
Caribbean	3	0	0	0	2
TOTALS	<u>184</u>	<u>14</u>	<u>0</u>	<u>1</u>	<u>35</u>
<u>DECEMBER</u>					
Gulf of Mexico	75	2	0	0	2
Florida East Coast	60	2	0	0	4
Jacksonville, FL to Cape Hatteras	6	0	0	0	4
Hatteras through New York	19	1	0	0	8
North of New York	15	6	0	1	5
Caribbean	3	0	0	0	1
TOTALS	<u>178</u>	<u>11</u>	<u>0</u>	<u>1</u>	<u>24</u>

Table 21. Estimated number of vessel trips and days at sea required to obtain a 3 percent sample.

Month	<u>GULF OF MEXICO</u>		<u>FLORIDA EAST COAST</u>		<u>SOUTH ATLANTIC</u>		<u>MID-ATLANTIC & NEW ENGLAND</u>	
	<u>No. Trips</u>	<u>No. Days</u>	<u>No. Trips</u>	<u>No. Days</u>	<u>No. Trips</u>	<u>No. Days</u>	<u>No. Trips</u>	<u>No. Days</u>
JAN	4	44	4	28				
FEB	4	44	5	35				
MAR	3	33	6	42				
APR	2	22	7	49				
MAY	1	11	7	49	1	10	2	20
JUN			5	35	1	10	4	40
JUL			4	28	1	10	4	40
AUG			4	28	1	10	4	40
SEP			4	28	1	10	5	50
OCT			4	28	1	10	4	40
NOV	2	22	4	28	1	10	3	30
DEC	3	33	5	35				
TOTALS	19	209	59	413	7	70	26	260

fishery. If the nets expand to southern waters, observer coverage is particularly important to document fishing practices and bycatch.

It is important for the Councils to establish policy on drift entanglement nets before they become widely used. The nets are expensive and require considerable vessel modification. Fishermen stand to lose a considerable investment if the nets are prohibited after their adoption.

The observer program on vessels with drift entanglement nets did not produce much data in 1984 (since June 11 when the program was implemented). The net season was effectively over by October. Experimental drift entanglement net fishing for swordfish or tuna fishing from a research vessel or contracting with established net fishermen may be the only way in the near future to observe net fishing in all areas of the management unit. A data collection program the same as the one authorized under the request to the Secretary in 1984 will continue under the swordfish plan until there are sufficient data to evaluate drift entanglement nets. This program specifies observer coverage as close to 100 percent as possible.

Landings data from the Caribbean. There are few landings or size frequency data from the Caribbean. In 1984, a commercial fisherman from the U.S. mainland provided some landings data to the Caribbean Council. This fisherman airfreighted his catch from Puerto Rico to Florida. This practice will likely continue with other boats because of the high value U.S. market and established business relationships between boats that will likely do exploratory swordfishing in the Caribbean and their mainland fish houses and dealers.

The established voluntary reporting system has not captured the necessary landings and size frequency data for the Caribbean area necessary to calculate a variable season closure. Therefore, these data for the Caribbean are mandatory. Vessels retaining swordfish for sale that were caught in the Caribbean and landed in Puerto Rico or U.S. Virgin Islands must report their catch by individual carcass weight. This will involve approximately 10 vessels providing copies of their weigh-out sheets which contain individual carcass weights.

Swordfish bycatch in the squid fishery. The existing data collection program that is providing an estimate of the bycatch of swordfish in the

foreign squid trawl fishery should continue even as the fishery changes from foreign to joint-venture and ultimately to a domestic fishery. This information is necessary to evaluate the cap on the rate of bycatch established by this plan.

Recreational rod and reel data from the Mid-Atlantic. The Mid-Atlantic region has a small commercial longline fishery but relatively large landings of rod and reel caught swordfish. The Mid-Atlantic Council desires more information on this fishery. Data will be collected from these recreational fishermen on catch rates, participation rates, and other data to describe the fishery.

Anyone desiring to retain swordfish caught from the Mid-Atlantic region is required to obtain a permit. There will be no additional technician coverage beyond that required in other areas but at least 20 percent of all swordfish fishermen (both commercial and recreational) will be sampled for additional information, by questionnaire.

The 20 percent minimum sampling will require proportionately more longline samples because the overall sampling percentage will be approximately 3 percent. It is not known how many rod and reel fishermen catch swordfish. However, it is known that swordfish are seldom an incidental catch so that only big game fishermen targeting swordfish would probably apply. Only a small number of anglers participate in this offshore night time activity. The best estimate of 1983 rod and reel landings is 92 fish from the Mid-Atlantic offshore canyons.

Harpoon landings. Should the VSC in the New England-Mid-Atlantic area expand backwards from November in the calendar year into the active harpooning months (June-October) then all dealers handling harpoon-caught fish must make their records available on a real-time basis so that the quota can be enforced. NMFS port agents will collect these landings data at a frequency sufficient to prevent exceeding the quota. This is unlikely in the first couple of years of the plan and possibly will never occur.

Future modification of data collection. Data collection can be altered by regulatory amendment. This includes but is not limited to making all landings data mandatory (or making selective sectors, e.g., harpoon landings mandatory) if these data are deemed necessary to manage

the fishery. It would also include modifying or deleting the onboard technician program if a more cost effective alternative becomes available that provides the necessary information. Such modifications would likely result from a recommendation by the working panel should landings data no longer be supplied voluntarily. Scientists have pointed out that the availability of total landings data would allow the use of virtual population analyses (a more powerful model than yield-per-recruit) to determine status of the stock. This has been rejected at this time because of complications with the industry over the mercury issue. If this issue is resolved in the future, resistance to requiring mandatory landings would decrease.

10.4 Management Measures for Domestic Fishing Considered and Rejected

Over the past six years of plan development a number of alternative management measures were considered and rejected. Some of these may be reconsidered in the future when new information is available.

Effort and catch limiting alternatives

Most of the major considerations had to do with limiting fishing effort on the entire stock. These measures included restricting the length of longlines or number of hooks, and establishing vessel quotas, regional quotas, management unit quotas or limited entry. Each of these measures have specific shortcomings. The major shortcoming they all have in common is that such management approaches do not address what has evolved as the major problem in the fishery, the increasing harvest of small fish. Neither the problem nor the proposed solution (variable season closure) became evident until size frequency data on the catch by area by month became available.

Limit the number of hooks or length of longline on a vessel. This approach would not control the catch of small fish. Also it would not control catch or effort unless there were also restrictions on the number of boats and/or closed seasons. It would economically damage larger vessels that are required for the most distant fishing in the FCZ. The measure would not be enforceable because vessels must carry replacement gear.

Individual vessel quota or trip limits. This will not control the catch of small fish. In fact, unless fishermen can effectively select for larger fish (gear or fishing practices) they might catch then later discard dead

small swordfish in order to maximize their catch by value if under a number or poundage quota. Given the different size vessels, distances to the fishing grounds, and required days offshore to be profitable, it is not possible to determine an equitable quota for each vessel. One possible future strategy is a quota of small fish (absolute number or percentage of the catch). This could be equivalent to a tolerance on a minimum size limit.

Regional Quotas. This will control the total catch but will not control the catch of small fish. All five Council regions are presumed to be fishing the same stock. During 1980 and 1983 landings were distributed by Council area in the following way:

REGION	1980		1983	
	Pounds	Percent of Total	Pounds	Percent of Total
New England	2,651,000	31	2,925,954	32
Mid-Atlantic	589,313	7	1,458,155	16
South Atlantic	3,469,715	41	4,163,042	45
Gulf of Mexico	1,725,975	21	716,731	8
Caribbean	*	*	*	*

The expansion of the fishery from 1976 to 1980 was primarily in the South. The Caribbean presently shows no recorded landings but it is anticipated that the area offers swordfishing opportunities.

There is no predetermined distribution (e.g., existing distribution) that is acceptable to all the Councils. Predetermined quotas would unnecessarily restrict the fishery if they are based on recorded landings that have historically underestimated total landings.

Management unit quota. This will not control the catch of small fish. It could increase the harvest of small fish. Closing the entire fishery when a quota for the whole management unit is reached would not equitably distribute the impacts because there are different seasonal fishing patterns throughout the management unit.

Uniform season closure over the entire fishery. Different months of the year have varying importance for each region as indicated by the relative landings and catches of small fish in each month in different areas.

*Landings are confidential.

Fishing conditions result in the summer months being the most important for the Atlantic east coast (Maine through Georgia). The Florida east coast has the most uniformly distributed fishing conditions over the year, while the winter months are the most important for the Gulf of Mexico. The fall months represent the time when the largest number of small fish are caught. The uniform closure of any time period for all areas would not equitably distribute restrictions.

Limited Entry. Restricting the number of boats in the fishery could possibly influence the catch of small fish. At the present time a major determinant of size fish caught is the location fished. Vessel congestion at the better locations (bigger fish) forces some boats to fish in areas with higher concentrations of smaller fish until a "berth" opens up at the better locations. There is no information on how many boats can be accommodated at the "big fish" locations nor are these locations predictable.

Limited entry has many economic and social side effects that the Councils want to avoid. Limited entry may be reconsidered if the chosen alternative does not achieve the goals of the plan. The South Atlantic Council has begun a study to evaluate how limited entry could be applied to the swordfish fishery. The results of this study will be presented to all Councils so that a more thorough evaluation of limited entry can take place.

Direct Control Over the Catch of Small Fish

Once the increasing catch of small fish was identified as the major problem, the primary candidates for corrective action were minimum size limits and/or gear restrictions.

Minimum size limit. The best estimate is that approximately 70 percent of swordfish hooked by longlines are landed dead. It is questionable whether the 30 percent that are alive when landed would survive if released. There are reports that longer gangions or other practices reduce hooking mortality. None of these strategies has been verified.

There are differing opinions about whether a minimum size would make fishermen move away from locations with higher concentrations of small fish. There would no longer be an economic incentive to catch small

fish but if a profit could still be made on just the few large fish in a set, small fish would still be caught and discarded dead.

A minimum size limit requiring the release of small fish could be a valuable management tool to augment or replace the VSC if and when it proves feasible. If a minimum size motivated fishermen not to set where there were mixed sizes, the economic effect of a minimum size could be similar to the variable season closure. The undesirable delay in the harvest of larger fish would have to be weighed against the desirable delay in the harvest of smaller fish.

Set hook size to control size fish caught. There is no apparent relationship between hook size and the size of swordfish caught because all swordfish have big mouths. However, should hook size or other gear specification increase the minimum size at which swordfish are caught it will be considered and could be implemented to complement the variable season closure by Regulatory Amendment (Management Measure #2).

Other Measures

Mandatory reporting of landings. The primary stock assessment method that triggers the variable season closure is an analysis of the size composition of the catch to determine the number of small fish harvested. Landings data would be valuable for developing more sophisticated stock assessment techniques (e.g. virtual population analysis) and for more accurately estimating the total benefits of preventing growth overfishing.

Landings are now voluntarily reported through fish houses. Total landings data would have to be directly collected from fishermen (mandatory reporting) because many swordfish are not handled through established fish houses. This might be done with log books maintained by the known universe of commercial fishermen.

Mandatory landings data are not being required at this time because they are not necessary for the current level of management and there are strong motivations for fishermen to under-report landings to avoid future court battles with the FDA. Since 1971, swordfishermen have had continuing legal battles with the U.S. Food and Drug Administration over the "action level" the FDA has set as the maximum allowable concentration of mercury. From 1971-78 the industry was virtually eliminated or

operated illegally when the action level was set at 0.5 PPM based on five assumptions, one of which was that average seafood consumption was 60 g/day.

In 1978, the FDA action level was raised to 1.0 PPM which allowed the industry to develop. This Federal court decision was based in part on a more sophisticated analysis of the consumption patterns of 25,000 households (the survey is used for many purposes other than swordfish consumption). The consumption patterns in a given period are indirectly tied to total landings (including imports) during the same time period. If accurately documented landings of swordfish are actually larger than reported landings or show discernable upward trends since 1978, it will likely bring the FDA and swordfishermen back into Federal court over the FDA action level.

The collection of mandatory landings data may be required in the future if they are necessary to adequately monitor the fishery. This could be done within the scope of the working panel's ongoing review of statistical reporting and implemented by regulatory amendment.

Administration of the VSC

Once it was decided to use the variable season closure to control the catch of small fish, several important decisions (rejected management measures) had to be made. These include the types of fishing to be included or excluded from the VSC and restrictions during the VSC.

Include rod and reel in the closure. The rationale is that each Council can choose closures according to the variable season closure (conform to the swordfish calendar) that can mitigate the influence on rod and reel swordfishing. Including rod and reel will improve enforcement of the closure. This will improve dockside enforcement.

Including rod and reel fishing in the VSC was rejected because there are many diverse fishermen catching very few fish (less than 500 per year). A rod and reel closure would be both difficult and costly to enforce. This exemption will not seriously alter the ability of the VSC to achieve OY.

Include harpoons in the closure. The rationale is the same presented for including rod and reel. Additional reasons for including harpoons in the closure are that while the harpooners take less than 6 percent of the total

catch, their exclusion would effectively shelter approximately 20 percent of New England's catch from the variable season closure. Enforcement of the closure for longlines would be hampered by allowing an alternative commercial fishing gear to operate during the closure. The enforcement problem was addressed by setting a minimum size of 125 pounds (dressed weight) on harpooned fish during the VSC. This will limit the ability to transfer illegally caught longline fish during the VSC to harpoon boats. Total monthly harpoon catch during the VSC is also restricted to historical (1973-83) levels.

Including harpoons in the VSC was rejected because harpoon gear takes preferred larger fish and their landings have fluctuated about an average of approximately 800,000 pounds in recent years. The primary purpose of the FMP is to prevent the increased catch of smaller fish by longliners which reduces the number of larger fish in the catch that are preferred in the market. If the entire fishery was pursued by only harpooners there would not be a need for domestic regulations.

Prohibit all oceanic longlining during the VSC. During the first rounds of public hearings this was the intent of the plan. A total prohibition on oceanic longlining would idle the approximately 340 vessels for the duration of the VSC. Enforcement would be through prohibiting the possession of oceanic longline gear during the closures. This unnecessarily restricts the development of U.S. tuna longlining. Tuna longlining can be done during the day with a minimal swordfish bycatch (that cannot be retained during the VSC). Extensive public input during the public hearings and from letters received support allowing daytime longlining.

Prohibit possession of swordfish only at-sea during the VSC. This unnecessarily limits enforcement when all areas are not open or closed for the same time periods. The NMFS and Coast Guard have continually recommended that as many regulations as possible be written to facilitate dockside enforcement because funding for at-sea enforcement is extremely limited. This measure could only be enforced at-sea and was rejected.

Prohibit the possession of all swordfish (fresh and frozen) during the VSC. If all frozen inventory had to be sold prior to closures it would

seriously disrupt markets. Requiring all swordfish to be sold prior to a closure would impose extreme hardships on dealers, restaurant owners and the general public. This alternative would prohibit possession of swordfish at all levels in a closed area during a closure. The preferred alternative is a more effective and practical enforcement approach.

10.5 No Action Alternative

The results of no action would be loss of the benefits that would accrue from the proposed actions. These benefits are measured in terms of the relative dollar value of domestic swordfish production that will result from the VSC. The additional potential biological benefits of preventing growth and/or recruitment overfishing cannot be quantified at this time.

There are three scenarios presented that bound the "worst case" (#1) and the "best case" (#3) followed by a detailed discussion of the most likely scenario (#4). All analyses are based on 1983 size-frequency, landings, and market data.

The number of fish and pounds of fish in each category that were harvested in 1983 during the time periods proposed for closures in 1985 are shown in Table 22. The number of fish was calculated by combining two different data bases. The percent of the catch in each category was calculated from 1983 size frequency data volunteered by fishermen/dealers in each area. These percentages were then used to partition the reported 1983 landings (State/NMFS data) from each area into the market categories. Numbers of fish were converted to pounds of fish using the mean weight of the age class that most closely corresponds to the market category.

Case #1 If all fish that were not captured during the closure were never captured (migrated outside the management unit) then the annual loss to the industry would be 540,067 pounds, worth \$1,747,204. This would be the worst possible case. It is highly unlikely.

Table 22. Predicted closures for 1985 based on 1983 size frequency data. The number of fish are the number caught during these time periods in 1983.

Closure Time	Under 50 lb DW		50-100 lb DW		Over 100 lb DW	
	Number	lb	Number	lb	Number	lb
North of Cape Hatteras Nov 6-30	1,967	67,896	557	36,483	787	86,176
South of Cape Hatteras Oct 15-Nov 30	1,500	51,750	308	20,174	397	43,472
Florida East Coast Nov 1-Dec 30	1,807	62,342	424	27,772	424	46,428
Gulf of Mexico Nov 1-Dec 7	1,854	63,963	249	16,310	158	17,301
All Areas	7,129	245,951	1,538	100,739	1,766	193,377
Market Price		\$ 2.63/lb		\$ 3.59/lb		\$ 3.82/lb
Market Value		\$646,851		\$361,653		\$738,700

Case #2 If the incentive to avoid a closure encouraged fishermen to voluntarily discover ways to reduce the catch of fish under 50 pounds by 7,129 fish (the difference between the 1983 and the 1980 levels) and these 7,129 fish moved into the next market category (50-100 pound) before they were caught and there was no natural mortality or opportunity cost during the delay, the annual gain would be 220,999, pounds totaling \$793,385.

Case #3 Carrying the logic of case #2 to the extreme, if the incentive to avoid closures resulted in fishermen discovering ways not to catch any fish under 50 pounds (39,718 in 1983) and all these were captured in the next market size category the annual increase in pounds would be 1,231,258 totalling \$4,420,216.

Case #4. VSC benefits including biological and economic parameters. The best estimate of net gains or losses from closures (or incentives to avoid closures) lies somewhere between these extremes. These estimates must include:

- (1) Natural mortality (reduction in number of fish available)
- (2) Growth rate of surviving fish
- (3) Increase in value/pound when fish move into a more valuable market category
- (4) Opportunity cost of delayed income (measured by present value or internal rate of return)

Each of these cases can be evaluated in terms of assumed lengths of the delay in the harvest of swordfish. Each of these factors is expressed in monthly values. The analysis calculates net gains or losses based on different assumed lengths of delay (months) in the harvest due to closures.

The estimation process is complicated because the length of time (age) a swordfish is in a market category (0-24, 25-49, 50-99, 100+) is not constant. This means that any assumed harvest delay may move only a portion of the number of fish in a category on to the next category. If the delay is long enough, fish could move through more than one market category.

The length of the harvest delay is influenced by but not limited to the length of the closures. The harvest is delayed at least as long as the closure but may be longer depending on the length of time after the closure

it takes to capture the fish. The maximum length of the delay in this analysis is limited to 12 months which is approximately the length of time it takes for the 26-43 pound fish (age 2) to grow to the 44-87 pound range (age 3-4). This is based on Berkeley and Houde growth estimates, dressed weight, sexes combined. It takes approximately 2 years for 44-87 pound fish (age 3-4) to grow to the 88-131 range (age 5-6).

To match market categories with biological growth, it is assumed that the 0-49 market category (primarily 25-49) are age 2 (26-43 pound), that the 50-99 market category are age 3-4 (44-87 pound). The 100+ market category is age 5-6 (88-131 pound). This implies that it takes approximately 1 year for all the fish in the 0-49 market category to grow to the 50-99 category and that it takes approximately 2 years for all the fish in the 50-99 category to grow to the 100+ category.

Another simplifying assumption is that there is an even distribution of the number of fish within each of these categories. If natural mortality (instantaneous rate) is constant then this assumption is violated. That is, within each of the market categories, there are more smaller fish than bigger fish (by number). This violation is not too damaging if the categories are not too long (span 1-2 years).

A further simplifying assumption is that the individual growth rate of fish in any category is constant. This is equivalent to assuming that the von Bertalanffy growth curve over the size range of any market category can be approximated by a straight line.

These assumptions allow a simplified model with the following characteristics.

- (1) All fish in market category I (0-49 pounds) move at a constant monthly rate ($1/12$) over one year into market category II (50-99 pounds).
- (2) All fish in market category II (50-99 pounds) move at a constant monthly rate ($1/24$) over two years into market category III (over 100 pounds).
- (3) The opportunity cost of the delayed harvest is measured in terms of the internal rate of return fishermen receive on their "investment" of a delayed harvest. This is done by calculating the annual internal rate of return (r) that equilibrates the value of any harvest delay with the value without a harvest delay.

Columns 11, 12, and 13 on Table 23 show the total value, incremental increase in that value, and total increase in that value for 1-12 months delay in the harvest of the number of swordfish taken in 1983 during the time period that would be closed in 1985. The incremental increase (column 12) remains large over 12 months and accumulates to a considerable magnitude (column 13). There is no way to predict how long the actual harvest delay will be, but by definition, it will be at least as long as the closure.

The internal rate of return analysis is more revealing. The IRR declines with longer delays. This is because while the incremental increase in value remains large (column 12), that increase can only be achieved with progressively larger investments (foregone catch). For example, a one month delay produces an incremental increase of \$74,791 with an investment of \$1,747,204 (delayed harvest) for one month. If the delay is from 8 to 9 months the incremental gain is \$55,559 but it requires an investment of \$2,278,224 for one month if the choice is to harvest the fish after eight rather than nine months delay.

The conclusion is that the absolute increase in value from the harvest delays depends on the length of the delay (column 13). However, any delay (1-12 months) produces high returns (IRR) on the "investment" of a delayed harvest. Short delays are particularly attractive short term investments (high IRR, column 14).

The VSC as an incentive program. The values on Table 23 are based on any delay in the harvest of small fish being strictly a result of the closures. An important feature of the VSC is the expectation that fishermen will voluntarily discover methods to reduce their catch of small fish to avoid closures. To the extent that this happens it will significantly increase the potential net benefits derived from this plan. Benefits from the delayed harvest of small fish will still occur but without the costs of delaying the harvest of larger fish. If fishermen voluntarily discover ways to catch 7,129 fewer small fish there would be no closure. The net benefits would simply be the gains in pounds and value of delaying the harvest of small fish.

Table 23. Estimated change in the size composition (number of fish and value) with 1 to 12 months delay in the harvest of fish that would have otherwise been caught during the closure.

Harvest delay in Months	2		3		4		5		6		7		8		9		10		11		12		13		14		
	Number*	Market Category I 0-49 lbs DW \$2.63/lb. 39.5 Pounds	Value	Number	Market Category II 50-99 lbs DW \$3.59/lb. 65.5 Pounds	Value	Number	Market Category III 100+ lbs DW \$3.82/lb. 109.5 Pounds	Value	Number	Value	Total Value	Incremental increase in value of delay	Total Increase in Value of delay	IRR of Delay												
0	7,129	285,931	606,851	1,538	100,739	361,653	1,766	193,377	738,700	1,747,204																	
1	6,454	222,676	585,638	2,043	133,785	480,286	1,808	197,924	756,071	1,821,995																	
2	5,794	199,907	525,754	2,534	165,974	595,848	1,847	202,299	772,781	1,896,383																	
3	5,149	177,642	467,199	3,012	197,308	708,337	1,886	206,500	788,830	1,964,366																	
4	4,518	155,883	409,973	3,478	227,787	817,755	1,923	210,528	804,218	2,031,946																	
5	3,902	134,630	354,076	3,930	237,409	924,100	1,958	214,384	818,945	2,097,121																	
6	3,301	113,881	299,508	4,369	286,176	1,027,373	1,991	218,066	833,012	2,159,893																	
7	2,714	93,638	246,268	4,795	314,087	1,127,574	2,024	221,575	846,418	2,220,260																	
8	2,142	73,900	196,357	5,208	311,143	1,224,703	2,054	224,912	859,164	2,278,224																	
9	1,585	54,667	143,775	5,608	367,343	1,318,760	2,083	228,075	871,248	2,333,783																	
10	1,042	35,940	94,521	5,995	372,637	1,409,745	2,110	231,066	882,672	2,386,938																	
11	514	17,717	46,596	6,369	417,175	1,497,658	2,136	233,883	893,435	2,437,689																	
12	0	0	0	6,730	440,808	1,582,499	2,160	236,528	903,537	2,486,036																	

*All estimated numbers are carried to 2 decimal places in the computer program.

Table 23 (Column 2) indicates the rate that small fish grow out of the small fish category with different assumed lengths of delays in the harvest. Table 24 shows the results of these fish moving into the next weight category. The different lengths of delay would not be from closures but rather from fishermen discovering ways to avoid catching small fish to avoid closures. Table 24 (like Table 23) computes incremental gain, total gain, and internal rates of return for delaying the harvest.

Reducing the catch voluntarily to avoid closures is obviously preferable to closures. The absolute gain in pounds and dollars is almost as great with much less cost in terms of larger fish (compare Tables 24 and 23). The internal rate of return exceeds 1.0 from 1 to 12 month delays. In addition, there would be no enforcement costs or market disruption because there would be no closures.

The likely benefits of this plan are probably somewhere between the projections on Tables 23 and 24. Fishermen will undoubtedly find ways to reduce the catch of small fish to avoid closures but it is unlikely (at least in the first year) that they will be able to reduce the small fish catch by 7,129 fish. Therefore, there will be some combination of voluntary reductions and closures (adjusted accordingly).

10.6 Benefit/cost analyses

Potential benefits must be weighed against the likely costs of the proposed management regime. Net benefits are defined as the dollar gains resulting from the delayed harvest. The amount of these gains depends on the lengths of the harvest delay and the extent to which the delay is accomplished by closures (resulting in the delayed harvest of all size fish) or fishermen finding methods to voluntarily reduce the catch of small fish to avoid closures. These two situations are depicted by Tables 23 and 24.

Table 24. Estimated change in the size composition (number of fish and value) with 1 to 12 months voluntary delays in the harvest of fish to avoid closures.

1	2	3	4	5	6	7	8	9	10	11
Harvest delay in Months	Number	Market Category I 0-49 lbs DW \$2.63/lb Pounds 34.5	Value	Number	Market Category II 50-99 lbs DW \$3.59/lb Pounds 63.5	Value	Total Value	Incremental Increase in Value of Delay	Total Increase in Value of Delay	IKR of Delay
0	7,129	245,951	646,851	0	0	0	646,851			
1	6,434	222,676	585,638	587	38,433	137,974	723,612	76,761	76,761	2.82
2	5,794	199,907	525,754	1,199	75,907	272,504	798,258	74,646	151,407	2.48
3	5,149	177,642	467,199	1,716	112,621	403,591	870,790	72,532	223,939	2.28
4	4,518	155,833	409,973	2,259	147,976	531,235	941,208	70,418	294,357	2.08
5	3,902	134,630	354,076	2,787	182,572	655,435	1,009,511	68,303	362,660	1.92
6	3,301	113,881	299,508	3,301	216,209	776,191	1,075,699	66,183	428,808	1.78
7	2,714	93,638	246,268	3,800	248,887	893,504	1,139,772	64,073	492,921	1.64
8	2,142	73,900	194,357	4,284	280,606	1,007,374	1,201,731	61,959	554,880	1.54
9	1,585	54,667	143,775	4,754	311,365	1,117,800	1,261,575	59,844	614,724	1.44
10	1,042	35,940	94,521	5,209	341,165	1,224,782	1,319,303	57,228	672,452	1.36
11	514	17,717	46,596	5,609	370,006	1,328,321	1,374,917	55,614	728,066	1.28
12	0	0	0	6,075	397,888	1,428,417	1,428,417	53,500	781,566	1.71

The primary costs of the FMP are:

Sunk cost:

- | | |
|---------------------------------|------------|
| 1. SAFMC plan development costs | \$ 771,858 |
|---------------------------------|------------|

Annual costs:

- | | |
|--|------------|
| 2. Annual plan administration costs
(\$18,500 annually for age and growth analysis, annual data collection and analysis of size frequency data and working panel meeting, plus \$13,500 every 2 years to prepare hard parts for aging.) | \$ 25,250 |
| 3. Annual data collection and analysis costs at 3 percent sampling every 2 years | \$ 71,450 |
| 4. Annual enforcement costs
(Coast Guard \$76,600)
(NMFS/States \$30,500) | \$ 107,100 |

Annual benefits of the plan range from approximately \$284,742 for a 4 month delay to \$738,832 for a 12 month delay in harvest by the VSC (Table 23). If the capture of fish not caught during a 1-2 month closure is evenly distributed over the remainder of the year, the effective delay in harvest will average approximately 6½ to 7 months. The annual benefit will be approximately \$443,000 to \$473,000. If a delay in the catch of small fish is voluntarily achieved by fishermen to avoid closures, then the annual dollar benefits range from approximately \$294,357 for four months to \$781,566 for 12 month delay in the harvest. The main difference is that the latter has no enforcement costs because there are no closures.

Present Value Benefits

For the purpose of benefit/cost analysis the effective delay in harvest is assumed to be 7 months for the proposed 1-2 month closure. The annual benefit will be approximately \$473,056.

Present value (in dollars) is calculated at a 10 percent discount rate. The present value in dollars depends on the price per pound for the various market categories. The price and size information used to calculate the benefits are from 1983 and underestimate the current price by market category. The entire benefit/cost analysis will be recalculated based on

1984 data prior to a closure taking effect. The present value benefit of the proposed closure discounted over 20 years is \$4,027,392.38.

Present Value Costs

SAFMC cost for plan development was \$771,858. Annual costs after plan implementation are \$203,750. The present value of annual costs over 20 years at a 10 percent discount rate is \$1,734,638.60.

Benefit/Cost Analysis

The benefit/cost ratio is defined as present value benefits divided by present value costs. Adding plan development costs to the present value of annual costs results in a total cost of \$2,506,496.60 and a benefit/cost ratio of 1.61. Comparing only the annual costs and benefits increases the benefit/cost ratio to 2.32.

There are additional benefits from plan implementation that cannot be quantified at this time. The no action alternative would result in the continued increase in the catch of fish under 50 pounds. This is prevented under the FMP which results in additional benefits. Further refinements to the plan resulting from the onboard technician program will lead to increased benefits.

10.7 Special Recommendations to the States

The Councils recommend that the states implement the management measures proposed in this plan within their jurisdiction, where applicable.

10.8 Special Recommendations to Other Countries Harvesting Swordfish from the Management Unit

The Councils recommend that other countries use the procedures in this plan to calculate VSC calendars for their areas and implement time and area closures consistent with the VSC.

10.9 Summary of Regulatory Impacts of Measures

Domestic Measures. The variable season closure (VSC) will restrict the catch of small swordfish (under 50 lb dressed weight) to the 1980 level (33,750 fish). Initial closure dates, based on 1983 data, are as follows: (1) North of Cape Hatteras (Area 1) would be closed November 7-30; (2) Cape Hatteras to Georgia/Florida border (Area 2) would be closed October 16-November 30; (3) Georgia/Florida border to the Gulf of Mexico (Area 3) would be closed November 1-December 30; (4) Gulf of Mexico (Area 4)

would be closed November 1-December 7; and (5) Puerto Rico and the U.S. Virgin Islands (Area 5) would be closed November 1-December 30. Fishermen in each of these areas would be "investing" the fish that would normally be caught during these times with the expectation that they catch these fish in the future when the fish are larger and worth more. Area 1 fishermen are investing 5 percent of their annual landings, Area 2 fishermen 12 percent, Area 3 fishermen 10 percent and Area 4 fishermen 7 percent. A calendar cannot be calculated for Area 5 fishermen but utilizing the Area 3 calendar, they would also be investing 10 percent of their annual landings. Annual benefits of the plan range from approximately \$284,742 for a 4 month delay to \$738,832 for a 12 month delay in harvest. If the capture of fish not caught during a 1-2 month closure is evenly distributed over the remainder of the year, the effective delay in harvest will average approximately 6½ to 7 months. The annual benefit will be approximately \$443,000 to \$473,000.

The Councils recognized that such a closure would be expensive and could idle swordfish vessels resulting in substantial economic losses and disruptions to the market. To mitigate this effect, during the closures longlining is allowed during daylight hours (0500 - 1800 hours) so that tuna fishing can continue; however, the swordfish bycatch must be released. Recreational rod and reel, harpoon gear, and the Caribbean handline fishery are exempt from the VSC. All swordfish caught at any time from the western North Atlantic and retained for sale must be landed whole (carcass). In a closed area fishing for swordfish by other than exempt gear is prohibited, the possession of swordfish shoreward of the outer boundary of the FCZ is prohibited, and the landing of swordfish taken by other than exempt gear is prohibited. The importation of any swordfish taken from the western North Atlantic is prohibited during a closure. No longlining or netting is allowed at night in a closed area. If the closure occurs during the traditional harpoon season (June - October) harpooned fish must be larger than 125 pounds dressed weight and the total catch is limited to the average monthly catch of the past 10 years after discarding the highest and lowest years. These measures serve to minimize the burden on fishermen, processors, and the market during a closure. These measures have also

been developed to provide for effective enforcement of the closure while at the same time minimizing the resulting impact.

Anyone wishing to retain swordfish for sale must have a permit. Technicians will be placed onboard a sample number of commercial vessels and if selected the fisherman must carry a technician. The Councils recognize that this imposes a burden on fishermen and every attempt will be made to select only those vessels that can accommodate a technician. The technician will be placed onboard at no cost to the fishermen and every effort will be made to insure that a vessel will not be asked to carry a technician for more than one trip during the year. A data collection program, the same as the one authorized under the request to the Secretary in 1984 will continue under the swordfish plan until there are sufficient data to evaluate drift entanglement nets. Vessels retaining swordfish for sale that were caught in the Caribbean and landed in Puerto Rico or the U.S. Virgin Islands must report their catch by individual carcass weight. This will involve approximately 10 vessels providing copies of their weigh-out sheets which contain individual carcass weights. The existing data collection program that is providing an estimate of the bycatch of swordfish in the foreign squid trawl fishery should continue even as the fishery changes to joint-venture and ultimately to a domestic fishery. At least 20 percent of permit holders in the Mid-Atlantic area will be sampled for additional information, by questionnaire. Should the VSC in the New England/Mid-Atlantic area expand backwards from November in the calendar year into the active harpooning months (June-October) then all dealers handling harpoon caught fish must make their records available on a real-time basis so that the quota can be enforced.

Foreign measures. All swordfish must be reported and released. No foreign longlines which have an incidental catch of swordfish are allowed in the Atlantic FCZ out to 100 miles north of Cape Lookout to the U.S./Canada boundary from June 1 to November 30. These two measures will not place any additional burden on foreign fishermen. No foreign longlines which have an incidental catch of swordfish are allowed in the Atlantic FCZ out to 100 miles from Key West to Cape Lookout from June 1 to September 30. This would impose an additional closure for foreign

vessels. At the request of the Gulf of Mexico Council, both the general Gulf closure and the Dry Tortugas closure, as provided for in the PMP for Atlantic Billfishes and Sharks, are to be reserved in the final regulations so long as the voluntary agreement with the Japanese industry not to fish the Gulf of Mexico is maintained, and so long as other foreign vessels do not longline, or evidence an intent to longline for tuna or billfish in the Gulf of Mexico FCZ. The foreign longline catch allotment (number of swordfish hooked) is capped at 1½ percent of the previous year's domestic harvest, or 1,136 fish in the Atlantic and Caribbean and 400 fish in the Gulf of Mexico, whichever is the lesser amount. At present fishing levels, this measure will not restrict foreign longlining. The foreign squid trawl bycatch for foreign vessels operating with a GIFA for squid is limited to the 1982 ratio of swordfish to target catch in the foreign squid trawls in the New England and Mid-Atlantic regions. This measure will not restrict current fishing practices because it only caps the rate of bycatch and not the total level. Equivalent restrictions are placed on foreign fishing in the FCZ that are placed on domestic fishing. This includes a reduction in the bycatch allotment by an amount equivalent to total catch reduction experienced by domestic fishermen and any restrictions that apply to domestic fishermen during the VSC such as prohibition of nighttime longlining. Based on 1983 data, the daytime only restriction would reduce the catch of each of the 6 permitted foreign vessels for 24 days.

11.0 ALTERNATIVE FOREIGN FISHING MANAGEMENT MEASURES

11.1 Foreign Fishing Management Measures

There is presently no allowable foreign fishing for swordfish. Foreign fishing measures refer to management measures that address the foreign bycatch of swordfish when targeting species not under MFCMA (tuna) or foreign fishing targeting species pursuant to a Governing International Fisheries Agreement (GIFA).

Already existing measures pertaining to swordfish. The measures for swordfish in the Preliminary Fishery Management Plan for Atlantic Billfish and Sharks are adopted into this fishery management plan (numbers 1-5). Detailed rationale for these measures is contained in the PMP document as amended and in the Swordfish Source Document (Part I, Section 8.4.5).

- (1) Implemented March 20, 1978. All swordfish must be reported and released.

Each foreign vessel fishing longline gear in the FCZ is required to maintain a daily fishing log that records: name and identification number of vessel; date; mid-day fishing location (within 0.1° latitude and longitude); number of hooks set; haul-back speed; and number and estimated weight of individual swordfish caught and released and whether alive or dead. This will provide the basic information for managing the foreign bycatch of swordfish and will be used in stock assessment work for the estimation of MSY. This information (with the exception of haul-back speed) has been required since the PMP was implemented in 1978.

- (2) Amendment implemented September 24, 1982. No foreign longlines which have an incidental catch of swordfish are allowed in the Atlantic FCZ out to 100 miles North of Cape Lookout to the U.S./Canada boundary from June 1 to November 30. Specific coordinates are shown in Figure 2.
- (3) Amendment approved September 28, 1983, but not implemented. This would be enforced under this FMP. No foreign longlines which have an incidental catch of swordfish in the Atlantic FCZ out to 100 miles from Key West to Cape Lookout from June 1 to September 30. Specific coordinates are shown in Figure 2.

The purpose of limiting foreign fishing that will result in incidental catches of swordfish by area and time is primarily to reduce conflicts between foreign and domestic fleets. Based on U.S. Coast Guard information, there were 21 gear conflict incidents involving domestic and Japanese longline vessels from March 1978 through May 1982. One conflict occurred in 1978 and in 1979, three occurred in 1980, and 16 occurred in 1981. Because of no Japanese longline fishing, none occurred in 1982. Of the 21 conflicts, 18 would be preventable by the proposed Atlantic closures. The Gear Compensation Files showed that NMFS paid 15 claims between March 1978 and September 1981 for gear damage attributed to foreign vessels. Of the 15 claims, nine incidents might have been prevented by the proposed

closures. Twenty-seven incidents were reported to NMFS or other government officials involving Japanese longline vessels and domestic vessels involved in conflicts that might have been prevented by the proposed closures. NMFS observers on Japanese vessels and domestic vessels report gear conflicts involving the two groups. Under these circumstances, 4 of the conflicts were reported, all of which might have been prevented by the proposed closures. The Japanese foreign longline vessels also result in the pre-emption of some of the prime swordfish fishing grounds due to the larger foreign vessels and larger amount of gear. This will continue as long as the number of domestic swordfish vessels remains high and the Japanese vessels concentrate in areas where swordfish abundance is high, apparently because of high tuna abundance. These areas are highly desirable to U.S. swordfish fishermen.

These area and time closures would also make additional swordfish available for domestic fishermen while allowing the foreign tuna longline fleet a reasonable opportunity to fish for tunas. The numbers of swordfish caught as a bycatch in the foreign tuna longline fishery was 249 swordfish in 1983 and increased to 402 in 1984. While these numbers are low, the domestic fishermen claim that many more swordfish are torn off the foreign lines due to the very rapid haul-back speed. This item has been identified as a research need and will be addressed further in the future as more information becomes available.

- (4) Amendment approved September 28, 1983, but not implemented. This would be held in reserve under this FMP. Implementation would be considered should Japan cease voluntary compliance with these terms. The incidental catching of billfishes in the Gulf of Mexico area would be allowed from January 1 through April 30 with the exception of a window of area off the Dry Tortugas approximately 10,000 square nautical miles and located approximately 85 nautical miles west of Key West, Florida (Figure 2) which would be closed the entire year. Also, fishing by foreign vessels with bottom longline gear is prohibited throughout the year within the East and West Flower Garden Banks, an area of approximately 257 square nautical miles, located approximately 100

nautical miles southeast of Galveston, Texas, and 120 nautical miles south of Cameron, Louisiana.

- (5) Amendment number 3 closed disputed areas to third parties and redefined the FCZ boundary.

At the request of the Gulf of Mexico Council, both the general Gulf closure and the Dry Tortugas closure are to be reserved in the final regulations so long as the voluntary agreement with the Japanese industry not to fish the Gulf of Mexico is maintained, and so long as other foreign vessels do not longline, or evidence an intent to longline for tuna or billfish in the Gulf of Mexico FCZ.

In addition to adopting the foregoing measures, this plan has the following additional provisions. These measures are to assure that the favorable trend in the reduction of swordfish bycatch by foreign vessels continues.

- (6) Cap the foreign longline catch allotment (number of swordfish hooked) at 1 and 1/2 percent of the previous year's domestic harvest or 1,136 fish in the Atlantic and Caribbean and 400 fish in the Gulf of Mexico, whichever is the lesser amount. This allowance is equivalent to the 1982 foreign bycatch level for the Atlantic and substantially exceeds the 1983 and 1984 foreign bycatch. Foreign fishing in the Gulf ceased from 1982 onwards as a result of the voluntary agreement. At current fishing levels, this measure will not restrict foreign longlining. In the event that the current trend reverses itself, it assures that the foreign bycatch will not exceed the 1982 level. The figures are based on the swordfish bycatch reported by Japanese tuna longliners up to 1984:

	<u>ATLANTIC</u>		<u>GULF</u>		<u>TOTAL</u>	
	Japanese <u>data</u>	Observer <u>data</u>	Japanese <u>data</u>	Observer <u>data</u>	Japanese <u>data</u>	Observer <u>data</u>
1978	4,222	5,639	770	987	4,992	6,626
1979	1,347	1,999	2,450	2,426	3,797	4,425
1980	2,843	3,660	2,068	4,415	4,911	8,075
1981	6,314	1,321*	2,148	480*	8,462	1,801*
1982	1,136	1,028*	0	0	1,136	1,028*
1983		249		0		249
1984		402		0		402

- (7) The foreign squid trawl bycatch for foreign vessels operating with a Governing International Fisheries Agreement for squid is limited to the 1982 ratio of swordfish to target catch in the foreign squid trawls in the New England and Mid-Atlantic regions. The initial rate, based on 1982 data is 0.06 swordfish per metric ton of squid. This rate will be recalculated in the future if more accurate information becomes available for 1982. This measure will not restrict current fishing practices because it only caps the rate of bycatch and not the total level. As squid effort increases, the rate but not absolute number is restricted. This will however prevent the squid fishery from developing fishing practices that result in an increased rate of swordfish bycatch.

*These are preliminary data obtained with less than 100 percent observer coverage. Near 100 percent coverage was accomplished in 1982.

Foreign Squid Trawl Swordfish Bycatch

<u>YEAR</u>	<u>OBSERVED SWORDFISH HARVEST (lb)</u>	<u>PROJECTED TOTAL SWORDFISH HARVEST (lb)</u>	<u>FOREIGN SQUID HARVEST (mt)</u>	<u>PROJECTED NUMBER OF SWORDFISH</u>
1980	43,793	144,522		
1981	49,152	162,207		
1982	47,366	176,298	28,761.8	1,833*
1983	42,022	85,888		

- (8) Equivalent restrictions are placed on foreign fishing in the FCZ that are placed on domestic fishing. This includes a reduction in the bycatch allotment by an amount equivalent to total catch reductions experienced by domestic fishermen. This measure also includes any restrictions that apply to domestic fishermen during the VSC such as prohibition of nighttime longlining.

While it is recognized that restricting longlining to daylight hours imposes a greater hardship on Japanese tuna longliners (whose fishing operation runs 24 hours a day) than on domestic fishermen, the only equitable alternative consistent with the objectives of the plan is to prohibit all longlining during closures. Had the Councils adopted this alternative it would have increased the hardship on domestic longliners without reducing the hardship on foreign fishermen. Allowing any nighttime longlining that has a bycatch of swordfish would reduce the effectiveness of this plan.

During 1983 there were only 6 permits issued to foreign longline vessels. The daytime only restriction would reduce the catches of these 6 vessels during the variable season closure which is set for November 7-30 based on 1983 data. To summarize, the daytime only restriction would reduce the catch of each of these 6 vessels for 24 days.

*Calculated by using the average dressed weight of 96.2 lb for North Carolina and north in 1983. We have had a great deal of difficulty obtaining data on the number of swordfish caught incidentally in the foreign squid trawl fishery. If in the future a more accurate estimate can be made, the ratio will be recalculated.

11.2 Foreign Fishing Management Measures Considered and Rejected

These are measures that were originally considered as ways to accelerate the reduction of the swordfish bycatch by foreign vessels. Since 1983 the foreign bycatch has been so small that measures to reduce the bycatch are no longer necessary. The chosen alternatives are less burdensome and adequately assure that the foreign swordfish bycatch does not increase to earlier levels.

Adoption of the Phase-Out Formula in the American Fisheries Promotion Act. The foreign phase-out formula in P.L. 96-561 (12/22/80) is for fisheries with a TALFF. While there is no TALFF for swordfish, the formula was still thought to be a useful guideline. A 15 percent declining balance bycatch quota was considered, based on the maximum phase-out rate in the American Fisheries Promotion Act.

Declining Balance Quota. A declining balance quota on the number of swordfish that can be hooked as a bycatch by foreign longlines based on 1980 Japanese data. This would be an annual 15 percent reduction (declining balance).

SWORDFISH QUOTAS (number of fish allowed to be hooked)

YEAR	ATLANTIC	GULF	TOTAL	PERCENT OF 1980
1980	2,844	2,068	4,912	100.0
1 83	2,417	1,758	4,175	85.0
2 84	2,055	1,494	3,549	72.3
3 85	1,747	1,270	3,017	61.4
4 86	1,485	1,080	2,565	52.2
5 87	1,262	918	2,180	44.4
6 88	1,073	780	1,853	37.7

Accelerated Declining Balance Quota. The declining balance bycatch quota specified with the additional provision that the phase out of foreign longline killed swordfish be accelerated when the first domestic closure is required by an amount sufficient to make the domestic closure unnecessary. In effect this would require that no swordfish be hooked by foreign vessels if there was a domestic closure.

ACCELERATED RATE TO BE APPLIED TO THE SWORDFISH
QUOTA TABLE
WHEN A DOMESTIC CLOSURE IS REQUIRED

First Year A Domestic Closure is Necessary	Advance to a Future Year on the Swordfish Quota Table Based on Avoiding the Need for Alternative Domestic Closures (5% and 7%) (rounded to the closest year)*	5%	7%
		Advance To Year:	Advance To Year:
		<hr/>	<hr/>
1		8 (1,339 fish)	38 (10 fish)
2		28 (52 fish)	-
3		-	-

Straight-Line Declining Balance Quota. The declining bycatch quota be at a rate of 20 percent per year based on 1980 kills by foreign longlines and that the quota be accelerated when the first domestic closure is required by an amount sufficient to make the domestic closure unnecessary.

YEAR	ATLANTIC	GULF	TOTAL	PERCENT OF 1980
1980	2,844	2,068	4,912	100
1983	2,275	1,654	3,929	80
1984	1,706	1,241	2,947	60
1985	1,138	827	1,965	40
1986	569	414	983	20
1987	0	0	0	0

Step-Wise Declining Balance Quota. The declining balance quota would be at a rate of 15 percent for the first year. Each year thereafter the rate would be the maximum percent reduction that could be justified by an updated RIR prepared by the Councils and implemented through annual regulatory amendments. Accelerated rates can be justified when U.S. fishermen must be restrained through the variable season closure.

*Calculated by estimated 1980 domestic catch being 8.4 million pounds or 70,000 fish (at 120 pounds whole weight). 5% domestic reduction is 3,500 fish; 7% is 4,900 or virtually all of the incidental catch in the base year.

All of these phase-out formulas were rejected in favor of the restrictions that were approved. The approved measures allow foreign fishing a "reasonable opportunity" to fish for tuna, while ensuring that the swordfish bycatch does not exceed recent levels (1982).

Charge foreign fishing compensatory damages for their swordfish bycatch. 1983 amendments to the PMP for Atlantic Billfish and Sharks considered charging foreign fishing compensatory damages for killing billfish and swordfish. The amounts considered presumably compensated the U.S. an amount equal to the economic value of the fish killed. This was not implemented. There was controversy over the appropriate economic value for assessing damages.

Now with reduced foreign longlining it is clear that for swordfish, compensation for lost fish did not capture the real cost of lost fishing opportunities. Foreign tuna longliners with a bycatch of swordfish had continually displaced domestic swordfish longliners from the better sword-fishing locations.

12.0 MONITORING

12.1 Data Requirements for the Variable Season Closure

Data will be collected from a sample of commercial fishing boats. Other data may be collected to test the applicability of other stock assessment techniques. Changes in mandatory reporting requirements can be by regulatory amendment.

Landings data will continue to be collected through already established voluntary reporting channels except for mandatory reporting in the Caribbean. If more accurate landings data are required then mandatory reporting of landings in all areas may be required.

12.2 Important Deadlines Specified by the FMP

Data that drive the closures must be evaluated annually and closures determined before they are expected to begin. Enough time must be provided to offer the option of expanding closures backwards as well as forward in the calendar year. It is anticipated that the following timetable will provide sufficient time with closures starting anytime in the last quarter of the year. If closure dates change then this timetable can be adjusted accordingly.

- DATA YEAR:** January 1 - December 31 (Calendar Year)
- February 1 -** Previous year's landings and size frequency data given to the working panel.
- March 15 -** Working panel report provided to each committee chairman and Council including the updated VSC calendar.
- April 15 -** Each Council submits the number of days to be closed in conformance with the updated VSC calendar to the Regional Director.
- May 1-** Secretary implements closures for the year.

12.3 Research Needs

Research needs are classified as short, intermediate, and long term according to how long it will likely take to produce results that could change the plan.

Short-term research. Most short-term research could result in prompt changes in the plan by regulatory amendment. Examples include minimum size limits, specific gear restrictions, and modification of the data collection program.

The highest priority is to determine if altering fishing practices (gear, time, location) can reduce the catch of small fish or improve the survivability of released fish. The intent of this research is to evaluate a minimum size limit or gear restrictions that could augment or substitute for the VSC. It is anticipated that these investigations can be done in conjunction with the onboard technician data collection program designed to collect biological data.

Another high priority short-term research topic is the analysis of longline and net bycatch data to determine strategies to minimize any undesirable bycatch. Billfish bycatch will be an important future consideration for the swordfish plan (requiring plan amendment) or the billfish plan. It is anticipated that these investigations can also be done in conjunction with the onboard technician data collection program.

An equally important short-term research topic is to find ways to minimize or eliminate the need for onboard technicians and still accomplish the foregoing research as well as collect the necessary

biological data for age and growth analyses that is the basic task of the technician program. The onboard technician program is costly and places a burden on vessels selected to participate. Currently there is no alternative to collecting the basic biological data as well as evaluating fishing selectivity by size, release survival, and bycatch information.

The final short-term research topic is to evaluate the effect of speed of haul-back on number of swordfish retained on a longline versus the number torn off in the foreign fishery.

Intermediate term research. Critically evaluate alternative stock assessment methods. Priority should be given to assessment methods that can produce quantitative estimates of the potential benefits of viable management strategies. The existing yield-per-recruit models on swordfish suggest that there is potentially more to be gained by selectively controlling fishing mortality on small fish than controlling mortality on all sizes. These models also imply that there would be advantages to selectively controlling fishing mortality by sex. There is no current management strategy that can selectively avoid the harvest of small fish or harvest by sex. However, stock assessment methods should be designed to address the potential effects of controlling fishing mortality by size or sex because these are still important management considerations that may become viable with more information. Results of this research could be incorporated into the plan by regulatory or plan amendment.

Long-term research. The most important long-term research is on stock structure which includes migratory patterns. A basic underlying assumption of the plan is that there is only one stock in the management unit (Northwest Atlantic). If there is more than one stock in the management unit, it may not alter the likelihood of the VSC or other measures to produce benefits from delaying the harvest of small fish, but it could alter the distribution of those benefits. If there is substantial migration outside the management unit, then some of the benefits of larger fish may accrue to other countries. Knowledge of stock structure is important for stock assessment. The onboard technician program does provide the opportunity to tag a large number of swordfish (also sharks and billfish) in a relatively short period of time. This would be very useful for determining stock structure.

APPENDIX A

I. RESPONSE TO COMMENTS

**FEIS SWORDFISH
SUMMARY OF PUBLIC COMMENT**

Three series of public hearings were held on the Swordfish Plan. Twenty-four hearings were held from March 15 through April 13, 1983, in selected sites on the east coast, Gulf of Mexico, and Caribbean areas:

SOUTH ATLANTIC COUNCIL

Key West, FL	3/15/83*
Charleston, SC	3/15/83
Pompano Beach, FL	3/16/83
Savannah, GA	3/16/83
Ft. Pierce, FL	3/17/83
Cocoa Beach, FL	3/17/83
Georgetown, SC	3/29/83
Morehead City, NC	3/30/83
Manteo, NC	3/31/83

CARIBBEAN COUNCIL

St. Thomas, U.S.V.I.	4/06/83
Mayaguez, PR	4/08/83

NEW ENGLAND COUNCIL

Plymouth, MA	4/08/83
Westport, MA	4/11/83
Gallilee, RI	4/12/83
Portland, ME	4/13/83

GULF OF MEXICO COUNCIL

Key West, FL	3/15/85*
Pt. Aransas, TX	3/15/83
Galveston, TX	3/16/83
Madeira Beach, FL	3/16/83
New Orleans, LA	3/17/83
Panama City, FL	3/17/83

MID-ATLANTIC COUNCIL

Norfolk, VA	3/28/83
Ocean City, MD	3/29/83
Pomona, NJ	3/30/83
Riverhead, NY	3/31/83

Fifteen hearings were held from March 22 through April 12, 1984 in the same general areas:

SOUTH ATLANTIC COUNCIL

Charleston, SC	3/22/84
Ft. Pierce, FL	3/22/84
Davie, FL	3/23/84
Key West, FL	3/30/84*
Manteo, NC	4/03/84

GULF OF MEXICO COUNCIL

Port Aransas, TX	3/27/84
Panama City, FL	3/28/84
Madeira Beach, FL	3/29/84
Key West, FL	3/30/84*

*Joint public hearings.

MID-ATLANTIC COUNCIL

Hampton, VA 3/23/84
 Riverhead, NY 3/27/84
 Essington, PA 3/28/84

NEW ENGLAND COUNCIL

Fall River, MA 3/28/84
 Portland, ME 3/29/84

CARIBBEAN COUNCIL

St. Thomas, U.S.V.I. 4/10/84
 Lajas, PR 4/12/84

The public was again asked to comment on changes in the plan at five hearings held in conjunction with Council meetings from October 25 through December 6, 1984. The written comment period extended through December 17, 1984.

Mid-Atlantic & South Atlantic Councils - Virginia Beach	10/25/84
New England Council - Danvers, MA	10/30/84
Gulf of Mexico Council - Tampa, FL	11/12/84
South Atlantic Council - Duck Key, FL	11/27/84
Caribbean Council - Hato Rey, PR	12/06/84

The following comments (by major category) were received either from attendees at the public hearings or from letters to the Councils:

EFFORT AND CATCH LIMITS

COMMENTS: Favor limited entry by area.

Entry should not be limited by area.

Limited entry favored over closure.

Limited entry permits should be transferable.

Limited entry permits should not be transferable.

Restrict longliners to fishing from home port.

Permit full-time fishermen only.

Reduce the number of participants in the fishery.

The increase of fishing power by using longer lines and more hooks is an argument against limited entry and limited seasons.

Cap effort.

RESPONSE: The Magnuson Act states that a system for limiting access to the fishery may be established if certain considerations are analyzed. These considerations require substantial analysis of social, cultural, and economic variables which are unknown at this time. The collection of data necessary would be time consuming and limited access is a social and economic tool which would not necessarily limit effective fishing effort. The catch of small fish would not necessarily be reduced. This is discussed in the plan under management measures considered and rejected. The Councils decided that the swordfish plan should be implemented as soon as possible and that a detailed study of limited entry as a management tool should be undertaken. A preliminary analysis by the South Atlantic Council's Technical Assistance Team from East Carolina University concluded that applying limited entry as a management tool is complex with little precedent under the Magnuson Act. Limited entry was defined as "any form of mandatory restriction of the right or ability of a specific individual or vessel to engage in the taking or landing of a fishery resource."

The South Atlantic Council has initiated a 2-year study of limited entry in general and specifically how limited entry would be applied to the swordfish, spiny lobster, and South Atlantic shrimp fisheries. This study will result in a more detailed analysis of limited entry for the swordfish fishery and could lead to a plan amendment dealing with limited entry.

COMMENTS: Regulate time and method of fishing.

Have individual boat quotas rather than seasonal closure.

RESPONSE: Restricting the length of longlines or number of hooks, establishing vessel quotas, regional quotas, or management unit quotas would not address the major problem in the fishery, the increasing harvest of small fish.

COMMENT: Pressure on females can be reduced by reduction in harpooning and longlining in the Mid-Atlantic and New England areas.

RESPONSE: Current information does not clearly identify areas and times of spawning nor does it suggest that inadequate recruitment is currently a

problem. However, should this situation change in the future, methods to maintain adequate numbers of adult spawners will be actively considered. In addition, the emphasis in the plan has shifted to a reduction in the catch of small fish, not just females.

CLOSURE DATES

COMMENTS: Recommend July 1 starting date for closure for southeast Florida.

Southeast Florida needs access to the fishery until July 15.

May represents 20-30% of annual income for southeast Florida swordfishermen.

In Southeast Florida, fishermen need access to the fishery in December.

Closures in the Gulf should end by September 30.

There are small fish in the Gulf in August and September.

Best months for swordfish are December - March in Florida.

Early fall closure best for South Atlantic area.

Have area closures at different times.

Leave starting date open until decide on percent reduction.

Recommend starting date of July 15 for Florida.

Summer months are best for swordfishing off Louisiana.

Early closures will have negative effects when the fishery is opened in late summer, such as increase in small fish, decrease in price, no restriction on Canadian fishery, and lowering of mean weights.

Close the longline and gill net fishery and prohibit traffic in fresh or frozen swordfish from November 1 until May 1.

A May closure would hurt Florida East Coast more than other areas.

RESPONSE: The Council has inserted into the plan a method whereby the variable season closure calendar will be updated annually to reflect the correct size composition of the catch by area by month. The starting date for a closure will be proposed, taking into account the fact that the burden of

the closures should be equally distributed among all areas. The plan explains how the annual update will be accomplished under Management Measure Number One. The specific starting date for the closure will be set annually by notice in the Federal Register.

CLOSURE

COMMENTS: There would be a severe economic impact from a 30 percent closure.

A 30 percent reduction should be implemented gradually over 3 years.

Adjust closure to compensate for fishing time lost due to weather.

Have no closure now.

Begin with a lower reduction.

Request an economic analysis of a 30 percent closure.

Mid-Atlantic closure should extend out to 150 miles.

Closure must be equitable to all areas.

The recreational swordfish fishery has collapsed, so a closure gains little.

There is no good time for a closure.

Closures only create more boats during open periods.

Closed seasons would be disruptive to the marketing and pricing of swordfish.

Boats will move from one area to another.

A better weight than 50 pounds would be 25 pounds dressed weight for calculations of the closure.

Closure of the South Carolina fishery will have dramatic and lasting effects economically on fishermen and banks.

Reopening of the season after a closure will cause large amounts of fish to be placed on the market and the price will drop.

RESPONSE: Three major factors were considered by each Council in choosing closure times. The first consideration was to minimize the loss in

harvest of all fish and still achieve the required percent reduction in the catch of small fish. October or November starting dates for closures result in the smallest losses of total landings in each area. This time also minimizes the length of the closures necessary for a given reduction in the catch of small fish. The second consideration was swordfish markets and the third consideration was vessel mobility. Instead of a 30 percent closure, the amount of time to be closed will be adjusted to reflect the trend of an increasing catch of small fish from 1980 through 1984. The first update will be by May 1, 1985 and the results will apply to the 1985 closures. Initial estimates, based on 1983 data, indicate closures that would reduce the catch of small fish and result in fishermen postponing the harvest of between 5 and 12 percent of their annual catch due to the closure. By having closures during the same general period, movement of boats from one region to another will be discouraged. The closure time which has the least disruptive influence on markets will be chosen. Impacts of closures can be equitably distributed among areas with varying fishing patterns.

COMMENT: To say there is not sufficient information to close fishing areas based on size and sex is contradicting the rest of the plan.

RESPONSE: The plan now emphasizes closing areas based on the frequency of small fish. There is still no method of fishing selectively for just males or just females. The onboard technician program will provide sex composition data by area. By combining this with the size by sex information, the Councils will be able to evaluate closed areas.

COMMENT: If our fishermen are outside the U.S. FCZ when the season is closed, can they catch swordfish?

RESPONSE: Yes, but they cannot enter a closed area with swordfish aboard or land swordfish during a closure. The prohibitions do not apply to swordfish greater than 125 pounds dressed weight that were harvested by harpoon if the closure occurs between June and October. Swordfish may be caught outside the western North Atlantic, but no vessel can possess swordfish with operable longlines or nets aboard the vessel in closed areas or import swordfish.

CLOSURE EXEMPTIONS

COMMENTS: Harpoon vessels should not be exempted.

Harpooned fish are caught in the summer and help suppress the price of swordfish; they should be included in closures.

Harpooned swordfish should have a size limit.

Ban the harpooners because they kill large females.

RESPONSE: Harpoon vessels take preferred larger fish and their landings have averaged about 800,000 pounds over the last 10 years. Harpoons are only used in New England during a short summer season. A minimum size limit of 125 pounds dressed weight has been placed on harpooned swordfish during a closure, as well as a cap on the total monthly catch during a closure. The cap is the average monthly harpoon landings for the previous 10 years, excluding the highest and lowest years.

COMMENT: Vessels smaller than 42 feet should be exempt.

RESPONSE: A vessel exemption would be difficult to enforce and there are no data to substantiate that smaller boats catch fewer small fish.

COMMENTS: Recreational fishermen should not be exempt from closure.

Recreational fishermen should be exempt from closures.

Allow only rod and reel equipment onboard during closure.

A letter of authorization to fish should not include recreational swordfishermen.

During 1982, sport fishermen in Louisiana did not catch any swordfish.

RESPONSE: Rod and reel fishermen are exempt because they catch very few fish. However, they will not be able to sell their catch during a closure so as to prevent the at-sea transfer of fish from commercial longline vessels to recreational rod and reel boats. Rod and reel fishermen will not be required to have a letter of authorization to fish. The traditional handline fishery in the Caribbean is allowed an incidental catch limit of one swordfish per trip during their closure and this fish may be sold.

COMMENTS: Make provisions to allow longlining for other species such as tuna, shark, and tilefish.

Do not allow longlines between sunrise and sunset.

Fishermen cannot unload all longline gear during closure.

Can the combination boat fishing tuna in closed season be allowed an incidental catch, as are the Japanese?

Small businesses will not be able to absorb the decreases in total catch and will be seeking new fisheries.

RESPONSE: The provision to allow longlining during daylight hours during a closure was added to the plan so as to reduce the economic impacts of the VSC. All swordfish caught by other than exempt gear during the closure must be released. Exempt gear includes harpoons, rod and reels, and the Caribbean handline fishery.

GEAR

COMMENT: Allow no new gear while the fishery is facing a closure.

RESPONSE: Gear and fishing practices will be monitored. Vessels utilizing new methods may be required to carry an onboard technician or directly provide information to document their activity. Future gear restrictions may be imposed by amending the regulations if sufficient information is available.

COMMENT: Use a #42 or #36 hook to reduce the swordfish bycatch when tuna fishing.

RESPONSE: There is at this time no established correlation between hook size and the bycatch when tuna fishing. When there are data to support the reduction of bycatch, changes could be implemented by amending the regulations.

COMMENTS: Gillnets should be studied before any judgement is made.

Average size of swordfish caught in gill nets is 100-125 pounds.

Prohibition on gill nets is not fair and equitable and does not necessarily promote conservation.

Opposed to the use of gill nets.

Limit number of gill nets allowed.

Opposed to any ban on gill nets.

There has not been any gear conflict with gillnets during the last three years.

The addition of gill nets in the Mid-Atlantic region will cause gear conflicts.

Gill nets do not have a bycatch of whales and porpoises.

It is not true that all draggers or any boat with a drum can easily gear up for gill netting.

Give the three vessels gill netting a temporary permit and then make a final decision later, after all data are in.

RESPONSE: The Councils requested the Secretary to implement a data collection program prior to plan implementation in which drift entanglement net vessels would have their fishing methods and catch monitored. This program will continue under the swordfish plan until there are sufficient data to evaluate the use of nets. At the time of submission to the Secretary, the plan will have no restrictions on entanglement nets other than the VSC. There is also a management measure in the plan under which gear and fishing practices will be monitored. Modifications of the rules can be made by amending the regulations as necessary.

COMMENT: All swordfish longline vessels should have a permit to fish.

RESPONSE: Under the swordfish plan, anyone who wishes to retain swordfish for sale must have a permit. The permit is for the vessel and is issued at no cost to the fisherman.

IMPORTS

COMMENTS: Prohibit imports during a closure.

Suggest no imports during August through October.

Place embargo on Canadian fishery during closure.

Imports will depress markets.

The import prohibition should continue for a period of time after the VSC is lifted to give domestic fishermen the opportunity to land fish before imports hit the market.

RESPONSE: During a closure the importation of swordfish harvested from the western North Atlantic stock is prohibited. This import prohibition is tied to the closure of each adjacent management area and will extend past the opening date for that area so as to provide domestic fishermen the opportunity to make a trip prior to imports getting to the market and to discourage foreign fishermen from fishing on the western North Atlantic stock during the closure. An exception is provided for swordfish greater than 125 pounds dressed weight (if the closure occurs between June and October) that were harvested by harpoon and accompanied by a certificate of eligibility from the country of origin indicating that such fish were harpooned or harvested from other than the western North Atlantic stock of swordfish.

DATA COLLECTION

COMMENTS: There should be mandatory data collection.

Size of sample should be larger.

Data collection should include bycatch.

Need better data on marine mammal and reptile interactions with U.S. and foreign fleets.

Need more accurate and complete data on foreign bycatch by Japanese and Spanish.

Data needs can be met by surveys done by the states.

Need analysis of the impacts of each gear type used by foreign and U.S. vessels.

RESPONSE: Data derived from requests for permits to fish indicate the number of vessels by area in each month. Sufficient data for monitoring and refining the plan can be obtained by sampling at the specified level. Technicians would collect basic biological data, size selectivity of fishing, survival of hooked swordfish, and bycatch data. Participation is mandatory for vessels selected to participate in the data collection program utilizing

onboard technicians. Mandatory landings data are not being required at this time (except for the Caribbean area) because they are not necessary for the current level of management and could cause the industry problems with the FDA. Observer coverage on foreign vessels and the technician program on domestic vessels will provide information on the impacts of gear types and fishing methods.

COMMENT: Records should be kept on numbers instead of pounds of fish.

RESPONSE: Currently, data are being provided by fishermen in numbers as well as pounds of fish.

COMMENT: Recreational swordfishermen should not have to obtain a letter of authorization to fish.

RESPONSE: The plan does not require a permit for recreational fishermen. However, the Mid-Atlantic Council is requesting that anyone wishing to land swordfish in the Mid-Atlantic area must obtain a permit.

COMMENT: Could have inspectors at the Boston and New York markets count carcasses and weigh swordfish from marked containers, which would give an accurate number of swordfish sold.

RESPONSE: This would require extra expenses to hire inspectors and the biological data needed would not be obtained. In addition, the area of catch could not be accurately determined.

COMMENTS: Why is there a 20 percent sampling of all swordfish boats in the Mid-Atlantic region?

Most of the questionnaires for the Mid-Atlantic will come back with useless data.

RESPONSE: The Mid-Atlantic Council desires more information on the fishermen in their region. The sampling will be by questionnaire.

COMMENT: Lobster and crab gear have pushed the longliners out of some of their most productive fishing grounds.

RESPONSE: This plan only addresses swordfish longlining. If gear conflicts continue to be a problem, modifications of the regulations can be accomplished by regulatory amendment.

COMMENT: The swordfish fishery represents an excellent opportunity, if closures result, to assist those who are displaced with guaranteed operating loans or other lines of credit used by the National Marine Fisheries Service fisheries obligation guarantees.

RESPONSE: The National Marine Fisheries Service should be contacted regarding fisheries obligation guarantees. The swordfish plan does not contain any recommendations concerning loans or lines of credit.

MISCELLANEOUS

COMMENTS: Need a better description of swordfish life history.

More research should be done on swordfish gear.

More research is needed.

More study needed on predator-prey relationships.

Not enough information to regulate the fishery.

Need more basic data on swordfish size ranges taken by all gear in all areas.

Need research on migratory patterns.

RESPONSE: Research needs are listed in the plan and classified as short, intermediate, and long term, according to the length of time necessary to produce results. Short-term research on minimum size limits, specific gear restrictions, and modification of the data collection program are discussed. Critical evaluation of alternative stock assessment methods are intermediate term research projects, and analysis of stock structure is the most important long-term research need. The Councils have concluded that the information on catches of small fish by time and area is sufficient to justify management.

COMMENTS: There should be rules to protect ripe females.

There should be measures to reduce juvenile mortality.

Close east coast of Florida March through May when ripe females are found.

Do we know importance of large spawners versus small spawners?

Focus on protecting nursery areas.

According to some fishermen, roe fish are not caught north of Cape Hatteras.

If we do not take care of spawning closures and enforce closures, the plan will eliminate pelagic longlining and not restore the swordfish abundance.

A total closure of Florida east coast and Gulf of Mexico during November 1 until May 1 would be reasonable management by closing spawning and migratory seasons.

RESPONSE: Spawning closures are one means of limiting effort on adult fish. However, as the plan indicates, current information does not clearly identify areas and times of spawning nor does it suggest that inadequate recruitment is currently a problem. If the situation changes in the future, methods to maintain adequate numbers of adult spawners will be actively considered. Changes in the plan can be accomplished by amending the regulations.

COMMENT: Identify spawning locations in relation to ocean dumping sites and relate dredge disposal to actions for protection of the species.

RESPONSE: Current information does not clearly identify specific areas and times of spawning. Swordfish spawn throughout the tropical and sub-tropical western North Atlantic. Spawning occurs at or near the surface of oceanic waters away from coastal sources of pollution. Should specific areas of concentrated spawning be identified, the impacts of ocean dumping and dredge disposal will be evaluated.

COMMENT: Swordfish are migratory and different sizes are caught at different times of the year.

RESPONSE: This in fact forms the basis for the variable season closure. Sampling will continue throughout the entire year in all areas. This information will be incorporated into the annual stock assessment.

COMMENT: Vessels should have large, visible registration numbers on top of boat.

RESPONSE: Each vessel of the U.S. engaged in the swordfish fishery shoreward of the seaward boundary of the FCZ in the Atlantic Ocean, Gulf of Mexico, or Caribbean Sea must display its official number so as to be clearly visible. The number must be 18 inches in height for vessels over 65 feet and at least 10 inches in height for all other vessels.

COMMENT: When fishermen violate the rules, all fishing privileges should be suspended.

RESPONSE: Any person or fishing vessel found in violation of regulations issued under the Magnuson Act is subject to the civil and criminal penalty provisions of the Magnuson Act.

COMMENTS: Fishermen should be subsidized like tobacco farmers.

If there is a closure, will fishermen be compensated for lost income?

RESPONSE: The plan has no provisions for compensation of losses. Closure dates and the provision for daytime longlining minimizes, as best the Councils can, the impacts from a closure. Short-term losses due to closures should be more than offset by longer term gains as discussed in the plan. Economic gains from increased value per pound and increased total pounds will result from allowing small fish to grow into the next market category.

COMMENT: The recreational fishery is being eliminated by the swordfish bycatch of billfish.

RESPONSE: The bycatch of the directed swordfish fishery will be monitored by technicians aboard sampled vessels. If a problem exists or arises, this can be addressed by amending the regulations.

COMMENT: On small boats a technician would be a liability.

RESPONSE: Only those vessels capable of safely accommodating a technician will be required to carry an observer/technician aboard their vessel.

COMMENT: All data should be weighted to reflect each area's contribution to total landings.

RESPONSE: The data used to calculate the VSC calendars were estimates of number of small fish caught in each area by month.

COMMENT: A larger percentage of small fish off South Carolina could be a large year class rather than a shift in the size at entry.

RESPONSE: True. However, there are biological and economic benefits from delaying the harvest of small fish regardless of why there are small fish present. Larger fish are worth more in the market.

COMMENT: Management measures are necessary and there should be quick implementation.

RESPONSE: The plan will be submitted to the Secretary in March, 1985. The development of the swordfish plan has taken a long time due to the involvement of 5 Councils but, more importantly, as a result of public comments and data that resulted in significant refinements and modifications.

COMMENT: Smaller fish are found in warmer waters and this should be taken into consideration.

RESPONSE: The areas of concentrations of small fish were considered in adjusting the VSC.

COMMENT: Government officials should take time to talk to the fishermen.

RESPONSE: The Councils appoint advisory panels whose members represent the fishing industry. Also, the Councils have made an effort to talk directly with fishermen and solicit their help in obtaining data. This swordfish plan is the result of extensive input from fishermen and dealers.

COMMENT: Fishermen request that they have a person representing them on the Swordfish Advisory Panel.

RESPONSE: The swordfish advisory panels have individuals representing each of the five Council regions.

COMMENT: The plan was in error in stating that Massachusetts has a law restricting recreational fishermen to one fish per angler per day.

RESPONSE: This comment has been deleted from the final plan.

OPTIMUM YIELD

COMMENT: The OY (harvest producing maximum yield-per-recruit for female swordfish) and measures to achieve it will not prevent overfishing.

RESPONSE: The OY has changed and measures to achieve an optimum number of fish under 50 pounds dressed weight are now part of the plan. Reversing the trend of increasing catches of small fish will prevent overfishing.

FOREIGN FISHERY

COMMENTS: Allow no foreign fishing of swordfish or tuna in U.S. waters.

Restrict or close foreign fishing before restrictions are placed on domestic fishermen.

Give American fishermen priority.

Agree with measures in the Preliminary Fishery Management Plan for Atlantic Billfishes and Sharks.

Do not support a cap on foreign bycatch allotment.

Support declining bycatch quota for foreigners.

RESPONSE: Councils have no authority under the Magnuson Act to manage tunas. However, directed foreign fishing for swordfish is not allowed. Restrictions already exist for the foreign bycatch of swordfish when targeting species not under the Magnuson Act, such as tuna. In addition to the measures already existing in the Preliminary Fishery Management Plan for Atlantic Billfishes and Sharks, the swordfish plan has added a cap of 1 1/2 percent of the previous year's domestic harvest or 1,136 fish in the Atlantic and Caribbean and 400 fish in the Gulf of Mexico, whichever is the lesser amount, on the foreign longline catch. The foreign squid trawl bycatch for vessels under a GIFA is limited to the 1982 ratio of swordfish to target catch in the foreign squid trawls in New England and Mid-Atlantic regions. In addition, equivalent restrictions are placed on foreign fishing in the FCZ that are placed on domestic fishing (e.g., daytime longlining only). These measures are discussed in more detail in the plan.

COMMENTS: Catch-per-unit-of-effort for Japanese tuna vessels has not changed in the past 10 years.

U.S. catches of swordfish have doubled from 1974 to 1980.

Japanese catch does not cause swordfish resources in the North Atlantic to diminish.

Tuna longliners take less than 5 percent of the swordfish in U.S. FCZ.

RESPONSE: The swordfish resource is believed to be fully utilized. Any additional source of swordfish mortality will reduce the domestic catch.

Increased U.S. swordfish landings since 1974 reflect an expansion of the fishery and relaxed mercury restrictions.

COMMENT: Yield-per-recruit analysis is based on many assumptions and is not a reliable estimate of stock size.

RESPONSE: Yield-per-recruit (YPR) analysis is not used in the plan to estimate stock size. YPR analysis and surplus production models are two major approaches for determining yield from a fishery. Neither approach is exempt from relying upon assumptions. YPR analysis is not subject to some of the delays imposed by surplus production models and fulfills the basic management task of monitoring the stock and estimating the relative yield from a fishery with different regulations.

COMMENTS: Regulatory measures in the plan will exclude tuna fishery operations by foreign vessels and are unreasonable and illegal. Japanese fishing vessels have had voluntary regulatory measures on their own operations, but the proposed regulations are unnecessary. Measures to phase out foreign longline fishing in the U.S. FCZ are illegal.

RESPONSE: Measures that were originally considered as ways to accelerate the reduction of swordfish bycatch by foreign vessels have been rejected. Since the 1983 foreign bycatch has been so small, and the voluntary agreement with the Japanese industry not to fish the Gulf of Mexico has been maintained, measures to reduce the bycatch are no longer necessary. The chosen alternatives are less burdensome and adequately assure that the foreign swordfish bycatch does not increase to earlier levels. Foreign fishing management measures are discussed in Section 11.1 of the Plan. The approved measures allow foreign fishing a reasonable opportunity to fish for tuna.

COMMENT: Object to compensatory damages to be paid by foreign vessels.

RESPONSE: 1983 amendments to the PMP for Atlantic Billfishes and Sharks considered charging foreign fishing compensatory damages for killing billfish and swordfish. The amounts considered presumably compensated the U.S. an amount equal to the economic value of the fish killed. This was not implemented. There was controversy over the appropriate economic value for assessing damages. The Councils discussed the measure but then rejected this approach.

COMMENTS: Area restrictions are unnecessary; gear conflicts are almost non-existent.

Time or area extension of current PMP closures or enforcement of unimplemented PMP closure regulations would deprive Japan's longliners of reasonable opportunity to catch tuna as required by the Magnuson Act.

RESPONSE: The Preliminary Fishery Management Plan for Atlantic Billfishes and Sharks (PMP) presently contains regulations restricting foreign longliners north of Cape Lookout in the Atlantic FCZ from June 1 -November 30 to the U.S./Canada boundary. The swordfish plan adds the PMP amendment approved but not implemented, in which no foreign longlines having an incidental catch of swordfish in the Atlantic FCZ out to 100 miles from Key West to Cape Lookout June 1 - September 30 are allowed. This allows foreigners a reasonable opportunity to fish for tuna. The restricted areas are from 100 miles shoreward and are scheduled for only part of the year.

Japan's tuna fishermen have continued with voluntary measures to not fish in the Gulf of Mexico FCZ. Therefore, the Gulf of Mexico area closures have been held in reserve. There are no restrictions on foreign longliners in the Caribbean other than those that are imposed on domestic longliners.

COMMENTS: The proposal to apply the same restrictions to foreign fishermen and domestic fishermen alike is excessive, unwarranted, and unjustified.

A more reasonable cap on the incidental swordfish catch of foreign tuna longliners would be 5 percent to 10 percent of the U.S. catch because almost all conservation programs allow at least a 10 percent bycatch of the species under conservation management.

RESPONSE: The Councils have concluded that domestic fishermen should not be restricted more than foreign fishermen. Therefore, any restriction on domestic fishing necessary to prevent overfishing, will also apply to foreign fishing. This measure will only impact a few foreign vessels during the length of the variable season closure.

The cap established by the Councils far exceeds the current bycatch levels of the foreign fishing and will serve to prevent future increases beyond the level established as a cap.

COMMENT: These alternatives should be present in the FMP:

1) Voluntary measures to reduce the incidental mortality of billfish and swordfish and prevent gear conflicts, 2) imposition of a percentage reduction in incidental catch of swordfish equal to the percentage reduction imposed upon U.S. swordfish fishermen.

RESPONSE: The Councils concluded that voluntary measures to reduce the incidental mortality of swordfish and prevent gear conflicts are not effective except in the Gulf of Mexico. So long as the voluntary agreement continues, no closures will be implemented in the Gulf of Mexico. Foreign fishing will be treated in the same manner as domestic fishing.

COMMENT: If Japanese longliners were forced to fish for their tuna outside of the 200-mile zone, they could keep all swordfish hooked and none would be released alive. This situation would defeat any conservation measure aimed at minimizing incidental mortality of swordfish by excluding foreign tuna longliners from the 200-mile zone.

RESPONSE: The Councils cannot regulate fishing beyond the FCZ and have concluded that managing swordfish within the FCZ will result in positive impacts on the western North Atlantic stock.

II. 1983 COMMENTS

SECTION A AGENCY COMMENTS

SECTION B PUBLIC COMMENTS

SECTION A AGENCY COMMENTS



3

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Washington, D.C. 20230

OFFICE OF THE ADMINISTRATOR

February 25, 1983

Dear Reviewer:

In accordance with provisions of the National Environmental Policy Act of 1969, we enclose for your review our draft environmental impact statement/fishery management plan for the swordfish fishery.

Any written comments or questions you may have should be submitted to the responsible official identified below by April 18, 1983. Also, one copy of your comments should be sent to me in Room 6800, U.S. Department of Commerce, Washington, D.C. 20230.

RESPONSIBLE PERSON

David H.G. Gould, Executive Director
South Atlantic Fishery Management Council
Southpark Bldg., Suite 306
1 Southpark Circle
Charleston, South Carolina 29407
Phone: 803/571-4366

Thank you.

Sincerely,

Thomas E. Sigford for

Joyce M. T. Wood
Chief, Ecology and
Conservation Division

Enclosure





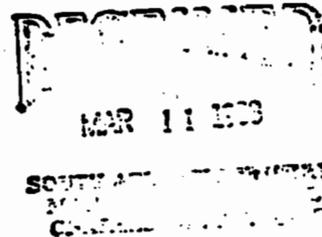
DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1229
GALVESTON, TEXAS 77553

REPLY TO
ATTENTION OF:

March 8, 1983

Environmental Resources
Branch

Mr. David H. G. Gould
Executive Director
South Atlantic Fishery
Management Council
Southpark Building, Suite 306
1 Southpark Circle
Charleston, South Carolina 29407

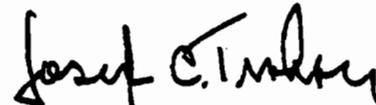


Dear Mr. Gould:

This is in response to your letter dated February 25, 1983, which provided a copy of the draft Environmental Impact Statement for Fishery Management Plan for the Swordfish Fishery for our review and comment.

The management plan will not affect any projects under study by the Corps of Engineers, Galveston District. We have no comments on this document.

Sincerely,


Joseph C. Trahan
Chief, Engineering and
Planning Division



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

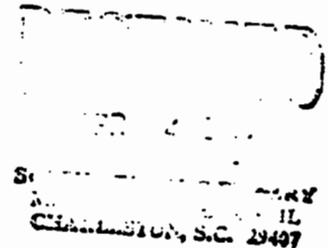
REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

MAR 31 1983

4PM-EA/JM

Mr. David H. G. Gould, Executive Director
South Atlantic Fisheries Management Council
Southpark Building, Suite 306
1 Southpark Circle
Charleston, South Carolina 29407-4699



Dear Mr. Gould:

We have completed our review of the Draft Environmental Impact Statement (DEIS) for the Draft Fishery Management Plan and Regulatory Impact Review for Swordfish.

From the standpoint of EPA's areas of jurisdiction and expertise, we believe that the proposed plan will not cause significant adverse impacts on the environment. Therefore, we have rated the DEIS LO-1, that is we do not believe the proposal will have a significant environmental impact and the DEIS is adequately written.

If we can be of any further assistance, please do not hesitate to contact us.

Sincerely yours,

Sheppard N. Moore
Sheppard N. Moore, Chief
Environmental Review Section
Environmental Assessment Branch

cc: Joyce M. T. Wood
Chief, Ecology and
Conservation Department



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY

SOUTH ATLANTIC DIVISION, CORPS OF ENGINEERS

516 TITLE BUILDING, 28 PRYOR STREET, S.W.

ATLANTA, GEORGIA 30333

April 7, 1983

Environmental Resources Branch

RECEIVED
APR 11 1983
SOUTH ATLANTIC DIVISION
CORPS OF ENGINEERS

Mr. David H. G. Gould, Executive Director
South Atlantic Fishery Management Council
Southpark Building, Suite 306
1 Southpark Circle
Charleston, South Carolina 29407

Dear Mr. Gould:

Comments are attached in response to your recent letter sent to the Office of the Chief of Engineers for review of the draft environmental impact statement/fishery management plan for the swordfish fishery.

We appreciate the opportunity of reviewing this document.

Sincerely yours,

John W. Rushing
for Dan M. Mauldin
Chief, Planning Division

Enclosure

COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT STATEMENT
FISHERY MANAGEMENT PLAN FOR THE SWORDFISH INDUSTRY

Spawning locations need to be identified more specifically in relation to ocean dumping sites in order to determine any possible adverse effects from present or future sites. (Ref. Sec. 8.2.2, page 17 and Sec. 8.1.2.1, page 3). This factor related to dredge disposal should also be discussed in relation to actions for protection of the species.

There appears to be no identified effects on this species from Corps project activities or maintenance of navigational channels.

Enclosure



8
United States Department of the Interior

OFFICE OF ENVIRONMENTAL PROJECT REVIEW

Southeast Region / Suite 1384
Richard B. Russell Federal Building
75 Spring Street, S.W. / Atlanta, Ga. 30303

April 14, 1983

ER-83/305

RECEIVED
APR 18 1983

Mr. David H. G. Gould, Executive Director
South Atlantic Fishery Management Council
Southpark Building, Suite 306
1 Southpark Circle
Charleston, South Carolina 29407

Charleston, S.C. 29407

Dear Mr. Gould:

The Department of the Interior has reviewed the draft Environmental Impact Statement for Swordfish Fishery Management Plan, South Atlantic, as requested in your February 25, 1983 letter and has no comments.

Thank you for the opportunity to review this document.

Sincerely,

James H. Lee
Regional Environmental Officer

cc: Joyce M.T. Wood
NOAA, Washington



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Region
9450 Koger Boulevard
St. Petersburg, FL 33702

May 10, 1983

F/SER21:MEJ

TO: David H. G. Gould, Executive Director
South Atlantic Fishery Management Council

FROM: Paul J. Leach *Paul*
Assistant Regional Director, Fisheries Management Division

SUBJECT: Critical and Substantive Issues on the Swordfish Environmental
Impact Statement/(Draft) Fishery Management Plan/Initial
Regulatory Impact Analysis.

Attached are the National Marine Fisheries Service's critical and substantive issues on the subject documents. Critical issues are those which may affect the approvability of the FMP and substantive issues are those which would strengthen the FMP. All of these issues should be communicated to the New England, Mid-Atlantic, Gulf of Mexico, and Caribbean Fishery Management Councils for consideration in converting the document into final form.

Attachment

cc: F/M11 - Donald J. Leedy, w/attachment
F/M1 - Roland Finch, w/attachment
F/NER - Allen Peterson, w/attachment

Date	5/13/83
Fishery	SWORDFISH
Subject	NMFS INFORMAL REV.
Staff	AUSTIN/WRIGHT
Source	NMFS



10

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Washington, D.C. 20230

F/MI:DL

MAY 9 1985

TO: F/SEE2 = Paul J. Deasch
FROM: F/MI/*[Signature]* Roland Finch
SUBJECT: Issues on the Draft Swordfish Plan

As a result of the issues Meeting on the draft Swordfish Plan and associated documents, we have reviewed your proposed issues letter to the South Atlantic Fishery Management Council. I understand that Mike Juston and Don Leedy have discussed the draft letter and suggested some minor modifications (see attached).

I agree with the letter, as modified. If my staff can be of assistance in responding to the Council's future changes, please contact Joe Clem.

Attachment



SOUTH ATLANTIC COUNCIL - SWORDFISH FMP
CRITICAL AND SUBSTANTIVE ISSUES
MAY 10, 1983

I. CRITICAL ISSUES

(A) Optimum Yield (OY)

Management measures used to achieve OY must be agreed to by all councils in the final FMP. Procedural mechanisms should agree in degree of discretion given to the managing authority, the type of action required (i.e., field orders, regulatory amendment, and/or plan amendment), and the type of measure used (i.e., moving closed seasons).

(B) Executive Order 12291, Paperwork Reduction Act, and Regulatory Flexibility Act - Proposed Management Regime

The proposed management regime consists of the foreign fishing management measures, data collection, and variable seasonal closure. The total costs and reporting burden of this management regime needs to be developed and stated. The incremental benefit, costs, and reporting burden associated with this regime compared with alternative regimes needs to be finished and incorporated into the final FMP/(Draft) Regulatory Impact Review/Initial Regulatory Flexibility Analysis for Compliance with Executive Order 12291, Paperwork Reduction Act, and Regulatory Flexibility Act.

(C) Management Measure #1 - Variable Seasonal Closure (Section 10.1)

The main management measure used to obtain the optimal yield (OY) is the variable seasonal closure. This measure is based on the assumption that effort is proportional to estimated instantaneous fishing mortality as determined by yield per recruit analysis. If growth overfishing of the female by more than 5% is indicated by the yield per recruit analysis, then reduction of the fishing effort through this closure would be the prescribed solution. This measure's effectiveness may be questionable if, during the closure, the fishing fleet concentrates its effort in the open areas, or during the fishing year, the fleet expands, or fishing technology improves, or otherwise previously non-fishing days in the year become active fishing days. Additional factors are the movement of American vessels into the Canadian zone to harvest the swordfish off the Flemish Cap And Tail of the Grand Banks, the alleged transfer of swordfish from Canadian vessels to American vessels in or adjacent to the Canadian zone. These operations may be substantial, although the details may be difficult to obtain. Because of these contingencies, the closure may be trying to catch up with the expanding fishing effort. This may require predicting and implementing a larger number of closed days than indicated in the plan. This potential for exceeding OY is suboptimal and appears inconsistent with National Standard 5, "conservation and management shall take into account and allow for variations among, and contingencies in fisheries..." and National Standard 1, "...achieve on a continuing basis, the OY from the fishery." The Councils should consider setting the trigger for initiating the closure before OY is exceeded, rather than after, and justify selected triggering criteria.

The cost NMFS would incur in enforcing the variable seasonal closure, on a per closure basis if implemented, has been estimated to be \$55,952 with \$30,500 in the Southeast region and \$25,452 in the Northeast region. If the closures were implemented in all five areas, total NMFS costs would be \$142,404. Estimated U. S. Coast Guard

costs for the Southeast region on a per closure basis is \$107,100 or \$321,300 for the three Council areas. Similar U. S. Coast Guard costs would be expected in the Northeast region. These estimates were based on large areas to be closed for sustained periods (i.e., 30 days or more), current costs, at least 300 vessels in the vessel population, a possession or landings law against landing or possessing the swordfish in the closed area during the closed season, and 80 percent dockside, and 20 percent at sea enforcement activities. Enforcement may be less effective without the landing law and the large area closures. The Councils should reiterate the justification for this management measure.

(D) Foreign Fishing Management Measures

The foreign fishing activities in 1983 have changed significantly since 1980 due to the recent ICCAT restrictions on bluefin tuna, the Japanese Voluntary Agreement, and Amendments 2 and 3 to the Preliminary Fishery Management Plan for Atlantic Billfishes and Sharks. The Japanese have not conducted extensive tuna fishing activities with longline gear in the FCZ's associated with the Gulf of Mexico since 1981, the South Atlantic (i.e., below Cape Lookout, N. C.) since 1980, the Caribbean since 1977, and the North Atlantic (i.e., above Cape Lookout, N. C.) since January 18, 1983. According to the U. S. observer data, the Japanese tuna longline incidental catch and kill of swordfish from the above areas decreased from 7,638 and 5,461 in 1980 to 1,024 and 459 in 1982. Currently, no Japanese tuna longline vessels and one Faroese shark longline vessel with no swordfish incidental catch are fishing in the FCZ. The Squid, Butterfish, and Atlantic Mackerel FMP has a limited TALFF in a directed fishery for Loligo squid and no TALFF for a directed fishery for Illex squid, only incidental catches permitted. The potential for an extensive incidental catch of swordfish in the squid trawlers nets has been reduced since 1980. The rationale for the proposed Foreign Fishing Management Measures does not show what problem(s) they are designed to resolve and how their implementation would supplement existing regulations. Finally, the rationale neither defines reasonable opportunity nor assesses whether foreign tuna longliners would have a reasonable opportunity to fish for tuna. Longlining gear has an unavoidable incidental catch of swordfish when used in a directed tuna fishery.

Based on the successful integration of the existing foreign fishing regulations into various fishery management plans in the Northeast, the Councils should consider following the same pattern and implement the existing foreign regulations into the Swordfish FMP by reference, otherwise they will be voided. If the Councils want to add additional foreign fishing measures; then they should be justified and incorporated as framework measures to be implemented through regulatory amendment, field order, or emergency regulations.

(E) Compliance with Coastal Zone Management Act of 1972 (CZMA)

A determination of consistency of the FMP with coastal zone management programs of all States from Texas to Maine, the Commonwealth of Puerto Rico, and the Territorial Government of the Virgin Islands is essential for compliance with the CZMA. Prior to beginning the Secretarial review, the Council should send a copy of the FMP to the coastal zone management program official of each of these States with a consistency determination and request State concurrence. This is the same procedure used with the snapper/grouper FMP.

II. SUBSTANTIVE ISSUES

(A) More Detailed Explanation on Yield per Recruit

Section 8.1.5.7 contains the information on the yield-per-recruit relationships for female and male swordfish. The key information in this analysis depends on the relationship between the instantaneous rate of fishing mortality that maximizes yield per recruit, F_{max} , and fishing mortality, F . If F_{max} is greater than F , no growth overfishing exists. If F is greater than F_{max} , growth overfishing exists. The degree of the overfishing depends on how much F is greater than F_{max} . The catalyst for beginning the process leading to the variable seasonal closure is the yield-per-recruit relationship as expressed by the percentage difference between F and F_{max} . This technique does not show when recruitment overfishing might occur; however, the greater the percentage difference between F and F_{max} , the greater the potential for growth overfishing to develop into recruitment overfishing. This section should explain the above information so that anyone could understand the implications resulting from the yield per recruit analysis.

(B) Inappropriate Rationale for Banning the Use of Gill Nets

The rationale for prohibiting the use of gill nets to take swordfish does not provide a convincing need for this action. This may be a problem with National Standards 4 and 5.

(C) Inappropriate Rationale for Rejecting Limited Entry

Rejected measure 10.7.7 limited entry's rationale for rejection does not present a very convincing case. The rationale for rejection should focus on the lack of need to impose limited entry at this time, inequality between user groups, inability to base an allocation on economics alone, and other reasons. See Section 303(b)(6) of the Magnuson Act.

(D) New Information

The final FMP should be revised in several areas to take into account the best scientific information. We note the following areas:

- 1) The section dealing with the PMP for Atlantic billfishes and sharks does not reflect what is in Amendment 2 and Amendment 3. This needs to be added.
- 2) Table 1 - Domestic reported landings of swordfish for 1982 are now available.
- 3) Section 8.2.1- There is no description of the condition of the habitat in the management area.
- 4) Section 8.4.1.2- Can the Berkeley and Houde description of the commercial fishery be updated for events since 1980?
- 5) Section 8.1.5.3- Can the description of the New England drift gill net fishery be updated for events since 1980?
- 6) Section 8.1.5.4- Can the trends of recreational catch and effort be followed subsequent to 1980?
- 7) Section 8.4.4- The hooking of swordfish (alive and dead) by Japanese longliners can be updated through 1982.

8) The estimates of the incidental swordfish catch by foreign squid trawlers are overestimated. Further, there will be no directed foreign fishery for Illex squid in the current fishing year. The references to foreign incidental catch in the Summary, page vii, are outdated (foreign longline) and factually incorrect (Spanish squid trawl fishery).

9) Section 8.4.5- The statement "The expanding domestic longline fleet is experiencing increasing gear conflicts with Japanese tuna longliners in the Gulf of Mexico and Atlantic waters." and "There are numerous areas along the Atlantic and Gulf coasts where U. S. rod and reel fishermen conflict with Japanese longliners" must be substantiated.

10) Section 8.1.7.1- It appears that there is increasing interdependence on tunas as a directed fishery by domestic longline fishermen with a resulting increasing incidental catch of other billfishes. This trend should be described to the extent that information is available.

11) Section 9.5.1.5- Is the Canadian fishery still operating under a 3,000 mt quota? Did Canada implement its plan to issue licenses to foreign vessels to enter Canadian waters to purchase swordfish? What is the status of the certification program regarding imports of Canadian swordfish into the United States?

12) Section 11.- The statement under Alternative #9 that "It is likely that the TALFF for squid will increase" should be substantiated.

(E) Definition of Terms

1) Domestic annual harvest (DAH) is defined incorrectly as the reported 1980 landings of 8.4 million pounds. DAH is an estimate of the capacity and extent to which U. S. vessels will harvest the optimum yield on an annual basis (e.g., how many metric tons of swordfish will U. S. fishermen harvest during the first year under the FMP.

2) Preliminary Management Plan (PMP). The correct term is "Preliminary Fishery Management Plan." See Section 201 (h) of the Magnuson Act.

3) Territorial Seas is defined incorrectly as "The seas under the jurisdiction of a state." The Submerged Lands Act of 1953, as amended, granted certain rights (e.g., right to control resources in the water within the maritime boundary but only the Federal Government has a territorial sea. Territorial sea should be defined as the "waters subject to the jurisdiction of the United States extending from near low water mark on the shore three geographic miles outward to the open sea." The term "fishery jurisdiction" is preferred when referring to State fishery authority.

(F) Letters of Authorization

The description of the letters of authorization is similar to a regional fisheries permit which is now under development along the Atlantic and Gulf coasts. By making it a Federal Fisheries Permit, the Southeast Region could incorporate it into an existing system for coral permits and use an OMB approved form. The Councils should determine whether the existing system would be appropriate for swordfish. Northeast fishermen are required to obtain a permit to enter a regulated fishery which can accommodate swordfish. Some fishermen could be required to have both -- a letter of authorization and a permit -- an unwarranted burden.

(G) New Yield Per Recruit Information

Zweifle and Slater (1982) conducted an analysis of the data used to estimate the yield per recruit analysis in Berkley and Houde (1981) and arrived at a different conclusion using a different estimating procedure. The conclusion was that the female swordfish were not reaching growth overfishing status in 1980. This analysis should be considered in the FMP and Source document and rejected if it is found to be unsupported. The reasons for rejecting the Zweifle and Slater conclusion and accepting the Berkley and Houde conclusion should be articulated.

(H) Questionable Need for 20 Percent Sample in the Mid-Atlantic Council Area

The rationale for the level of sampling in the Mid Atlantic Council area does not provide a convincing need for this information. It appears to be inconsistent with the Regulatory Flexibility Act, Paperwork Reduction Act, Executive Order 12291, and National Standard 7.

(I) Unclear Objectives

The objectives are not clearly stated. The objectives should outline the intended operations for the fishery and provide the basis for responsive actions when anticipated actions occur. Phrases like "economic, social, and biological integrity of the swordfish fishery" are unclear and difficult to relate to a specific management measure and problem. Based on the Council's proposed management measures, the implied intent is to monitor and to resolve gear and user group conflict within the swordfish fishery. By making these changes, the Councils can clearly state what the objectives mean and propose solutions to the problems requiring management actions.

(K) Justification for use of "field order" authority

The statement that "Considerable scientific judgment will be required to predict the number of closed days that will be required in the coming year to stabilize fishing mortality . . ." indicates that the regulatory amendment, rather than field order procedure, is appropriate.

The statement that the specification of the date the original closure will begin or end "will allow the original closures to be implemented by field order" is unclear. The justification for a "field order" procedure is the analysis of the ecological, social, and economic impacts likely to occur over the range of alternative closures. The draft FMP provides no such an analysis but indicates that the timing can have a very different economic and social impact.

The Councils are responsible for preparing the basic management strategy for swordfish management, including the basis for actions by "field order"; however, the Councils do not "submit a field order." If there are uncertainties that necessitate preparation of an RIR and public hearings, there is no basis for a "field order."

SECTION B PUBLIC COMMENTS



SOUTHEASTERN FISHERIES ASSOCIATION, INC.

ALABAMA • FLORIDA • GEORGIA • LOUISIANA • MISSISSIPPI • NORTH CAROLINA • SOUTH CAROLINA • TEXAS

312 EAST GEORGIA STREET
 EXECUTIVE OFFICES: ~~MEMPHIS, TENNESSEE~~ • (904) 224-0612 • TALLAHASSEE, FLORIDA 32301
 ROBERT P. JONES - RES. PHONE 388-7628 GEORGE T. PATRENOS, JR. - RES. PHONE 386-0852

RECEIVED

MAR 17 1983

SOUTH ATLANTIC FISHERY
 MANAGEMENT COUNCIL
 CHARLESTON, S.C. 29407

March 14, 1983

Mr. David Gould, Executive Director
 South Atlantic Fishery Management Council
 1 Southpark Circle
 Charleston, S. C. 29407-4699

Dear David:

The Southeastern Fisheries Association would like to comment on the proposed management measures for the Swordfish FMP.

We cannot support the proposed prohibition of gill-nets in the New England and Mid-Atlantic Regions. We might have a fisherman who wanted to use a gill-net in the FCZ to catch some swordfish and we find no rationale for discriminating against a net in favor of a harpoon or a series of hooks in the longline operation. We feel the prohibition of gill-nets violates several national standards and would seriously consider appropriate legal action if gill-nets are prohibited without absolute justification. During my exposure to the development of the FMP as a member of the management committee for six years, I never saw any evidence that would justify the prohibition of gill-nets. The main thrust I saw came from Chris Weld to outlaw gill-nets, and his statements on the administrative record would probably not convince an impartial reviewer that the nets are any more harmful than hooks and harpoons.

We also do not support special consideration for harpooners. If they deserve a longer period of time to operate than other sectors, then give them some more time based on sound reasoning and data. We do not believe that a plan should be set up and then some sectors be exempt. If they have special needs, address those needs and come up with something fair and equitable.

We also doubt that 20% of all recreation and commercial boats will be sampled and wonder why this requirement is there. Is the Mid-Atlantic so different from all the other regions that they require a certain percentage? Why 20%, why not 10% or 61%?

Please see that our objections are made part of the plan and that they are addressed by the appropriate officials. We would greatly like to have an answer from the Council on our objections and would appreciate the results of the

Mr. David Gould
March 14, 1983
Page 2

discussions pertaining to the national standards that are used to prohibit the gill-nets.

Sincerely yours,

A handwritten signature in black ink, appearing to be 'R. P. Jones', written over a horizontal line.

Robert P. Jones
Executive Director
eds

cc: SFA Officers, Directors and Past Presidents
Wayne Swingle, Roger Anderson, Eldon Greenberg

49
MAR 21 1983
SOUTH ATLANTIC FISHERY
MANAGEMENT COUNCIL
CHARLESTON, S. C. 29407

Gerald M. Kapp
3032 Lesley Dr.
Morgan City, La. 70380

March 14, 1983

Mr. David H. G. Gould
Executive Director
South Atlantic Fishery Management Council
1 Southpark Circle, Suite 306
Charleston, S. C. 29407

Dear Mr. Gould:

The closure of the swordfish season during the summer months would completely destroy any chances of a sportfisherman catching one. In Louisiana, the only months that sportfishermen seek the swordfish are June through October.

I feel very strongly that some type management program must be initiated. During 1980, sportfishermen caught 19 fish. The commercial longliner catch was 1,726,000#. During 1981, only "2" fish were caught in Louisiana and during 1982, "0" fish were caught in Louisiana by sportfishermen.

The following facts should prove that the sportfishermen in Louisiana cannot harm the swordfish stock in the Gulf of Mexico.

FACT: My boat leads the state in the number of swordfish caught on a single trip, (3) three.

FACT: Only three boats in the state have caught (2) two swordfish on a single trip.

FACT: I personally know most of the sportfishermen who fish and have caught swordfish and know for certain that not one ounce of swordfish has been sold.

During the 1982 season, to my knowledge, not one swordfish was caught in this state. I personally fished over 60 hours and did not catch one. This I attribute to overfishing during the most productive winter months.

Why should we, the sportfishermen, be penalized for the actions of the commercial fishermen?

The only logical and fair season closure should be during the winter months.

Respectfully,



Gerald M. Kapp

3/17/83

Memo from

L. H. FOSTER

MR. GREGORY MCINTOSH JR.
 SAF Management Council
 Charleston S.C. 29407

DEAR SIR:

It was a pleasure to speak briefly with you after the formal aspect of the hearing on the swordfish fishery. As I explained I came to the meeting with the understanding that other fisheries could be discussed. As a small boat sport fisherman I am deeply concerned over the depletion of the King & Spanish Mackerel stocks the past five years by big & small net fishermen with their scatter phrases & other sophisticated fish finder gear. I was really shocked & surprised over the SAFMC decision to allow

Memo from

Fr. CONT.

L. H. FOSTER

THE ISSUE PERMITS TO BOATS WITH PURSE SEINE NETS TO HARVEST A LARGE QUOTA OF KING MACKEREL. I HAVE HEARD FROM GOOD AUTHORITY THAT THEY HAVE DONE A GOOD JOB ON THE REEFS N.E. OF FT PIERCE THIS PAST WEEK OR SO. I HAVE HAD MANY CONVERSATIONS WITH OTHER FISHERMEN BOTH BY RADIO ON THEIR BOATS & ON SHORE AT KINGS^{REEF} SINCE THE EXCEPTION RATHER THAN THE RULE TO BE CAUGHT.

I URGE YOU AT YOUR NEXT COUNCIL MEETING TO QUICKLY AMEND THE KING MACKEREL PLAN TO WITHDRAW THE PURSE-SEINE PERMITS & TAKE ACTIONS TO SAVE THIS FISHERY - EVEN IF IT MEANS QUOTAS FOR ALL TYPES OF FISHERMEN.

SINCERELY

L. H. (Lou) FOSTER

1057 WILLETTS IS. SIMPSON CREEK FLOR 33457

Landry, Gary & Guidry
a medical corporation

RICHARD M. LANDRY, M.D.
HAND SURGERY

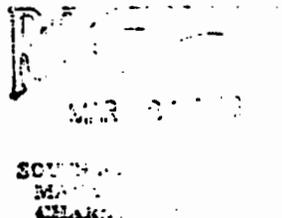
DEXTER A. GARY, M.D.
SPORTS MEDICINE

GARY T. GUIDRY, M.D.
SCOLIOSIS

MICHAEL P. ALLEMAND, R.T.
BUSINESS MANAGER

LOCATED AT:
HOUMA ORTHOPEDIC CLINIC
1001 SCHOOL STREET
HOUMA, LOUISIANA 70360
PHONE: 868-1540

March 17, 1983



Mr. David H.G. Gould, Executive Director
South Atlantic Fishery Management Council
1 Southpark Circle, Suite 306
Charleston, South Carolina 29407

Re: Swordfish Fishery Management Plan for the Gulf of Mexico

Dear Mr. Gould:

This is a written comment on the Swordfish Fishery Management Plan for the Gulf of Mexico as requested in your notice published in the Federal Register on March 2, 1983. This is being written because I will not be able to attend the public hearings.

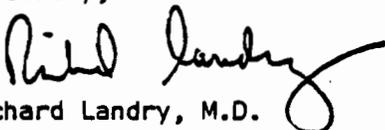
Please be advised that I do participate in the recreational fishery for swordfish in the Gulf of Mexico offshore Louisiana. I am unable to fish for swordfish anytime except during the months of June and July.

Facilities for recreational angling are not available during the winter months. The weather, of course, is a deterrent to fishing during the winter months.

I am not aware of any swordfish caught by recreational fishermen that have been sold.

Please do not allow a system to be developed that could close the season during the only time of year that I can fish for swordfish.

Sincerely,


Richard Landry, M.D.

RL/ph

cc: Wayne Swingle
Gulf of Mexico Fishery Management Council
5401 W. Kenney Blvd., Suite 881
Tampa, Florida 33609

cc: Maumus F. Claverie, Jr.
830 Union Street
Third Floor
New Orleans, Louisiana 70112

November 2, 1982

The Editor, National Fisherman
21 Elm Street
Camden, Maine 04843

Dear Sir,

It has taken four issues of the National Fisherman for me to get stirred up enough to write my comments on their contents. As a subscriber I go back to ~~ME~~ the years after WWII when I extracted Vitamin A out of pollack livers in Westport, Maine. Since I have been involved in just about all phases of marine science, sport fishing, and the business and for over sixty years, I feel some degree of competence in asserting my comments.

Your August story concerns the Raffield operation in St. Joe, Florida. Your September ~~xxxx~~ articles concern the roller-rigs in the Chesapeake and the story about the line, Kingfishermen in Fort Pierce, Florida. Your October articles concern the continuation of the roller-rig affair in the Chesapeake and in Florida, plus your feature story about the Merritt family operation in South Florida. This is capped by your narrowly conceived ~~xxxxxx~~ editorial in the November issue.

All these articles really carry the same theme: what will be the future of fishing stocks in our waters in the years to come? Fifteen years ago, when Fish Protein Concentrate appeared to be the answer to many of the nutritional problems in this country as well as worldwide hunger and related diseases, the sources of protein in the sea seemed endless. Today, if some one asked me where they could set-up a new FPC installation stateside to handle 100 tons/day for 200 days yearly...over and above what is in operation today, I would have no positive answer for him.

What has happened to the fish stocks during this period, both edible and so-called trash variety? First of all, the Russians, Japanese and some of the other high-seas fishing countries have put a vacuum cleaner to the pelagic and territorial species worldwide. Their quest for fish finally put them into the highly prolific fish populations close to our shores and the result has been quite obvious in its finality. Then we got the two-hundred-mile limit over the protestations of the west coast tuna fishermen who got a good return on their investment after the good old USA ransomed their boats from confiscation in foreign territorial waters. Even then the State Department, for reasons not quite obvious, allowed the Japanese to fish to within these limits so that now we are facing almost a complete loss of the commercial species within our lifetime, if something is done quickly to cur this excess. The positive side of the two-hundred mile limit, as it has applied to the New England groundfishery should be enough encouragement to make a point.

You might ask, "What do all these articles have to do with each other?". Plenty....The August article about the Raffield success story has tremendous undertones. Many years ago two FPC plants were planned for the north

RIVERDALE PRODUCTS COMPANY

-2-

25

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The one in New Bedford was in operation for several years until the supply of trashfish ran out. The one at Orient Point never got off the ground after completion for the same reason. Last winter several purse seiners were allowed to operate in the Ft. Pierce area. After cleaning out most of the jacks and other so-called trash fish which, like the Raffield fish, were destined for foreign shores, there were not enough remaining to make this operation economically feasible...and so they left for other grounds.

The roller-rig operation is a long story in itself. As you well know, because of the entry of roller-netting and spotter planes into the spanish and king mackerel fisheries in Florida, the numbers have slowed to just a trickle. The west coast of the state and most of the north side have been cleaned out, and the Keys and now the northern East Coast are bearing the brunt of it and are headed in the same direction....and we are told to expect many new purse seiners this coming winter. The catch figures speak for themselves. As far as the Chesapeake is concerned, it took a lot of guts to decide against the rollers in the face of the tremendous political clout of commercial interests, something we have yet to see in Florida where commercial netting interests seem to own the legislature. It is interesting to note how few of the roller rigs are actually owned by the people who fish them...and the crews. So many are tax write-offs and are owned and managed by people who are far from the scene of the catch, in an office not remotely connected with the fishing industry. Some are even a sham or a front for the ever-growing, illegal transport of drugs, as we have heard over and over again.

As far as the story about the Merritt's family operation is concerned, that is still another phase of the same thing. Two summers ago the research biologists who have worked on swordfish since the Cubans first introduced long-lining to our shores came to the conclusion that the fishery had peaked in 1980/81 and was on its way down... And still larger boats were being built and longer trips planned. Today they are almost the only survivors in a wonderfully successful fishery that supported hundreds of over night, small-boat fishermen up and down the East Coast. Today it is a question of how long even the larger vessels, who now stray as far as East of the Bahamas, can operate in black ink. This summer as they did last, many of the boats went long-lining tilefish...and even deepwater groupers and snappers, a fishery that many of the inshore line fisherman and speareers had decimate years before. I am sure you are aware of long it takes to grow a mature swordfish or tilefish. How long do you think these fisheries will be with us, at this rate? Just look at how long it took tilefish to return after the die-off in the early twentieth century. Not too many weeks ago a new and very modern trawler built for a foreign country made a test run in the Cape Canaveral area using Japanese size long-line. It was a huge success... over 15,000 pounds of tilefish in one set.... How many such sets can this fishery stand? Now Merritt is going after dolphin, wahoo and other pelagic species...What next and for how long?

Your editorial was a nice try but hardly hit the mark. Next time try on a broader basis, and try to have your reporter in the Florida area, Mr. Olesco do some objective reporting, for a change, and not from the point of view

of one segment of your readers.....Take it from one who was cured of stuttering by fishing at an early age, was a pioneer in early big-game tuna fishing in the thirties, who mated through high-school and chartered through college, who commercially fished all during this period, who was one of the early graduate marine biologists, who was a pioneer in the manufacture of Vitamin A from fish livers and the processing of Fish Protein Concentrate and fishmeal, who fished the jetties of Long Island and Jersey as a kid.....and who remembers Alan Merritt Sr., and his son Buddyas two of great pioneer charter fishermen from Woodcleft Canal in Freeport and the Caliban dock in Ft. Lauderdale when that was the only was in town you could get a Golstream charter.

There is one single element that controls and corrects all the situations and stories above...and that isGREED.....and until everyone in fishing is ready to forego some of the attributes and dividends of greed, will there be anything left for our children and yours.

Most sincerely,

J. S. A. Blum
2314 Oak Drive
Ft. Pierce, FL. 33450

National Fisherman

MAIN OFFICE

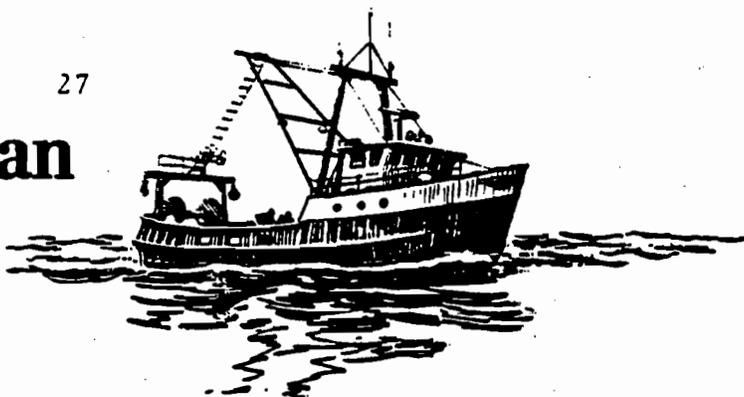
21 Elm Street, Camden, Maine 04843-0639

Telephone: (207) 236-4342

WEST COAST OFFICE

4215 21st Avenue West, Seattle, Washington 98199

Telephone: (206) 283-1150



*GRANT
DONALDSON*

November 19, 1982

Mr. J.S.A. Blum
2314 Oak Drive
Ft. Pierce, FL 33450

Dear Mr. Blum:

Thanks for taking the time to write us. I'm afraid I disagree with most of the points you make, especially concerning the political power of commercial fishermen in Florida. The recent round of regional fishery council appointments in which both Bob Jones and Jerry Sanson lost their seats should tell you something. But then disagreement is what horse races are all about.

Your letter is far too long to run on the Mail Buoy page. If you'd care to pare it down it would stand a lot better chance of being published. We have far more letters than space, so they compete with each other monthly for room.

In your letter you give some personal history, but you don't say whether your involvement in fishing now is totally in the recreational field. Establishing that connection would help our readers in their evaluation of your letter. Can you provide this information?

Again, thanks for your interest in "National Fisherman."

Best regards,

James W. Fullilove
Editor

JWF/vs

RIVERDALE PRODUCTS COMPANY

~~499 W. FRONTAGE RD. BOX 1000 NORTHFIELD, ILL. 60063 AREA 312 446-6223~~

natural resource, there will be nothing left for those we leave behind.

The problems in commercial and sport fishing are not unique. The entire world is plagued by the efforts of the "me" generation and its material demands...and a lack of real feeling for the other guy and the ability to live with one's fellow men.

Most sincerely.....don't bother to print any of my letters. Just recognize that there is another side to this issue that any responsible publication must present to profess fairness and integrity.

Kindest regards,

J. S. A. Blum
2314 Oak Drive
St. Pierre, Fla. 32450

XX

November 17, 1932

Honorable Malcolm Baldrige
U. S. Secretary of Commerce
Washington, D. C. 20235

Re: KING MACKEREL PLAN

Dear Secretary Baldrige,

As a retired marine biologist who has been involved with many phases of commercial and sport fishing during the past fifty years, I believe I can speak with an objective and unemotional point of view.

Since the advent of roller-ry gillnet boats about five years ago in Florida, catch records have indicated a consistent decline in King Mackerel stocks along with Spanish Mackerel. The fishing process is too efficient and in fact has kept the spawning of the species from keeping up with the catching. The catch records for the past five or six years will bear me out. In the last two or three years the addition of spotter planes has made the fishing process more deadly.

Just recently some purse seiners were allowed to fish for bait and trash fish in Florida waters and the results were even more deadly.

If you propose allowing all these netters to operate freely with or without the State of Florida's permission, it would eradicate the above species and many others in short order....and would be entirely counter-productive to what you are trying to accomplish and to the future of commercial fishing in this area.

I would urge your office to ban all gill, drift or purse seining from these waters, or at least for a specified number of years as a moratorium, so that we can determine in black and white what the effects will be, and by all means reject the current mackerel plan and send it back to the councils.

Most sincerely,

J. S. A. Elm-
2314 Oak Drive
St. Pierre, Fla. 33450



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785-4200

March 22, 1983

David H.G. Gould, Executive Director
 South Atlantic Fishery Management Council
 Southpark Building, Suite 306
 1 Southpark Circle
 Charleston, South Carolina 29407

RECEIVED
 MAR 24 1983

SOUTH ATLANTIC FISHERY
 MANAGEMENT COUNCIL
 CHARLESTON, SOUTH CAROLINA

Dear Mr. Gould:

I felt it would be rather a futile effort to go to the local meeting held in Pompano Beach on March 16th and discuss the intellectual problems contained in the report as it would be overwhelmingly dominated by fisherman and most likely, which turned out to be true, fisherman who had a good dose of alcohol before attending the meeting. From reports, I learned that the meeting became a little wild with the violence of emotion and language. I feel a problem of this nature should be attacked or perhaps analyzed on a more rational basis.

To give you a part of my background, I was a world fisherman. Also, I am associated with Triple M Seafood and Equipment Distributors, Inc., a large company doing business with the boats and we also own a fleet of boats that predominantly fish for swordfish.

This report very possibly would not be in a precise, consecutive order, as with over 70 pages I have not had time to make a comprehensive analysis, but I have made notes on the margins of the sheets as I went along.

Several glaring things seem to come to the surface rather immediately. Your indication that approximately eight million pounds of swordfish are landed yearly and then you say the foreign catch is incidental, however, with approximately a million pounds of fish caught, that becomes 12½% of what the American boats caught. That, to me, is not incidental and if you are looking for a 5% reduction, or a 10% reduction, in the fishing, or mortality, then I believe the first place to start would be with the foreign boats and not tell an American that he has to be deprived of his earnings because the foreign boats are taking the fish.

Furthermore, you continue to say that there is no way you can control the catch ratio between male and female, and at an $F = .17$ on the male, that is a maximum tolerable, however, you do say in the report that you are making an analysis in the southern waters and find that 1 female versus 1.7 males are caught. You also make reference to the fact that the harpooning is a selective fishery in which they are taking the larger fish, the ratio of which is 3 to 1 female, and consequently you are ignoring the simple fact that there is a way of controlling the death rate on the female by your own report. If you take an analysis of the pounds caught, you will find that the same bound age of females are caught in the Boston region than are caught throughout the rest of the entire United States (the other four counsels). The same analysis is valid if they are 1981 assumptions as well. Consequently, it seems to me there would be a way to control the females that

2600 N.E. 5th AVENUE, POMPANO BEACH, FLORIDA 33064

David H.G. Gould
 March 22, 1983
 Page 2

are killed when you consider the age of the female killed in the Boston area is about 4.7 years and that would be the largest reproducer of its species, and the fact that you know the harpooning is selective. There appears to be a very simple way of being able to control some of the overkill. You further make reference that you believe that the harpooner should be favored and not restricted from his season. I do not quite understand how you can select the harpooner and put him in an elevated, non-touchable class when he is the one that is killing off, with impunity and knowledge, the larger female fish.

You try to make reference that the larger fish are the most preferable and they command a bigger price. You do not take into consideration that those fish are caught in the summer time and that although they appear to command the larger price, they also inundate the market and in essence suppress the price because the winter time price is higher.

You make reference in the report that for five years, from '66 to '71, the Japanese caught approximately four million pounds per year and yet today you estimate they are catching under a million pounds. What has changed other than perhaps the restriction on tuna fishing? If that is true, then it is very interesting that the Japanese are allowed to catch about 85% or so of the bluefin tuna allowed to be caught in coastal waters around United States, while United States fishermen are only allowed about 15%. At the same time, the Japanese are catching about 12% of the swordfish and, sinfully so, they are a by-product and from my understanding not even brought aboard, so they are slaughtered rather than caught. The American fisherman in his own water is restricted while the foreign fishermen in our waters (and you will say they are outside the 200 mile zone) are not disturbed. I will then have to ask the very simple question - if our fishermen were to fish outside U.S. territorial waters, would they be allowed to catch whatever they want, even when the season might be closed?

Throughout the report you make reference between whole fish, dressed fish, headless, tailless, and gutless, and it is very confusing, specifically on page 8. You show a whole weight and the relationship between that and the dressed weight is roughly 75%. In other places you show other figures. The fact of the matter is that there is between 20% and 25% waste between a headless, tailless, and gutted fish and what I would determine to be a dressed fish or cut into filets, all boned out. Somewhere along the way the relevant ratios do not correlate.

The graph on page 13 seems to indicate that $F_{.17}$ for males is indicative of $F_{.19}$ for females and the F_{max} at .88 for males actually shows a decrease in females to .18. From everything that I can comprehend, and I may be repetitive, the pressure on females can be greatly reduced by the reduction in harpooning and longlining in the Boston area, where it is emphasized that the fish are selective and large, yet you indicate one of your thoughts being to isolate out the harpooners and allow them to do as they please, which is only a handful of boats, and tell all the rest of the boats they have to be suppressed in their fishing. I do not comprehend this logic other than politics. Unlike humans, it appears that fish have more eggs as they mature. I do not know at what point of a bell curve, or whatever shape curve it might be, that the downward decline starts. From my experience in fishing, the larger the fish, the larger the roe section of the fish. On a black marlin some of the roe weigh in excess of 100 pounds when the fish is over 1,000 pounds. The small fish show little roe weight. Again, pointing to the fact that the mature female will give a far greater reproduction, exposure, and ratio than a series of

David H.G. Gould
 March 22, 1983
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small females, we get back to the point that the large female kill is controllable, while the longline kill in the South Atlantic and the Gulf is not controllable. Even the longline and gill net kill in the northeast zone shows predominance of large fish, so the fact that harpooning brings large fish is true but it is not the only answer. The fisheries in the northeast are the producer of the large fish ratio over small fish. Inasmuch as those boats are large boats and very mobile for any kind of sea, they would be least hurt and it would be most productive to the fishery to stay off that kill. Late September/October the boats come in with 80,000 to 90,000 pounds of fish and totally suppress the market to the point they are sold at ridiculously low prices to the frozen packers. From an economic standpoint, and dollar yield to the fishery, this does not make good sense. You knowingly admit (and I continue to be repetitive for emphasis) that the large female is caught in the northeast, however, you are greatly misguided by the value of that fish. Obviously somebody is telling you something that does not add up.

Putting the two factors together, it appears to be intuitively obvious that value of the fish is greatly reduced by overproduction at one time with huge boat loads coming in and that the females are being overkilled, particularly those females capable of far superior reproduction than the small female, and yet you consider putting that fishery in a protected class. It appears to me that the reduction of fishing in that area alone will give you the balance necessary on females, would in essence keep the price at an economic level for all fishermen in general, and still give those boats the opportunity to fish down in southern waters over the winter. Perhaps it is so intuitively obvious that I am missing something, or it is just too simple, or the politics behind it are too complex for me to understand that just a handful of boats are able to steal this entire fishery.

On page 23 you make an assumption that is totally ridiculous, other than being fed, perhaps by the I.G.F.A., a bunch of garbage. You indicate that as the stock became exploited by commercial longlines, catch rates dropped in recreational fishery. Both statements are true, but they are not connected to each other. As I said earlier, I was a top notch rod and reel fisherman. There is nothing more boring than sitting out in the middle of the ocean at night waiting for a strike, jump in the chair and reel like a brainless mule. There is no fun in it. You don't see the fish jumping, you don't get the excitement of it running across the water, and it is an absolutely nothing sport. I will be glad to defend that position with anyone on the I.G.F.A. I know from where I come. I tried it just for the sake of saying that I caught a swordfish. You have no concept of whether you have a shark, a swordfish, or a marlin and you get no excitement, no joy, or no fun out of it, other than to say you caught a swordfish. I did it and stopped fishing for them. Inasmuch as you can't see the line, or occasionally if you have a full moon you might be able to see the silhouette of the fish, but by looking at the angle of the line you can't determine whether you have a shark or a swordfish because both fish are capable of dogging it and staying down, both fish are capable of coming towards the surface, and the maco is a jumper the same as a swordfish would be a jumper.

On page 25 you talk about recreational gear. I must say to you that nobody is going to properly set a 12 or 14.0 hook with 50 pound of test line. That is one of the silliest things I have ever heard in my life. I have done a lot of tuna fishing and we used a 9 or a 10.0 hook for the huge tuna. I have done marlin fishing in the 1,000 pound class and out in Australia we used 80 to 130 pound line and most of the time the 11, the 12, and occasionally the 14. There are captains who like to use the 16, 18, and the 20, but that too is rather silly. Whoever is feeding you with information that they are using 12.0 to

David H.G. Gould
 March 22, 1983
 Page 4

14.0 with 50 to 80 pound line doesn't know very much about recreational fishing.

On page 27 you indicate harpoon fish command a larger price than longline and that harpoon fish are larger. If we are talking relative to the same time of the year, the harpoon fish is worth about 10¢ to 20¢ more than the longline fish, except where you have a longliner that knows how to handle his fish and he can get about the same price for his fish as a harpoon, however, you are missing the fact that if you look at the catches coming in Boston, you are not investigating the fact that these boats are also longlining instead of harpooning. Some of them are longlining and harpooning, some of them are longlining, gilling, and harpooning, according to the weather. If you look at the catch you will find that it is basically a large fish, however, again the comparison that the harpoon fish is more valuable than the longline fish, you are talking that at a given point in time, July, August, September, October, all fish are cheap compared to the price in the winter months you will find that the harpoon fish don't come near the value of the winter fish. That in itself should tell you a story that it isn't necessary economically, and it certainly isn't reasonable for the mortality rate of the female to stress the harpoon fishing as an exclusion to the general fishing of swordfish.

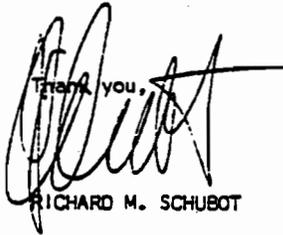
On page 29 you show a chart and the value of fish. There is no relevance between your chart and what the value of fish are today, either by size or by absolute value.

On page 34 you indicate there is not sufficient information to close fishing areas based on size and sex. That is so contradictory to the rest of your report. I do not understand how you can make that statement. Then you say that if it were possible, only small gains and landings by weight would be at the expense of eliminating fishing opportunities. The gains would be tremendous, not small. It becomes more apparent that this report is tainted by a lobbying effect from the northeast. I was under the assumption this was a pure investigation.

As I read this report it becomes more apparent that there appears to be a need to slow up the fishing, but no desire to do it in a manner which your data leads you to. It appears somewhere along the way you have not done simple research to find out the size of the loads coming into Boston, the flooding of the market, the reduction of the value, and you are paying no attention to what you report, that the female is predominantly caught and that the female is a very heavy fish that is caught in the northeast, and that the female is necessary to continue the propagation of the species. You continue to say there is no way to monitor or control the catch and yet you tell us you know the catch ratio in Boston, you know the catch ratio in the rest of the United States, and the female catch rate is 5 times greater in the northeast than it is in the rest of the fishing waters of the United States. You go along with complex, complicated calculus formulas, ratics and everything else to substantiate your position of wanting to close down the fisheries around the United States. You indicate that the northern boats are mobile and come to the south and then you turn around and say we will save harmless the harpoon fishermen. Two and two is adding tilt.

I can continue on but I think this is sufficient for openers. I would appreciate hearing from everyone and anyone that wishes to give me an answer.

David H.G. Gould
March 22, 1983
Page 5


Thank you,
RICHARD M. SCHUBOT

RMS/cml

cc Joyce M.T. Wood
Chief, Ecology and Conservation Division
United States Department of Commerce
Washington, D.C.

Jack Brawner
Director, Southeast Region
9450 Koger Building
St. Petersburg, Florida 33702

Frank Lawlor

2628 S.E. 21st St.
Ft. Lauderdale, Fl 33316
March 25, 1983

David H. G. Gould
Southpark Bldg., Suite 306
1 Southpark Circle
Charleston, S.C. 29407

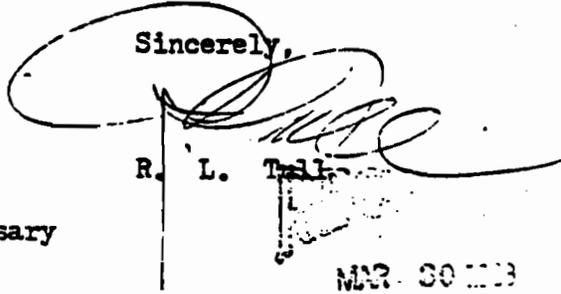
for not on table.

Dear Mr. Gould:

How about some input on swordfishing from an individual buyer? I know that the price is rising, and I understand that. At one store in Pompano Beach right at the dock, I observe more and more swordfishing boats (commercial). I know that the traffic is increasing up and down the coast.

It seems to me that containing the "traffic", i.e., restricting entry, is a more effective and "humane" approach to preventing overfishing. Have the fishery councils considered licensing and actually limiting the number of vessels at sea?

Sincerely,



R. L. Taylor

No reply necessary

MAR 30 1983

SOUTH
MAR
CHARLESTON



37 Continental Shelf Associates, Inc.

P. O. BOX 3809

TEQUESTA, FLORIDA 33458

305/746-7946

"Applied Marine Science and Technology"

25 March 1983

RECEIVED

MAR 29 1983

Attn: David H. G. Gould
South Atlantic Fishery Management Council
1 Southpark Circle, Suite 306
Charleston, S.C. 29407

SOUTH ATLANTIC
FISHERY MANAGEMENT
COUNCIL

Dear Mr. Gould:

After reviewing the Draft Fishery Management Plan, Regulatory Impact Review, and Draft EIS for swordfish, I am convinced that the Council has once again prepared a very useful, high quality document. This letter serves to express my opinion concerning Regional Management Measure #3: Exemption of Recreational Rod and Reel Fishery from the Variable Season Closure. I believe that the second alternative, to exclude the recreational rod and reel fishery from the variable season closure, is the proper plan to implement. As stated in the document, the catch by recreational fishermen using rod and reel is very small when compared to the catch landed by other commercial gear. My personal experience and knowledge of the fisheries occurring along the U.S. Atlantic coast leads me to agree with this statement.

The document also concludes that "including or excluding rod and reel from the variable season closure, if it does not reduce the enforceability of the closure on other gear, will not seriously alter the ability of the variable season closure to achieve OY (optimum yield)." Due to the very small number of swordfish landed by recreational fishermen using rod and reel, I believe that this conclusion is also true.

Mr. David Gould

-2-

25 March 1983

To facilitate dockside enforcement of the closure without limiting the activities of recreational rod and reel fishermen, I suggest that rod and reel landings be excluded from the closure, however, any vessels landing swordfish during a closed period must use only rod and reel equipment and not be allowed to carry any other types of fishing gear onboard. This measure would simplify enforcement without the need to include recreational rod and reel landings in the variable season closure.

Thank you for providing me with the opportunity to respond to your plan and I hope that my suggestion will be given serious consideration.

Sincerely,

Richard A. Shaul, Jr.

Richard A. Shaul, Jr.
Fisheries Biologist

cc: Joyce M. T. Wood

RAS/mjw

COMMENTS OF THE
JAPAN TUNA ASSOCIATION
ON THE PROPOSED
SWORDFISH FMP

Presented
March 29, 1983
at the
Ocean City, Md.
Public Hearing

I am Alan Macnow of Tele-Press Associates in New York, representing the Japan Tuna Association. I am here to present comments on the proposed Swordfish Management Plan for the Atlantic, Gulf and Caribbean.

Japan's tuna industry has had a long and amicable relationship with the Atlantic and Gulf of Mexico Fishery Management Councils. They have been highly responsive to every concern of the Councils and American fishermen. Voluntarily, the Japanese tuna industry reduced and then stopped their catch of bluefin tuna in the Gulf, reduced their incidental catches of billfish in both the Gulf and Atlantic through high density avoidance measures, and instituted a host of other measures to

COMMENTSPage -2-

improve communications with U.S. fishermen and avoid gear conflicts.

It is very distressing to find that, despite this long record of voluntary cooperation and compliance, attempts are being made in this proposed swordfish management plan to force Japanese tuna longliners out of the 200-mile zone through regulations which will greatly impair their ability to catch tuna.

We appreciate the efforts made by the Regional Councils to develop a fishery management plan for swordfish. At the time the Councils decided to develop this plan, there appeared to have been a reduction in U.S. swordfish landings and some drop in the mean size of swordfish landed in some regions. It appeared as if there would be major problems in the future as more and more people entered the fishery.

As a spokesman for a foreign fishing industry, it is hardly my place to criticize the measures chosen by the Regional Councils to alleviate the problems of U.S. swordfishermen in regard to possible overfishing, although the Councils say the stock is not being overfished. Nor is it my concern how the Councils wish to address the problem of increasing entry, with accompanying increases in fishing effort. My concern is with how the FMP proposes to deal with the foreign tuna longliners' incidental - and accidental - hooking of swordfish.

In 1980, the base year for most of the management measures in the FMP, U.S. swordfishermen caught at least 125,000 swordfish in Atlantic and Gulf waters. This was the estimate of

swordfishermen and swordfish dealers at the Advisory Committee meetings in preparation for the development of this FMP. The NMFS estimates used in most of the FMP were derived from sampling selected fish houses and are admittedly very low. Using the Advisory Committee estimate and ICCAT data, it is apparent that United States and Canadian fishermen are responsible for most of the mortality of swordfish in the Western Atlantic. They take 82% of the swordfish. The U.S. share of the swordfish take is 64% and the Canadian share is 18%. Total western Atlantic swordfish catch numbered around 195,000.

These figures show that if there is any overfishing of swordfish, either growth overfishing or recruitment overfishing, only reductions in U.S. and Canadian catches can remedy it. The swordfish mortality caused by the incidental catch of Japanese tuna longliners in the Atlantic and Gulf FCZ in 1980 was only 2,761 fish, a mere 1.4% of total western Atlantic swordfish mortality. This 1.4% can have no significant impact either way on the conservation of swordfish. If eliminated it will not help reduce growth overfishing nor recruit overfishing, as it is even much smaller than the statistical margin of error in yield per recruit or population estimates.

As proposed in the swordfish management plan, if the level of swordfish fishing mortality (F) increases 5% over the estimated level of 1980, a 5% reduction in fishing will be triggered throughout the Gulf and Atlantic. Even if all mortality of swordfish resulting from the incidental catch of Japanese tuna longliners were prohibited in the FCZ, it would fail to reduce

swordfish mortality by 53 and would not prevent imposition of catch reductions on U.S. swordfishermen.

It is obvious that the measures proposed in the management plan to phase out or reduce foreign tuna longliner incidental catch of swordfish are unnecessary and unjustified because they have no significant effect on conservation of swordfish, or on the incomes of U.S. swordfishermen.

I don't know if I also have to point out that the measures proposed to reduce or phase out the foreign tuna longline catch of swordfish is illegal in terms of the Magnuson Fishery Conservation and Management Act. The Act requires that foreign fishermen be given a reasonable opportunity to catch tuna in the FCZ. President Reagan, in his recent Exclusive Economic Zone Proclamation, also emphasized that the United States would not impair foreign access to tuna in the U.S. 200-mile zone.

Last year, the NMFS amended the Preliminary Management Plan for Billfish and Sharks by instituting a 100-mile closure. That closure, in itself, not only denied Japanese tuna longliners a reasonable opportunity to fish for tuna in the 200-mile zone but greatly impaired their ability to catch tuna. As can be seen from the fact that Japanese tuna longlining in the Atlantic 200-mile zone has just about ceased, there are no fishing strategies and no technology which would enable them to catch tuna in the face of severe area restrictions or a reduction or phase-out in the incidental catch of swordfish.

COMMENTSPage -5-

There are those of you at this hearing who are pleased that Japanese longliners have been forced out of the fishery, but I ask you to consider this:

About 25% of all U.S. consumption of finfish consists of canned tuna. Next to shrimp, tuna provides the most income for U.S. fishermen and 90% of the American tuna catch comes from the 200-mile zones of other nations.

As a result of U.S. tuna catches in the waters of other nations, tuna canning and distribution have become big business, employing about 40,000 people in canneries in Puerto Rico, California, Hawaii and Samoa. The sale and distribution of canned tuna provide incomes for truckers, carrier vessels, railroads, wholesalers, warehousemen, grocery store operators and restaurant workers. If U.S. fishermen could not catch tuna off the shores of other countries, tuna would have to be imported, adding an additional half a billion dollars to the U.S. balance of payments deficit.

The fact that so much of U.S. employment, income, the trade balance and fish consumption depends upon maintaining access to tuna found in the 200-mile zones of other countries is one of the primary reasons for the tuna exemption in the Magnuson Act. The other is the fact that tunas are highly migratory and can only be conserved through the mutual efforts of all the nations through whose waters these fish pass.

If the United States should restrict access to tuna in its 200-mile zone by restricting the incidental catch, or by imposing closures which effectively cut off access to the tuna

COMMENTSPage -6-

migratory areas, or by levying fees which make tuna fishing uneconomic, other nations will follow suit. The result will soon be the denial to U.S. fishermen of access to tuna in the waters of other nations and the loss to the U.S. of jobs, income and domestically-caught food supplies. Is this the price you want your fellow citizens to pay in order to prevent the mortality of 2,761 swordfish?

If you do, you also will be hurting yourselves. In two ways. First, a number of you want to catch bluefin tunas. But your ability to catch bluefins is limited by uncertainties over the conditions of the stocks. Bluefin catches in the Atlantic have been severely reduced and the stocks are being monitored to determine their actual condition. Accurate monitoring of stocks depends upon comparisons of catches from the same area for a period of time. If Japanese tuna longline monitoring catches of bluefins in the FCZ are impaired, the accuracy of the monitoring program agreed to by the U.S. will be impaired. Not only will the stock monitoring be impaired, but the U.S. will thereby fail to carry out its conservation commitment by ensuring accurate monitoring of stocks.

The second way you will be hurting yourselves will be through the increased mortality of swordfish. While fishing for tuna in the FCZ, Japanese fishermen are required to cut any incidental catch loose at the waterline with a minimum of injury. The mortality of swordfish as a result is minimized, for almost 49% of all of the swordfish hooked by Japanese tuna longliners in the Atlantic FCZ from 1979 through 1982 were released alive

COMMENTSPage -7-

(5,004 released alive out of 10,287 hooked from 1979 through 1982). If the Japanese longliners were forced to fish for all their tuna outside of the 200-mile zone, they could keep every swordfish hooked and none would be released alive. Such a situation would defeat any conservation measure aimed at minimizing the incidental mortality of swordfish by excluding foreign tuna longliners from the 200-mile zone.

To sum up, we believe that any measures in the FMP which will impair the ability of foreign longliners to catch tuna are not only illegal under the MFCMA, but will have no significant effect upon the yield per recruit, the condition of the stocks or U.S. swordfishermen's income. Instead, such measures will be damaging to the U.S. fisheries economy, to the U.S. balance of trade, to the swordfish conservation effort, and to U.S. swordfishermen. It will not help to maintain the integrity of the fishery. Also, to have the foreign longline fishery bear the entire burden of growth overfishing by U.S. fishermen is patently unfair and unjustified. Therefore we oppose all of the foreign fishing restrictions proposed in the draft FMP.

We also believe that not all of the alternatives have been presented in the proposed FMP, as required by law.

One unlisted alternative that has worked very well since the inception of the Preliminary Management Plan has been the adoption by Japan's tuna industry of voluntary measures to reduce the incidental mortality of billfish and swordfish and prevent gear conflicts. These voluntary measures, which were accepted in 1981 by all of the Regional Councils and the U.S. government,

COMMENTSPage -8-

included the following:

- 1). redirection of longlining away from areas of known billfish concentrations;
- 2). no longlining in the vicinity of major billfish tournaments;
- 3). avoidance of gear conflicts through the use of phonic codes for communicating the times, locations, extent and directions of gear sets and retrievals;
- 4). arbitration and promptly settlement of gear damage claims;
- 5). communication of the positions of U.S. fixed and floating fishing gear directly from the U.S. boat owners to the Japanese longliners via the JTA;
- 6). actions to prevent Japanese tuna longliners from concentrating fishing effort in areas fished by U.S. fishermen; and
- 7). the implementation of space and time closures in the Atlantic FCZ as requested by U.S. fishermen, the Regional Fishery Management Councils and the U.S. Departments of State and Commerce.

COMMENTSPage -9-

Another alternative that has not been presented in the proposed FMP is imposition of a percentage reduction in incidental catch of swordfish equal to the percentage reduction imposed upon U.S. swordfishermen, when such reduction is deemed necessary. Although we are opposed to any measure to reduce foreign tuna longline incidental catch, on the grounds that such a reduction would not have any significant effect upon the fishing mortality (F), yield per recruit, or U.S. fishermen's income, a percentage reduction equivalent to the percentage reduction imposed upon U.S. fishermen would at least be equitable and non-discriminatory.

We believe, though, that through discussion and cooperation voluntary measures can be worked out to solve any problems which may arise in the fishery attributable to the presence of Japanese tuna longliners. This has worked in the past. We hope to be able to continue working out our differences amicably in the future.

Thank you for your consideration.

F#JTA6607

RECEIVED 3/3/83

M.R. BARTLETT SWORDFISH AP

①

page 1 paragraph 5.3

"Time periods closed to U.S. fishermen will be for the FCZ and outside the FCZ."

I don't see authority in the MCA to permit the action described above.

②

page 1 paragraph 5.1

"Coloration: Variable. The back may be dark brown, bronze, dark metallic purple, grayish silver, or black. The sides may be dark like the back or dusky, and may be colored all the way or only half way down. The belly and the lower sides of the head are dirty white (or silver, MRS) or light brown. All the fins are dark. (World Record Game Fishes 1981, International Game Fish Association)

If you start your plan with an accurate description of the fish, the public will be more inclined to accept the regulations and catch limits that follow.

③

page 5 paragraph 9.3.4.2 migrations

Swordfish occur year round in the tropical western North Atlantic. They are also found year round north of 35° N. While several long range tag returns from the Gulf of Mexico to Georgia Bank have been recorded, the portion of the population that participates in these movements is unknown.

④

page 23 9.4.1.2 Commercial line 12

With the introduction of longlining the range of the fishery was extended to Cape Hatteras and pursued year round. A fishery flourished in the Gulf of Mexico for a ten-month period prior to December 1973, when, as a result of USFDA guidelines that prohibited the sale of swordfish with more than 0.5 ppm tissue mercury content, the swordfish fishery collapsed.

⑤

page 65

10.7.5 Released Smaller fish

It is questionable whether the thirty percent that are alive when landed would survive when released. (?)

⑥

page 65

10.7.7 Limited Entry

"The increase of fishing power by using longer lines and more hooks is as good an argument against limited season as it is against limited entry. We in the fishery don't believe in licensing, lotteries and buy-backs either. One need only cap the addition to the fleet by registration and documentation number and wait until natural attrition reduces fleet size 'til the catch recovers. Complicated?"

⑦

Nowhere in this document is the position of the American longline addressed. Is the combination of just fishing time in the closed season for swordfish allowed the same incidental swordfish catch allowed the Japanese?

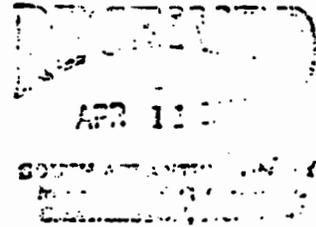
TIFFANY VANCE INC.
 COMMERCIAL FISHING
 260 WEST FOURTH STREET
 OXNARD, CALIFORNIA 93030-5986

RAYMOND E. SWIFT, PRES
 JESSE DEBUSSCHERE, SEC/TREAS
 W. E. HARTMAN, V. PRES
 ALEX BUENO, V. PRES/CPTN

AREA CODE 805
 TELEPHONE 483-0571

March 30, 1983

Mr. Greg Waugh
 South Atlantic Fishery Management Council
 Southpark Building, Suite 306
 1 Southpark Circle
 Charleston, South Carolina 29407-4699



Dear Mr. Waugh:

We have been reviewing the guidelines which have been set forth in the "Draft Fishery Management Plan, Regulatory Impact Review and Draft Environmental Impact Statement". We have several arguments, disacreements and recommendations in regards to this matter. We have outlined them below:

1. Gear Conflicts:

Personally I have never had any gear conflicts with draggers, longliners, harpooners, or lobster fishermen. I can speak for the Rush and the Tiffany Vance (two of the three boats currently using the gilnet), but abandoned it after a seasons use.

To my knowledge there has not been a single incident of gear conflict with the gilnet during these three (3) years.

Whereas with the longline there have been many conflicts especially with lobster and crab fishermen, also Canadian Tub Trawlers and U. S. Draggers.

2. Increased Effort:

The misconception that all draggers or any boat with a drum, can easily gear up for gilnetting is simply not a true statement. Common sense and a short study of the gear and its cost would make any dragger owner consider the investment well before converting.

The fact that two New England boats have tried the net (Andrea Gail, Sea Hunter and most recent the Stephanie Vaugh) makes me doubt that all the draggers would wish to gear up for gilnetting. There are several other factors to be considered here, the difficulties and hazards of using the gilnet and the fact that it can easily be lost,

Mr. Greg Waugh
 South Atlantic Fishery Management Council
 March 30, 1983
 Page 2

the amount of fish it produces, although virtually cost effective (no bait) after the initial investment.

3. Gilnets:

The gilnet is an efficient piece of gear which is basically still in the experimental stages. This piece of gear could open new doors in the Albacore, Skipjack, and Shark fisheries. It is an excellent way to supplement the Harpoon fishery.

This piece of gear warrants observation and study before any judgment can be or should be made.

4. Arguments re proposed management plan:

Standard 1 - Optimum Yield - Page 7409 states "The most important limitation on the specification of OY is that the choice of OY - and the conservation and management measures proposed to achieve it must prevent overfishing" - the Swordfish Management Plan definition of OY "the harvest producing the maximum yield-per-recruit for female sword fish (occurred in 1980). This OY and the choice of measures to achieve it (closed seasons and the banning of gilnets in the Mid-Atlantic and New England area) will not prevent overfishing.

National Standard 4 - Allocations - Page 7411 states "Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocations shall be: (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation or other entity acquires an excessive share of such privileges".

The prohibition on gilnets as proposed are not fair and equitable to all fishermen and don't necessarily promote conservation (can compare longline catches to gilnet catches).

5. Billfish Management Plan - Use of Net Before a Management Plan Can Be Initiated

All countries that fish stock will have to agree on the harvest. There is not enough evidence to the migratory pattern of these fish. There should be an extensive tagging process to determine the exact pattern and number of possible stocks. The other countries, Japan, Canada, Spain, Korea and Cuba are fishing the same stocks that we are, outside our 200 mile limit with no quotas or restrictions. These Billfish could be migrating to North America, Europe, South America and possibly other continents. We have no evidence of these fish staying inside our 200 mile limit.

Mr. Greg Waugh
South Atlantic Fishery Management⁵² Council
March 30, 1983
Page 3

Billfish Management Plan (page 1 paragraph (5.4)): A statement is made that 76% of Swordfish are taken inside the 200 mile limit and only 10% outside. This shows no evidence that the Swordfish stay inside this zone.

- a. The U. S. Swordfish Boats are not large enough to fish outside the 200 mile limit.
- b. On a basis of U. S. Swordfish boats to figure as above statements there are only a few percentage of boats capable of fishing outside the 200 mile limit.
 - b(1) Boats too small - weather conditions, not enough fuel, no Coast Guard help in case of emergency, operating expense too high.
 - b(2) No freezer boats capable of handling the product.

These are only some of the reasons why only 10% of the catch is outside the 200 mile zone, if our boats were capable of fishing outside the 200 mile zone and could follow the Gulf Stream the figures would change drastically.

We do not have evidence that these fish range only from the Gulf of Mexico to Georgia's Banks inside the 200 mile limit. We could probably only be fishing a very small percent of the fish stock.

6. The Gilnet

The average size of fish caught in the net is between 100 and 125 lbs. much larger than the longline. The smaller fish are able to pass through unharmed, therefore targeting on the larger fish all the time, unlike the longline.

Much talked about is the high bycatch of whales and porpoise. This is simply not true. There was an incident of a small whale getting tangled and practically destroying the net at which time the net was cut and the whale set free. I've seen and have photos of a whale tangled in lobster gear and this one was not set free. I've caught porpoises, turtles, in small numbers with the long line, but still a greater number than the net.

If the object of the Management Plan and the Councils is to preserve, protect and maintain the highest probable yield in the fishery, then clearly banning the gilnet is a definite contradiction.

Mr. Greg Waugh
South Atlantic Fishery Management Council
March 30, 1983
Page 4

We welcome observers and will cooperate fully to help clear all misconceptions and gather the information that I feel will only prove that the gilnet is not detrimental to the fishery.

Very truly yours,

TIFFANY VANCE, INC.



Alex Bueno,
Vice President
and Captain

AB/tlr

cc: New England Fishery Management Council
Mid-Atlantic Fishery Management Council
Gulf of Mexico Fishery Management Council
Caribbean Fishery Management Council
National Marine Fisheries Service - Southeast Regional Office
National Marine Fisheries Service - Northeast Regional Office
National Marine Fisheries Service - Northeast Fisheries Center
National Marine Fisheries Service - Washington, D.C.

BETTER FISHING FOR YOU!

Florida league of anglers, inc.



March 31, 1983

R. A. FRANZEN
215 COCONUT PALM RD.
BOCA RATON, FLORIDA 33432

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South Atlantic Fishery Management Council
1 Southpark Circle, Suite 306
Charleston, S. C. 29407-4699

Re: Swordfish Plan

Gentlemen:

We are submitting herein FLA's comments re the above plan and a suggestion for improvement.

The recreational swordfish fishery has collapsed, giving way to the proliferation of longlines, so there is little to be gained by a closure.

Both the Atlantic and Gulf must be closed to all gill and other nets in this fishery. To consider the introduction of nets would be irresponsible and would inflict irreparable harm upon the marlin fishery. The swordfishery is already stressed and cannot tolerate the introduction of new and more efficient gear.

The \$274.00 fine is grossly inadequate. The fine should be as high as can be sustained in the courts so that it acts as a deterrent, not just compensation.

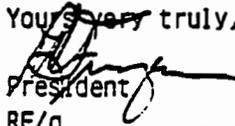
Mandatory data collection, to include by-catch should be required.

Some form of limited entry is required if the fishery is to survive.

With the above considerations in mind, the Florida League of Anglers proposes the following:

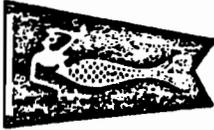
Require all long lines to be out of the water between the hours of sunrise and sunset; require registered numbers appear on top of boat, visible to aircraft for identification purposes; and provide for suspension of all such fishing privileges for one year in the event of violation. Such requirements reduce the by-catch of marlin and other species, have a limiting effect of the number of hooks that could be fished, and would possibly defer the necessity of limited entry.

Yours very truly,


President

RF/d

P.O. Box 1109, Sanibel, FL 33957

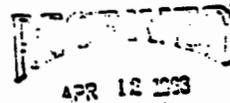


Shinnecock Marlin & Tuna Club, Inc.

P. O. BOX 9
HAMPTON BAYS, NEW YORK 11946

April 8, 1983

Mr. David H. G. Gould
Executive Director
South Atlantic Fishery Management Council
Southpark Bldg., Suite 306
1 Southpark Circle
Charleston, S.C. 29407



SOUTH ATLANTIC FISHERY
MANAGEMENT COUNCIL
CHARLESTON, S.C.

RE: Shinnecock Marlin & Tuna Club's
written comments on the proposed
Swordfish FMP.

Dear Mr. Gould:

We would like to comment on the following sections of the Draft Fishery Management Plan, Regulatory Impact Review, and Draft Environmental Impact Statement for Swordfish, February 1983.

SECTION 10.3 REGIONAL MANAGEMENT MEASURE # 1

We are opposed to recreational swordfishing boats having to obtain a letter of authorization to fish for the following reasons:

1. The statement in the impact and rationale are seldom an incidental catch so that only big game fishermen targeting swordfish would probably apply is wrong. We agree with the comments of Mr. John Mason at the Mid-Atlantic Fishery Management Council meeting on April 22, 1982 during their discussion of the swordfish plan that, "if the problem is going to be anybody that has an opportunity to catch swordfish, you are going to get into the bluefin tuna situation where everybody and his brother is going to have to have a permit just in case they catch a swordfish."
2. In this time of Reagan-nomics we can see that with the cost of thousands of permits, a fee under Title III Section 303 (b) (1) and Section 304 (d) of MPCMA could be charged. This is a recreational salt water fishing license which we are vehemently against.
3. During the swordfish discussions of the Mid-Atlantic Fishery Management Council meeting on April 22, 1982 an alternative method of data collection was discussed that being surveys being done by the State. We feel that due to the small number of swordfish being caught by rod and reel that inclusion of swordfish in these surveys will collect the amount of data that the Mid-Atlantic Council wants.



Shinnecock Marlin & Tuna Club, Inc.

P. O. BOX 9
HAMPTON BAYS, NEW YORK 11946

Con't from page #1.

SECTION 10.5 REGIONAL MANAGEMENT MEASURE # 3

We support alternative # 2 for the following reasons:

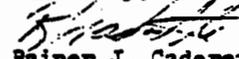
1. The rod and reel fishery catches less than 1% of the total catch.
2. In Section 8.7.2 of the plan it is estimated that there is 17,373 to 21,980 boats in the billfish fishery and we feel there is a great deal more. With this large number of boats in the fishery and then catching less than 1% of the catch the closure would be difficult to enforce.

Since we do not feel we should be included in the closure. We will not comment on alternatives in Sections 10.1.3, 10.1.5, 10.1.6 or 10.1.7.

SECTION II FOREIGN FISHING

We would like to see foreign fishing with swordfish as a by catch to stop tomorrow but we know this will not happen so we would like to see the alternatives #3, #6 and #7 in the plan. Plus one other measure that being if there is a variable season closure on U. S fishermen all foreign fishing methods that swordfish are a by catch to cease.

Sincerely,


Rainer J. Cadorette
President
Shinnecock Marlin & Tuna Club

CC John C. Bryson
Mid-Atlantic Fishery
Management Council

MAIL:
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Texas 78336

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758-2113
758-5292
422 Bigelow St.

Gulf of Mexico
Lombard Center
Suite 881
5401 St. Kennedy Blvd
Tampa Fla 33609



Gentlemen:

Unable to attend recent hearings on
closure for swordfish - hope to catch
future ones.

Would like to bring it to your
attention that I personally fish when
I can on my own boat and feel
like there has not been enough
research done on these animals
since we are still having to
try methods to catch them.
Also feel BAN the harpooners -
they're killing off major breeders.
The closing will hurt many
of us financially and this fast

year has been a rough year.

Please keep me posted on
future meetings as there
is more I'd like to
say but at the moment
am in a terrific hurry
to leave back out while
weather is holding

Regards to Logy.

Sincerely,
Zik Wilson



The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02202

TESTIMONY BY

JOSEPH E. PELCZARSKI, PRINCIPAL PLANNER, MASSACHUSETTS COASTAL ZONE MANAGEMENT PROGRAM ON THE DRAFT FISHERY MANAGEMENT PLAN, REGULATORY IMPACT REVIEW, AND DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR SWORDFISH

GOOD EVENING, COUNCILLORS AND COUNCIL STAFF. MY NAME IS JOSEPH E. PELCZARSKI AND I AM A PRINCIPAL PLANNER FOR THE MASSACHUSETTS OFFICE OF COASTAL ZONE MANAGEMENT.

IN THE SUMMER OF 1982, AT THE REQUEST OF THE MASSACHUSETTS DIVISION OF MARINE FISHERIES I ACTED AS AN OBSERVER ON BOARD THE SWORDFISH VESSEL "TIFFANY VANCE." THIS VESSEL IS A COMBINATION BOAT UTILIZING HARPOON GEAR, LONLINE GEAR AND GILLNETS. I SPENT TWENTY-ONE DAYS ON BOARD THE VESSEL FISHING FOR SWORDFISH ON GEORGES BANK, ON THE TAIL OF THE GRAND BANKS AND OUT OVER THE NEWFOUNDLAND SEAMOUNTS. I AM SUBMITTING WITH MY TESTIMONY A COPY OF THE REPORT I WROTE FOR THE MASSACHUSETTS MARINE FISHERIES ADVISORY COMMISSION.

- 1) MY FIRST COMMENT ON THE DRAFT FISHERY MANAGEMENT PLAN IS THAT MORE ACTUAL BASIC DATA CONCERNING SWORDFISH SIZE RANGES TAKEN BY ALL GEAR IN ALL AREAS IS NECESSARY FOR AN ACCURATE YEILD PER RECRUIT ANALYSIS.

THE IMPLICATIONS OF TAKING IMMATURE SWORDFISH BY BOTH THE U.S. FLEET AND FOREIGN FLEETS AND THE IMPACTS ON THE SWORDFISH STOCK MUST BE ASSESSED. A STUDY MUST ALSO BE CONDUCTED TO DEVELOP METHODS BY WHICH THE CAPTURE OF IMMATURE SWORDFISH CAN BE LESSENERD.

- 2) MY SECOND COMMENT ON THE DRAFT PLAN RELATES TO IT'S ANALYSIS OF THE DESIREABILITY TO PROHIBIT GILL NETTING. THE PLAN PROVIDES NO ANALYSIS TO PROVE WHETHER OR NOT SUCH A PROHIBITION WILL ACTUALLY DECREASE FISHING PRESSURE. THE PROHIBITION OF GILLNETS WILL ONLY INSURE THAT VESSELS WILL LONGLINE AND THUS THERE WOULD BE NO REDUCTION OF FISHING PRESSURE. THE ANALYSIS OF THE IMPACTS OF EACH GEAR TYPE USED BY BOTH FOREIGN AND U.S. VESSELS ON THE SWORDFISH POPULATION, BOTH ON THE FEEDING GROUNDS OF THE NORTH AND THE SPAWNING GROUNDS OF THE SOUTH NEEDS TO BE COMPLETED. ELIMINATION OF THE MORTALITY DUE TO FOREIGN FISHING PRESSURE SHOULD BE MANDATED PRIOR TO THE PROHIBITION OF ANY U.S. GEAR TYPE.
- 3) THE PLAN MUST MINIMIZE FISHING EFFORT ON THE PRE- SPAWNING AND SPAWNING FISH BY CLOSING THE SPAWNING GROUNDS PRIOR TO AND DURING SPAWNING TO ALL U.S. SWORDFISH VESSELS AND FOREIGN TUNA VESSELS.
- 4) THE NATIONAL MARINE FISHERIES SERVICE SHOULD UNDERTAKE MORE COMPREHENSIVE STUDIES OF THE SWORDFISH BEHAVIOR, SPAWNING AND MIGRATION ACTIVITIES TO ENHANCE OUR MANAGEMENT CAPABILITIES.
- 5) MORE ACCURATE AND COMPLETE DATA CONCERNING THE FOREIGN BY-CATCH BY BOTH THE JAPANESE AND SPANISH IS NECESSARY.
- 6) THE MARINE MAMMAL AND REPTILE INTERACTIONS WITH BOTH THE U.S. AND FOREIGN FLEETS NEEDS TO BE STUDIED FURTHER.

- 7) MORE DIRECT COMMUNICATION IS NECESSARY BETWEEN PARTICIPANTS IN THE FISHERY TO MINIMIZE GEAR CONFLICTS AMONG U.S. VESSELS AND BETWEEN U.S. AND FOREIGN VESSELS. REASONABLE PROCEDURES SHOULD BE DEVELOPED BY REPRESENTATIVES OF THE U.S. FLEET AND GOVERNMENT AND COMMUNICATED TO ALL USERS THROUGH THE PERMIT PROCESS.
- 8) SMUGGLING OF SWORDFISH IS A PROBLEM BECAUSE IT DISTORTS LANDING STATISTICS AND LOWERS THE PRICE FOR SWORDFISH CAUGHT BY LAW-ABIDING FISHERMEN.
- 9) THE PLAN IS INCORRECT WHEN IT STATES MASSACHUSETTS HAS A LAW WHICH RESTRICTS THE CATCH OF SWORDFISH BY NON-COMMERCIAL FISHERMEN TO ONE FISH PER ANGLER PER DAY. MASSACHUSETTS LAW LIMITS NON-COMMERCIAL FISHERMEN TO THE SALE OF ONE HUNDRED POUNDS OF FISH PLUS ONE FISH. THE SPECIES OF FISH IS IMMATERIAL.



COASTAL ZONE
MANAGEMENT

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02202

TO: MARINE FISHERIES ADVISORY COMMISSION
FROM: JOSEPH E. PELCZARSKI, PRINCIPAL PLANNER, COASTAL ZONE
MANAGEMENT PROGRAM
SUBJ: SWORDFISH
DATE: JANUARY 7, 1983

Joseph E. Pelczarski

On April 30, 1982, in response to a petition, the Marine Fisheries Advisory Commission/Division of Marine Fisheries held a hearing to discuss the possible prohibition of landing swordfish caught by gillnets in Massachusetts. At its May 6, 1982 meeting, the Marine Fisheries Advisory Commission, after reviewing all public comments received at and subsequent to the hearing and after considering Division of Marine Fisheries recommendations, decided not to immediately prohibit Massachusetts landings of gillnet caught swordfish during the 1982 season. The Commission requested that the Division monitor the fishery to acquire a better understanding of the nature of swordfish gillnetting and its catches. In partial fulfillment of this request I acted as an observer on the commercial swordfish vessel Tiffany Vance from Ventura, CA. The following is a report of my observations during a fishing trip by the Tiffany Vance to Georges Bank, the Grand Banks and the Newfoundland Seamounts from August 18 to September 5, 1982.

The Tiffany Vance is a combination swordfish vessel capable of gillnetting, longlining, and harpooning. The vessel is of a whaleback design, equipped with a refrigerated brine system and water maker which enables the vessel to make extended offshore trips. The vessel is also equipped with satellite and Loran navigation systems, a plotter, VHF and sideband radios, colorscope depth finders, radars, sea surface temperature gauges, and satellite weatherfax, sea surface temperature, and iceburg^e reception.

Originally I was to observe several days of harpooning and nights of gillnetting on Georges Bank then to return New Bedford; however, fishing reports from the spotter planes and vessels on Georges Bank were negative. Since satellite reports of the sea surface temperature indicated a massive warm water eddy at the Tail of the Bank, plans were made for a few days of fishing on Georges and then a refueling in Shelbourne, N.S. with me flying home from Nova Scotia. The Tiffany Vance left on August 18, 1982 from New Bedford Harbor.

The key to swordfishing is finding the right body of water. The water is usually warm, oceanic water (blue water) which usually sweeps over the Bank in the summer in the form of a warm water eddy or a meandering gulf stream. The proper body of water that a swordfisherman is seeking is usually limited in size, and competition is keen for a spot to set. We arrived on Winky's Canyon (the second canyon west of Corsair, Georges is the first canyon west of Corsair) at 4:30 pm on August 19, 1982 and began surveying the water for a proper place to set gear. In conjunction with this survey, contact is being made with all swordfish vessels in the area to see who has claimed grounds (berth) for the evenings fishing. Finally at 11:00 pm we found good water and were able to fish between a longliner to our north and another gillnetter, the sister-ship of the Tiffany Vance, the Rush, to our south.

Setting the gillnet took approximately an hour and a half. The net is a mile long and 100 feet from headrope to leadline. It has an 18 inch mesh and is 69 meshes deep. The net is set while the vessel is heading into the wind, marked with

a radar reflector on its free end and held at a set depth with polyballs and droplines. Cylume light sticks are used in conjunction with the net as attract-ments. The other end of the net is bridled to the vessel and the vessel main-tains a heading into the wind with constant observance of the position of the radar reflector to prevent the net from becoming entangled.

We began haulback at 5:00 am on August 20. Haulback is relatively easy when the net is free of fish or debris. The catch consisted of one swordfish, 56 inches long from the lower jaw to the fork in the tail. Using Beardsley, et al. (1978) length-weight relationship, this fish weighed approximately 75 lbs. The fish came on board dead, wrapped in the gill net. It looked as if the fish went through the net, tried to turn away and couldn't because of the sword; and it became more entangled as it tried to escape. The fish didn't gill itself. Nothing else was caught in the net, and the last 100 yards of the net had doubled up on itself during the night. The total haulback time was an hour and a half. The Rush also reported a catch of one fish with no by-catch.

This catch was disappointing. The vessel would like to see at least 4 swordfish per haulback of the gillnet. After receiving similar, poor catch reports from other vessels on Georges, seeing water conditions still being opti-mal on the Grand Banks and not expecting to change here, the Captain decided to head for Shelbourne, N.S. with the Rush for fuel and then to the Grand Banks for the remainder of the trip. I decided to continue the trip to gather more infor-mation because one night of fishing and only one fish really tells you little about the conduct of the fishery or the fish.

The F/V Tiffany Vance and the F/V Rush arrived in Shelburne, N.S. at first light (5:00 am) on August 21, 1982. We left that afternoon at 5:30 pm with fuel and supplies and were escorted out of the harbor by dolphins riding in the bow wake.

Steaming east to the Tail of the Bank, longline gear was readied, as well as constructed to specification determined by the captain. Two Spanish fishing vessels (a crewman on the Tiffany Vance was from Spain) were sighted heading west. Numerous container vessels were also seen heading towards Canada.

We arrived at the Tail of the Bank on August 25, 1982. The water temperature was constantly monitored for "edges" where cold and warm water meet. When edges were found, down temperatures were taken to determine how deep the warm surface water extended over the colder, bottom waters. On August 26, the Captain found good water as well as an open area (berth) among the other swordfish longliners and we were to set that evening.

The bait was frozen mackerel and squid. The mackerel was either from California or Canada, and the squid was from Brazil. The first evening we started to set-out at 5:30 pm. The usual sequence was a polyball, a yankee hook, a monofilament hook, a trap, and then another polyball; but, this varied from all monofilament hooks to all traps. The yankee hooks and traps were 14 aught hooks while the monofilament hooks were 10 aught. All replacement hooks, despite the gear type, were 10 aught. There were ten polyballs to a section, and each section ended with a highflyer. Four radio beacons were used as high flyers in each set of the longline. Cylume light sticks (blue or green) were usually placed on two of the three hooks per section. The set out took an hour and a half and 500 hooks were used.

During watch the crew maintained the vessel's position alongside the gear. The gear's position was monitored on clear nights visually by a strobe attached to the end highflyer, and on nights of bad weather by directional finders monitoring the position of the radio beacons.

haulback began at 5:10 am with the pulling on board of the first highflyer and radio beacon. Yankee hooks and traps were coiled and boxed as they came on

board and monofilament hooks were wound on reels. The Captain steering and throttling the boat remotely fishes the longline feeling for "weight". The first fish was a swordfish. With its bill breaking the water surface and then rolling on its back, dead, it was hauled to the vessel on the longline. Gaffed, it is pulled aboard, its sword is sawed off; and the fish is cleaned. The crew checks stomach contents and feels internal body temperature for clues as to what type of water the fish has been in. Most of the swordfish were feeding on squid but stomachs also contained needlefish and redfish. On this first set we caught 15 swordfish. Two fish were lost when the hooks didn't set and were pulled out, and one fish was cut up by the prop when it drifted under the vessel. The measurable fish ranged in size from 30 in. to 84 in. (measured from the lower jaw to the fork in the tail). One blue shark and two skates were also caught. A shark was believed responsible for parting the longline; but, with the use of the radio beacons, radar, and lookouts, the search for the remaining section only took half an hour. Haulback was completed at noon.

The cleaned fish are put into plastic bags and placed in the hold which is chilled by a refrigerated brine system. The Captain talks by radio with other captains, listening and telling tales about catches and conditions. In addition, he is analyzing satellite temperature and weather reports to decide on the night's fishing. The crew repairs gear and untangles snarls in the longline to make ready for a smooth setout that evening.

The next two days of fishing took place in the same general area south of the Tail of the Bank. The hooks were set out usually around 8:00 pm and completed by 11:00 pm. Haulbacks began at 5:00 am and lasted until 11:00 am or noon. On the second day, we caught eleven swordfish, ranging in size from 40 in. to 77 in., four blue sharks, one mako shark, one sea turtle (released alive) and one skate. We kept the mako in addition to the swordfish.

The third day during set out we had a gear conflict. Despite efforts by captains to establish berths and to contact all area boats on gear positions, we crossed a longline. Our vessel's stabilizers which hang from the outriggers to about 18 feet below the surface caught on a longline. The port stabilizer held fast but the starboard stabilizer, which is composed of lead and steel, left the water and slammed into the bait box just inches from a crewman. After assessing damages and freeing the port stabilizer, we continued setting out.

Haulback on August 29 began at 4:30 am. We found our line had been cut and tied by another vessel; we believe it was the Japanese. We sighted them after set out working the area and the Rush was having gear conflicts with them a few miles away. In the area where our stabilizer hit the other longline, we were in conflict with the Tiki 10, a swordfish longline vessel from Florida. Tangles were separated and gear exchanged. The one swordfish which was caught in the conflict area was taken on a hook which was crimped, such as those on the Tiffany Vance, while the knotted hooks had no swordfish. Despite the conflict, we caught nine swordfish, ranging in size from 51 in. to 88 in., one blue shark, one mako shark (which was kept) and one leather back turtle which was released alive.

To escape gear conflicts and the increased traffic (we compared temperature readings with longline vessels from Texas while two other vessels were working the horizon), we moved northeast over the Newfoundland seamounts.

The next fishing day, August 30-31, was fairly routine. The Captain set out a lesser number of hooks (300) because the water wasn't quite right (flat water). Despite this, we caught nine swordfish. Two were lost because the hooks pulled out. The swordfish brought on deck ranged from 50 in. to 69 in. The by-catch consisted of one mako (kept), two blue sharks and one skate. During haulback we lost the gear for an hour due to the mainline parting.

After haulback the Captain, in order to find better waters, steamed all night and into the next day northeast approximately 170 miles, towards the Flemish Cap. On the evening of September 1, we set out at eight and were done at 10:30 pm. Haulback began at 5:15 am and the catch was seven swordfish, ranging in size from 57 in. to 73 in., and three sharks, two blue and one mako. Whales were seen in the distance during haulback and a sea turtle, other than a leatherback, was floating next to a polyball. Haulback was completed at 8:30 am.

Haulback began at 5:30 am, and the catch was twenty swordfish which ranged in size from 39 in. to 74 in. One fish had an exceptionally large shark bite which had healed over. By-catch consisted of four blue sharks, two skates, one lancetfish and two mako sharks.

On September 3, we set out 400 hooks starting at 10:00 pm and ending at 1:30 am. Haulback on September 4 began at 5:30 am; the catch thirteen swordfish, ranging in size from 32 in. to 69 in., with a by catch of one blue and one mako. One swordfish was lost when the hook pulled free. Haulback was completed at 8:45 am.

On September 4, we set out 400 hooks early at 5:40 pm and ended at 8:30 pm. Haulback began at 5:40 am, and the catch consisted of twelve swordfish, ranging in size from 38 in. to 74 in., one mako shark, three lancetfish, three skates, one blue shark and a leatherback turtle, which was released alive. An interesting observation during our interaction with the leatherback turtle was the school of rudderfish which swam constantly under the reptile. It is likely that a commensal relationship exists between the two species. The main line parted but was found immediately.

On the night of September 5, the Captain rendezvoused with the swordfish vessel Andrea Gail, Marblehead, MA so I could get home. The vessels tied stern to stern and transferred my gear on a second line. Then the vessels untied and

the Andrea Gail aligned its starboard side to the stern of the Tiffany Vance, and I swam the 30 yards to the Andrea Gail. They pulled me on board; and two days later after being boarded by the Canadian Patrol Vessel Terra Nova, we landed at the Port of Burin, Newfoundland. The owner of the Andrea Gail, Robert Brown, who flew to Newfoundland to replace malfunctioning generators flew us home to Beverly Airport on September 9, 1982. The Tiffany Vance arrived in New Bedford on October 18 - sixty-three days at sea with 25,000 lbs. of swordfish.

Conclusions

Although the original intent of the trip was to observe swordfish gillnetting, an insight into all aspects of swordfishing was gained. During my presence, the Tiffany Vance, caught ninety-two swordfish ranging in size from 30 inches (9.7 lbs) to 88 inches (337.1 lbs) with the average being 61 inches (100 lbs) (measurements are lower jaw - caudal fork lengths). The age at first spawning as reported by Yabe et al. (1959) is 5 to 6 years; or, as calculated by Berkely (SAFMC 1982) a length of 86 to 97 inches. If the studies are correct (the men on board said they have seen developed gonads in smaller fish), all the fish we caught except for one were pre-spawners which is definitely a bad sign for future years.

Gillnet mesh size (18 in. stretched) may allow for some selectivity away from these small fish whereas hooks do not. Once the fish are hooked the majority die and some small ones are released alive; but, this event is rare.

There is no doubt that harpooning is the most selective and discriminate swordfish fishing method. Gillnetting and longlining both are indiscriminate in terms of by-catch (tuna, sharks, marine mammals and reptiles, etc.) but the gillnet as discussed may be more selective in the size of the fish caught because of the large mesh size involved. The major problem may be one of apprehension of the user groups involved to a new method which may be more efficient

and selective while less indiscriminate than the traditional longline fishery.

The major problems, possible solutions, and areas of study concerning the swordfish fishery as I see them are:

1) The petition as proposed would not allow the landing of gillnet caught swordfish in Massachusetts. This would be very difficult, if not impossible, to enforce because gillnet-caught swordfish after onboard processing are impossible to separate from longline caught swordfish or harpooned swordfish (harpoon dart wounds can be made anytime). Logically, the next step would be to ban swordfish gillnets in Massachusetts. This, too, would be difficult because the regulation would have to be drafted in such a way as to only eliminate these nets and not other types of gillnets. Also, the regulation would only eliminate their use from Massachusetts and Massachusetts' waters whereas swordfish fishermen are as pelagic as the swordfish and gillnets in ECZ waters as well as international waters. Massachusetts, because of its position geographically as well as being the center of the swordfish market, is a port of convenience. The Commonwealth should encourage landings here because of the enhancement to the economy rather than enact a regulation with a very limited conservation effect.

2) Limited Knowledge: Little is known about swordfish behavior, migration patterns and general biology due to their pelagic and oceanic nature. Studies, if initiated, will take time and money.

3) The fishery: On Georges Bank and the Grand Banks, the fishing grounds were crowded and competition for the optimal berth was keen. Among themselves, the fishermen, make an exceptional effort to avoid gear conflicts; but, like any fishery there are those who don't care and set anywhere, in any pattern and don't communicate with others. A national program of limited entry may be a partial solution, but better monitoring of the fishery is needed by the state and maybe NMFS also.

4) Smuggling: It hurts the price received by the honest fishermen as well as distorts and undermines catch statistics.

5) International Cooperation: Swordfish are pelagic and cross international boundaries to the north and south. The fishermen, as well as the fish will be better off by international political cooperation, management and enforcement.

6) Gillnets: The proposed ban of gillnets in the Northwest Atlantic FCZ in the Swordfish FMP as proposed by the Atlantic Councils will necessitate at-sea enforcement (all of the gillnetters are combination boats and could put the net in the water after dark) and will not lessen effort as rationalized because the vessels will fish longlines as an alternate which could theoretically mean more fishing pressure rather than less.

7) Closed Seasons: This also will require at-sea monitoring of the fishery because the fishery is so widespread. Fishing vessels most likely will be crossing closed areas to get to open grounds, and a finning swordfish worth a thousand dollars may be hard to pass.

8) Technology: Vessel and gear technology is improving and developing making vessels more efficient in catching more fish in less time. The key question is, "Are the swordfish keeping pace?" Again, limited entry may be a possible solution.

9) Environmental Relationships: The technology that the fishermen use shows a strong relationship between catches and eddies, the flow of currents and temperature changes. More detailed studies of the behavior of large pelagics in relation to changes in the environment should be undertaken.

10) Parasites: The swordfish has a variety of parasites both internal and external. Studies of the parasites could lead to interesting insights of swordfish biology; but, the studies would be costly and take time.

11) Mako Shark: Mako shark is an excellent eating fish and should be promoted as such by governmental, marketing agencies.

12) Swordfish: Swordfish is a by-catch in the foreign squid midwater and bottom trawl fisheries. If the swordfish are released alive from these trawls, a tagging opportunity may be available. Also, a new type of large mesh swordfish trawl could be developed.

13) Swordfish Fishermen: Swordfish fishermen, in particular the Grand Banks fishermen, are at sea for extended periods of time without communication to the mainland. An opportunity to study short-term culture and social shock is available among these fishermen and should be undertaken.

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2. South Atlantic Fishery Management Council, 1982. Source Document for the Swordfish Fishery Management Plan. p.8-1.
3. Yabe, H., S. Ueyanagi, S. Kikawa and H. Watanabe, 1959. Study on the life history of the swordfish, Xiphias gladius Linnaeus. Nankai-Ku Suisan Kendyugho Hokoku 10:106-151. Transl. by Multilingual Serv. Div., Dept. of Sec. of State of Canada. Fish. Mar. Sci. Transl. Ser. No. 3356:103p.

August 19 - August 20, 1982

74

Latitude 41°21'

Longitude 66°00'

Loran C 12838
43597

set out 11:10 pm end 12:35 am
haulback 5:00 am to 6:30 am

catch 1 swordfish

length 56 in./142 cm. 1/2 girth 16 in./41 cm.

by-catch: nothing

August 26 - August 27, 1982

Latitude 42°24'

Longitude 49°00'

set out 5:30 pm end 8:00 pm
haulback 5:10 am to 12:00 pm

catch 12 swordfish bycatch: 1 blue shark
2 skates

length (in/cm)	1/2 girth (in/cm)
84/213	27/69
68/173	20/51
30/76	6.5/16
68/173	20/51
64/163	19/48
58/147	17/43
61/155	18/46
65/165	18/46
70/178	22/56
71/180	22/56
54/137	15/38
67/170	20/51

1 fish cut by prop
2 fish lost by hook pullout.

by-catch: 1 blue shark, 2 skates

Comments: shark parted longline. One half hour search time for remaining section.

August 27 - August 28, 1982

75

Latitude 42°28'

Longitude 49°14'

set out 7:45 pm end 11:00 pm 500 hooks
haulback 5:00 am to 11:00 am

catch 11 swordfish

length (in/cm) 1/2 girth (in/cm)

73/185	23/58
64/163	18/46
64/163	18/46
55/140	16/41
40/102	11/28
77/196	21/53
65/165	19/48
56/142	17/43
71/180	18/46
67/170	20/51
55/140	14/36

by-catch: 4 blue sharks, 1 mako shark, 1 seaturtle - other than leatherback,
1 skate.

August 28 - August 29, 1982

Latitude 42°24'

Longitude 49°25'

set out 7:00 pm end 10:45 pm 500 hooks
haulback 4:30 am to 12:00 pm

catch 9 swordfish

length (in/cm) 1/2 girth (in/cm)

64/163	19/48
57/145	17/43
88/224	28/71
51/130	14/36
62/157	19/48
72/183	22/56
55/140	16/41
75/190	22/56
74/188	25/64

by-catch: 1 blue shark, 1 mako shark, 1 leatherback turtle.

Comments: gear conflict in set-out.

August 30 - August 31, 1982

76

Latitude 43°29'

Longitude 46°58'

setout 5:00 pm end 8:00 pm 300 hooks
haulback 5:20 am to 12:00 pm

catch 7 swordfish

length (in/cm) 1/2 girth (in/cm)

56/142	17/43
61/155	17/43
69/175	20/51
63/160	17/43
54/137	16/41
68/173	19/48
50/127	16/41

2 swordfish lost, hook pulled out.

by-catch: 1 mako shark, 2 blue sharks, 1 skate.

Comments: 8:00 am to 9:00 am searching for parted gear.

September 1 - September 2, 1982

Latitude 45°46'

Longitude 44°49'

setout 8:00 pm end 10:30 pm 350 hooks
haulback 5:15 am to 8:30 am

catch 7 swordfish

length (in/cm) 1/2 girth (in/cm)

66/168	18/46
73/185	21/53
68/173	20/51
65/165	17/43
63/160	18/46
57/145	15/38
68/173	19/48

by-catch: 1 mako shark, 2 blue sharks, 1 turtle - other than leatherback
sited near polyball.

September 2 - September 3, 1982

Latitude 44°24'

Longitude 44°56'

set out 9:15 pm
haulback 5:30 amend 12:15 am
to 12:15 pm

500 hooks

catch 20 swordfish

length (in/cm)

1/2 girth (in/cm)

65/165	20/51
63/160	18/46
68/173	21/53
68/173	19*/48
64/163	19/48
64/163	20/51
52/132	16/41
64/163	20/51
65/165	18/46
45/114	12/30
53/135	16/41
58/147	17/43
71/180	19/48
72/183	21/53
56/142	17/43
60/152	17/43
39/99	10/25
74/188	22/56
50/127	15/38
47/119	14/36

*healed over shark bite.

by-catch: 4 blue sharks, 2 skates, 2 mako sharks, 1 lancetfish.

September 3 - September 4, 1982

78

Latitude 44°25'

Longitude 44°54'

setout 10:00 pm end 1:30 am 400 hooks
haulback 5:30 am to 8:45 am

catch 13 swordfish

length (in/cm) 1/2 girth (in/cm)

67/170	17/43
45/114	13/33
54/137	16/41
63/160	17/43
35/89	9/23
32/81	8/20
64/163	16/41
50/127	15/38
51/130	14/36
61/155	18/46
66/168	17/43
69/175	19/48
68/173	20/51

1 swordfish lost - hook pull out.

by-catch: 1 mako shark, 1 blue shark.

September 4 - September 5, 1982

Latitude 44°50'

Longitude 44°54'

setout 5:40 pm end 8:30 pm 400 hooks
haulback 5:40 am to 1:10 pm*

catch 12 swordfish

length (in/cm) 1/2 girth (in/cm)

74/168	19/48
45/114	12/30
63/160	17/43
68/173	20/51
54/137	16/41
55/140	17/43
38/97	10/25
59/150	16/41
59/150	16/41
61/155	17/43

*Mainline parted searching 11:45 am - 12:00 pm.

by-catch: 1 mako, 1 leatherback turtle, 3 lancetfish, 3 skates, 1 blue shark.

Comments: Mainline parted, searching 11:45 am - 12:00 pm.

Japan Fisheries Association
2505 Wisconsin Ave., N.W. Rm. 506
Washington, D.C. 20007

April 11, 1983

Mr. David H.G. Gould
Executive Director
South Atlantic Fishery
Management Council 1
Southpark Circle, Suite 306
Charleston, South Carolina 29407

RECEIVED
APR 18 1983

Dear Mr. Gould:

Enclosed please find a copy of the comments on Swordfish sent by the Fisheries Agency of the Government of Japan via telefax today. The original of this document is being sent to you directly from Japan, and I believe you will be receiving it in a few days.

Thank you for your attention in this matter.

Sincerely,


Hiroyuki Takagi
Designated Representative

Encl:

**FISHERIES AGENCY
MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES
GOVERNMENT OF JAPAN**

2 1, 1 chome, Kasumigaseki, Chiyoda-ku, Tokyo, Japan

CABLE : "SUISANCHO" TOKYO
PHONE : 502-8111
EXT :

April 9, 1983

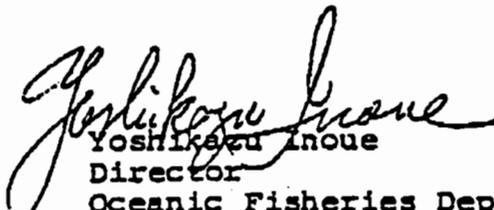
Mr. David H. G. Gould
Executive Director
South Atlantic Fishery
Management Council 1
Southpark Circle, Suite 306
Charleston, South Carolina 29407
U. S. A.

Dear Mr. Gould,

Upon instructions from my government, I wish to submit the comments enclosed herein of the Fisheries Agency of the Government of Japan (GOJ) concerning the Draft Fishery Management Plan, Regulatory Impact Review, and Draft Environmental Impact Statement for Swordfish, as published in the Federal Register of March 2, 1983 (FR. Vol. 48, No. 42, 8826-8827).

The GOJ strongly requests that NMFS take full account of these comments as well as those to be submitted by the Japan Tuna Federation and the Japan Fisheries Association.

Yours sincerely,


Yoshikazu Inoue
Director
Oceanic Fisheries Dept.
Fisheries Agency

COMMENTS OF THE FISHERIES AGENCY
OF THE GOVERNMENT OF JAPAN
ON DRAFT FISHERY MANAGEMENT PLAN (FMP)
FOR SWORDFISH

We consider that the FMP (Draft Plan) for swordfish proposed in February 1983 is unnecessary for reasons as stated below, and that it will unreasonably phase out foreign fisheries operations. We, therefore, strongly request the U.S. government to withdraw these measures.

1. On Fishery Resources

- (1) The catch of swordfish by U.S. fishing boats increased more than double from 350,000 lbs. in 1974 to 840,000 lbs. in 1980.

In addition, the CPUE of swordfish by Japanese tuna vessels in table 1 shows the same level for the past 10 years. These facts indicate that the state of the swordfish resource in the North Atlantic Ocean is far from the situation in which urgent regulatory measure of the resources is necessary.

The swordfish catch by Japanese vessels is incidental, and their fishery operations are not directed to swordfish which are usually caught in night.

However, assuming that the catch of swordfish by Japanese vessels is incidental, and considering that

the CPUE does not reflect the reality of the swordfish resources it can be said that the catch of swordfish by Japanese vessels does not cause the swordfish resources in the North Atlantic to diminish, and that, therefore, the measure to prohibit the incidental catch by Japanese vessels is not necessary.

- (2) There has never been any papers submitted to ICCAT by any country reporting the deterioration of the swordfish resources, or seeking the strengthening of fishery management.

The stock size assessment on the FMP draft is based on YPR analysis. The estimates on natural mortality (M) and fishing mortality (F), which are the main parameters, are based on many assumptions. Therefore, the estimation of the stock size made on such uncertain factors can not be a reasonable basis for fishery management.

2. Unreasonableness of Regulatory Measures for Foreign Fishing Operations

Under FCMA, the U.S. keeps out of its jurisdiction on tunas as highly migrating species. In the Presidential Proclamation in connection with the establishment of the Exclusive Economic Zone, tunas are also clearly distinguished out of jurisdiction. Consequently, the U.S. has no legal basis to control tuna fishery operations, and should give reasonable possibility for the foreign fishing operation to

catch tuna within the U.S. Economic Zone. However, considering that the incidental catch of swordfish is inevitable in the longline tuna fisheries, the measures to prohibit the incidental catch of swordfish by foreign fishing vessels as proposed in the FMP draft will, in effect, completely exclude tuna fishery operations by foreign fishing vessels, and such measures, therefore, are considered unreasonable. In addition, the proposed the FMP, which will lead to the closure of tuna fisheries, are contradictory to the spirit of the Sea Law, which aims to promote the optimum utilization of living resources within the Exclusive Economic Zone. The proposed FMP also cannot be desirable to the U.S. tuna fisheries, 90% of which are dependent on fishery operations within foreign waters.

If the proposed measures should phase the foreign tuna fisheries out of the U.S. Economic Zone, leading to the abandonment of the thought of optimum utilization of fisheries resources by the U.S. itself, there would emerge a strong possibility that other countries will adopt similar measures against the U.S. tuna vessels. It can, thus, be said that such proposed measures would be dangerous to the U.S.

3. Unnecessity of Regulatory Measure on Japanese Fishing Vessels

- (1) Up to 1981, Japanese tuna vessels had operated 2,000 ~ 5,000 vessel days annually within the U.S. 200-mile zone. But, in 1982 they imposed voluntary regulatory measure for their operations in the Gulf of Mexico as an area

for egg-laying of blue fin tuna. And in 1983 closing measures to the Gulf of Mexico were taken on the basis of the ICCAT recommendation. Further more foreign tuna operation within the 100-mile from the shoreline on Atlantic Coast between June 1 and November 30 the main fishing season for blue fin tuna, were prohibited by U.S. in 1983. After that, the value of the U.S. 200-mile zone as a fishing ground to Japanese vessels sharply declined. In 1983, the number of Japanese vessels that applied for permits to operate in the U.S. waters seems to be only 5 vessels, or a total of 400 vessel days in number of operating vessel days.

The largest incidental catch in recent years by Japanese fishing vessels was 3,970 swordfish recorded in 1981. But the total number of incidental catch in the Atlantic water excluding the Gulf of Mexico where Japanese tuna vessels currently can not access area amount to only 2,416 fish. In the 1983 fishing season, on the basis of similar incidental catch rate as in 1981, the estimated incidental catch of swordfish will be as $2,416 \times 400/5,055 = 191$ fish. This figure represents only 0.15% of 124,800 swordfish caught by U.S. fisheries (Advisory Committee estimate and ICCAT data). This falls within the range of a statistical error.

Should the regulatory measure be effected on the Japanese fishing vessels, the actual Japanese operations would have no practical effect on the swordfish stock. Such measure would therefore be meaningless.

- (2) However, because of the regulatory measures which would be meaningless as above said, the 5 Japanese fishing vessels which applied the permits, will be deprived of their fishing rights because the incidental catch of swordfish is unavoidable in the tuna long line operations. Thus, they will suffer serious economic damages.

For passed few years, Japanese fishing vessels have had voluntary regulatory measures on their own operations with respect to fishing areas and fishing season in an effort to reduce the incidental catch of billfish and the conflict of fishing gears, tried to operate in close coordination with U.S. fishing vessel and achieved many accomplishments.

This voluntary regulation has been carried out based on the agreement between the U.S. and Japanese governments and industries. The proposed FMP draft, however, will force the agreement unmeaningful, which is most regrettable to the Japanese fishing industries that have been sincerely working to implement the voluntary regulation. In the past, truly rational solutions were reached only in a friendly manner through discussions between the two countries. This FMP measure will only lead to a useless, economic confusion, and cannot be desirable to the mutual U.S. - Japanese interests. We, therefore, strongly request the U.S. government to delete from the FMP draft the regulatory measure on

foreign fishing vessels operations which will be unnecessary for the purpose of fishery management.

Table 1 Three Consecutive Years Average
of Cpue (Fish/100 Effective Hooks)
of Swordfish

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ICCAT DATA
SCRS/82/46
KIKAWA, S.
and M. HONMA

Table 2 Total Fishing Vessel Days of Japanese Tuna Vessels within the U.S. 200-mile Zone in Atlantic Coast, and its Incidental Catch of Swordfish

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	Atlantic	Gulf of Mexico										
Total fishing vessel days	1,182	917	1,196	1,502	1,615	969	3,102	1,953	961	-	(400)	-
	2,099		2,698		2,584		5,055		961		(400)	
Incidental catch of swordfish	2,373	502	873	1,611	1,502	1,259	2,416	1,554	492	-		
	2,875		2,484		2,761		3,970		492			

(Source: Fishing data by Japan's Tuna Fishing Industries.)

(Note)

1. Incidental catch means the number of fish caught dead.
2. Figures in () are estimates.

FIRST OCEAN EXPLORER, INC.

3815 N.E. 170th STREET
 BEACH, FLORIDA 33160
 (305) 948-2365
 APR 12 1983

SOUTH ATLANTIC FISHERY
 MANAGEMENT COUNCIL
 CHARLESTON, S.C. 29407

April 11, 1983

Mr Gould:

I have been swordfishing for three years on the east coast of Florida only. I have invested every penny I had, and then some, in a forty foot boat, which is considered one of the smaller boats in the fleet. Therefore, I am restricted to where and when I can fish. When the weather is nasty from October to April, we do not fish very often. I say "we", because I am not alone. There is a very large number of boats in this category. If any favoritism or special consideration should be shown, think about the small boat owner, who may only fish one hundred nights of the year.

In reading the summary, I was shocked to see "Exception of Harpooning from Variable Season Closure". This does not make much sense since, harpooning is a "Selective Fishery", where large fish are mainly taken (meaning mostly females). Also, from what I understand, there are more large fish caught off New England than anywhere, meaning more females "again". I would say that this is a very important factor, which should be researched thoroughly, before any decisions are to be made.

These are just a few problems that plague this "Variable Closure Phase". I would hope to say, the first major step to be taken should be to limit the "Fishery" to the number of boats that have fished in the past year, 1982. They have done it in other fisheries why not this one? In doing this, you will stop the increasing fishing pressure, which is at its maximum now.

Thank you very much for your attention and sincere consideration in this matter.

Copy: Joyce H T Court
 Chief, Ecology and Conservation Division
 Room 6663
 US Dept of Commerce
 Washington, DC 20230

Sincerely,

Michael J. Chubbucke
 1st Ocean Explorer, Inc.

G.R. MacLean
 Box 7
 Big Pine Key, FL 33043

David H.G. Gould, Executive Director
 South Atlantic Fishing Management
 South Park Bldg., Suite 306
 1 South Park Circle
 Charleston, South Carolina, 29407

APR 19 1983

SOUTH ATLANTIC FISHERY
 MANAGEMENT BOARD

Sir:

Regards the "Swordfish Management Plan", I was in attendance during the Key West meeting; and must add I was quite shocked to find the "purposed plan" dealing in less than adequate fact finding, scientifically, past 1980 and very questionable data prior to the 1980 concept. Further, the concept of "Closure" appeared to be the basic theme of the Brief; really, we all know that closure is in no way a means of conservation! It may, be your easiest solution and quote's may be your alternative. However, Limited Entry is the only sincere conservation approach this does limit Catch per unit effort. Closure only creates more boats during the open times and increases on the overall the Catch per unit effort!! Think about it! LIMITED ENTRY = CONSERVATION!

Harpooners exemption if due to short reason; then don't forget the small boats in the straits of Florida - they too should recieve exemptions, ie, no closures at all due limited fishing days, weath wise!

If quotes are a consideration then lets have individual quotes per boat rather than an over-all seasons quota. Little boats (under 44 ft.) have less chance for fair share due again to weather.

Gill nets - no - too severe on fishery.

Foreign Vessels - no - immediate withdrawal - Swordfish are worth much more than \$274.00 a piece- No foreign vessels all zones!

Scientifies data and fisherman involvement: I requested from the "Management Chairman" Key West meeting a list of Fisherman (Swordfisherman) actively involved in (a) data collection, (b) representation on boards or panels. I was advised there were many. I further was promised a list of Fisherman Involved names. This is 11 April, 1983. I have not yet received what had been promised, is this another governmental white wash job??

If a plan is necessary than let us develop one with a common purpose and joint responsibility with at least one fisherman on the advisory panel. If we are to be advised, let us determine to some extent our future. It seems to me that (a) Much more scientific work is required. (b) To create regulations which allow for futuristic learning and data gathering is a definite hardship for

People in the industry. A point being this "The panel was asked a very simple question during the Pompano Beach meeting" That was how many boats fishe Swordfish?? The panel had no answer. Check the record! (c) Limited Entry is the only sensible solution allowing those now involved to prosper and develop this resource to its maximum without imposing closures due to an increase in boats and year.

Please review this letter and if further communication is possible please let use open lines between law makers and those for whom the laws are supposed to protect and hopefully assist.

To my knowledge there has been little or no two way communication

Sincerely,



GEORGE R. MacLEAN
Owner/Operator of the
Fishing Vessel "Thunder" *cc.*

cc: Joyce M.T. Wood
Chief, Erology & Conservation
Division
Room 6800
U.S. Department of Commerce
Washington, D.C. 20230

cc: The Whitehouse
1600 Pennsylvania
Washington, D.C. 20500



**FEDERATION OF JAPAN TUNA FISHERIES
CO-OPERATIVE ASSOCIATIONS**

-TELEPHONE-

TOKYO (264) 6161
(262) 3774

22-3, 2-CHOME KUDANKITA, CHIYODA-KU
TOKYO, JAPAN

-CABLE ADDRESS-

JAPANTUNA TOKYO
TELEX NO. J 24453
AAB:JATUFA

April 12, 1983

Mr. David H. G. Gould
Executive Director
South Atlantic Fishery
Management Council 1
Southpark Circle, Suite 306
Charleston, South Carolina 29407
U. S. A.

Dear Mr. Gould:

On behalf of Japanese tuna longline fishermen, I wish to submit the comments enclosed herein of the Federation of Japan Tuna Fisheries Co-operative Associations concerning the Draft Fishery Management Plan, Regulatory Impact Review, and Draft Environmental Impact Statement for Swordfish, as published in the Federal Register of March 2, 1983 (FR. Vol. 48, No. 42, 8826-8827). We request your most favorable consideration.

Yours sincerely,

Shojiro Shimura
Shojiro Shimura
Executive Director
International Affairs
Federation of Japan Tuna Fisheries
Co-operative Associations

" COMMENTS ON THE DRAFT ENVIRONMENTAL
IMPACT STATEMENT/ FISHERY MANAGEMENT
PLAN FOR ATLANTIC SWORDFISH. "

by Federation of Japan Tuna Fisheries
Co-operative Associations

On behalf of Japanese tuna longline fishermen, we wish to submit the following comments on the captioned draft FMP.

Gist of Comment:

We oppose the adoption of the draft FMP because of the following reasons:

The foreign fishing management measures proposed in the draft FMP are contrary to the provisions of the Magnuson Fishery Conservation and Management Act (MFCMA). Furthermore, the mortality of swordfish as a result of Japanese tuna longliner fishing in the U.S. FCZ is such a negligible amount that the impact on the swordfish stock is very small. Therefore, the Japanese longliners can have no statistically valid or discernible effect on the U.S. swordfish fishery stocks, and there is no necessity nor appropriate reason to adopt any restrictive measures on there fishing operations in the U.S. FCZ.

- Comments -

1. The draft FMP is illegal in the light of the provisions of MFCMA due to the following reasons;

(i) The draft FMP specifies the intent to phase out foreign longline fishing operations from the U.S. FCZ, and as a way to realize this phase-out, restrictive measures are provided for, such as a declining quota on the number of swordfish that can be hooked by foreign fishing, based on 1980 Japanese data, an accelerated phase-out of foreign hooked swordfish, etc. When it is duly considered that (a) swordfish share the same habitat with

tuna and naturally the incidental catch can not be prevented, and that (b) to prevent such incidental catch, tuna fishing itself would have to cease. These measures, which will actually function to rob foreign tuna longlines of reasonable opportunities to catch tuna within the U.S. FCZ, are contrary to the provisions of the MFCMA which exclude tuna, highly migratory species, from U.S. jurisdiction.

(ii) The draft FMP is in violation of provisions of the MFCMA (Sec 301-(a)(7)), which requires that conservation and management measures shall, where practicable, minimize cost and avoid unnecessary duplication. The area closure for foreign longline fishing within 100 miles waters in the U.S. East Coast was implemented in September 1982 based on Amendments to the PMP for billfish and sharks. Inasmuch as the closure has made much of the tuna in the Atlantic FCZ inaccessible to Japanese longliners, it has had an equivalent effect on the Japanese longliners' incidental hooking of swordfish. Therefore, there is no necessity nor appropriate reason to introduce any further measures to restrict foreign longlining in the U.S. FCZ.

2. The impact by Japanese tuna longliners on the swordfish stock within the U.S. FCZ is so small that it is statistically insignificant for stock management purposes. Any reduction in swordfish mortality resulting from a reduction in the incidental catch of Japanese longliners can have no statistically valid effect on the fishing mortality (F) measure used to determine OY (YPR). Therefore, the proposed management measures directed at tuna longliners have no validity as a means of achieving maximum YPR and are both unnecessary and unjustified in terms of the cost/benefit ratio.

(i) In 1980, the base year for most of the management measures in the FMP, U.S. swordfish fishermen caught at least 125,000 swordfish in the Atlantic and Gulf waters (estimate by the U.S. swordfish fishermen and swordfish dealers at the Advisory Committee meetings in preparation for development of the FMP).

On the other hand, the number of swordfish which were killed in 1980 within the FCZ of the Atlantic Coast and the Gulf of Mexico as a result of the by-catch of Japanese longliners is only 2,761, which accounts for only 2% of all the swordfish mortality in the said area in that year.

(ii) In 1982, the number of swordfish killed within the U.S. Atlantic FCZ as a result of by-catch of Japanese tuna longliners was only 492 (fishing operations in the Gulf of Mexico FCZ were voluntarily stopped in consideration of the ICCAT bluefin tuna stock assessment.) If you replace this figure 492 for the 1980 figure (i.e. 2,761) in the above calculation (without considering a rapid increase in the fishing efforts by the U.S. fishermen), the figure obtained is a negligible 0.3%. This figure duly justifies our view that Japanese tuna longliners have no impact on the swordfish stock in U.S. FCZ.

In this connection, it should be stated that full observer boarding coverage for Japanese vessels has been in effect since 1982, so there should be no legitimate reasons to double the above figure 492 as such unilateral idea applied in the draft FMP.

(iii) In addition, the number of swordfish killed by Japanese tuna longlining within the U.S. Atlantic FCZ in the year of 1983 is expected to be substantially reduced from 492 (for the year of 1982) to about 200 because the number of Japanese vessels expected to fish in the said waters will be drastically lessened (estimated at 5 vessels as against 18 in 1982, with little possibility that this number will be increased in the foreseeable future) due to the loss of good tuna fishing grounds as a result of implementation of the 100 mile area closure in the Atlantic Billfish and Sharks PMP, despite of our opposition to its implementation because it is contrary to the provisions of MFCMA by denying the reasonable opportunities of foreign tuna longliners to catch tuna within the U.S. FCZ. Active fishing operations in the U.S. FCZ in the Gulf of Mexico by Japanese tuna

longliners will not be resumed in the future unless bluefin tuna restrictions by ICCAT are alleviated.

Howard W. Lee /2331 n. e 34 court / ⁹⁷lighthouse point florida 33064 / (305) 943-5808

12 April, 1983

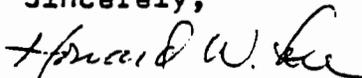
Dear Mr. Gould,

As a follow up to the swordfish management meeting in Pompano Beach, I as a boat owner, would like to make the following comments.

1. There should be a total ban of Japanese tuna fishing in U.S. waters. Gear conflict and swordfish kill is unavoidable. No gear can be designed to eliminate swordfish kill.
2. Japanese kill statistics for swordfish cannot be relied upon. How naive can we be? They are a very aggressive and practical people little concerned with conservation. Especially in our waters!
3. U.S. observers cannot be relied upon. They must sleep, and their comfort on board is determined by the Japanese. Naive.
4. Let us not make further senseless laws like those that recognize unavoidable killing of blue fin tuna but make it a crime to market more than two and sometimes none per trip. Millions of dollars that could go to strengthen our fishermen and economy are turned into shark and crab food.
5. Along with eliminating the Japanese presence, there should be limited entry to the swordfishery to keep the stock from being overfished and to prevent the boom-bust cycles as have happened in the scallop, shrimp, salmon, king crab etc. fisheries.
6. On the small U.S. boats an observer-scientist could be a great liability to the fisherman.
7. Some attention should now be paid to protecting the egg bearing female and particularly the juvenile of the species. In the Gulf of Mexico many boat's entire catch will be of 25 and 50 pound fish.

Thanking you for your attention,

Sincerely,


Howard W. Lee

FISHERIES AGENCY
MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES
GOVERNMENT OF JAPAN

2-1, 1-chome, Kasumigaseki, Chiyoda-ku, Tokyo, Japan

CABLE : "SUISANCHO" TOKYO
PHONE : 502-8111
EXT :

April 9, 1983

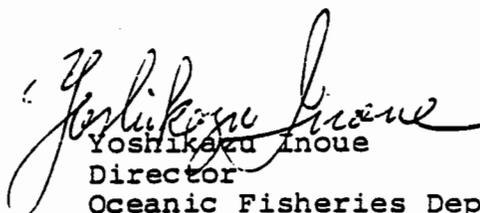
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The GOJ strongly requests that NMFS take full account of these comments as well as those to be submitted by the Japan Tuna Federation and the Japan Fisheries Association.

Yours sincerely,


Yoshikazu Inoue
Director
Oceanic Fisheries Dept.
Fisheries Agency

COMMENTS OF THE FISHERIES AGENCY
OF THE GOVERNMENT OF JAPAN
ON DRAFT FISHERY MANAGEMENT PLAN (FMP)
FOR SWORDFISH

We consider that the FMP (Draft Plan) for swordfish proposed in February 1983 is unnecessary for reasons as stated below, and that it will unreasonably phase out foreign fisheries operations. We, therefore, strongly request the U.S. government to withdraw these measures.

1. On Fishery Resources

- (1) The catch of swordfish by U.S. fishing boats increased more than double from 350,000 lbs. in 1974 to 840,000 lbs. in 1980.

In addition, the CPUE of swordfish by Japanese tuna vessels in table 1 shows the same level for the past 10 years. These facts indicate that the state of the swordfish resource in the North Atlantic Ocean is far from the situation in which urgent regulatory measure of the resources is necessary.

The swordfish catch by Japanese vessels is incidental, and their fishery operations are not directed to swordfish which are usually caught in night.

However, assuming that the catch of swordfish by Japanese vessels is incidental, and considering that

the CPUE does not reflect the reality of the swordfish resources it can be said that the catch of swordfish by Japanese vessels does not cause the swordfish resources in the North Atlantic to diminish, and that, therefore, the measure to prohibit the incidental catch by Japanese vessels is not necessary.

- (2) There has never been any papers submitted to ICCAT by any country reporting the deterioration of the swordfish resources, or seeking the strengthening of fishery management.

The stock size assessment on the FMP draft is based on YPR analysis. The estimates on natural mortality (M) and fishing mortality (F), which are the main parameters, are based on many assumptions. Therefore, the estimation of the stock size made on such uncertain factors can not be a reasonable basis for fishery management.

2. Unreasonableness of Regulatory Measures for Foreign Fishing Operations

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If the proposed measures should phase the foreign tuna fisheries out of the U.S. Economic Zone, leading to the abandonment of the thought of optimum utilization of fisheries resources by the U.S. itself, there would emerge a strong possibility that other countries will adopt similar measures against the U.S. tuna vessels. It can, thus, be said that such proposed measures would be dangerous to the U.S.

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ICCAT DATA
SCRS/82/46
KIKAWA, S.
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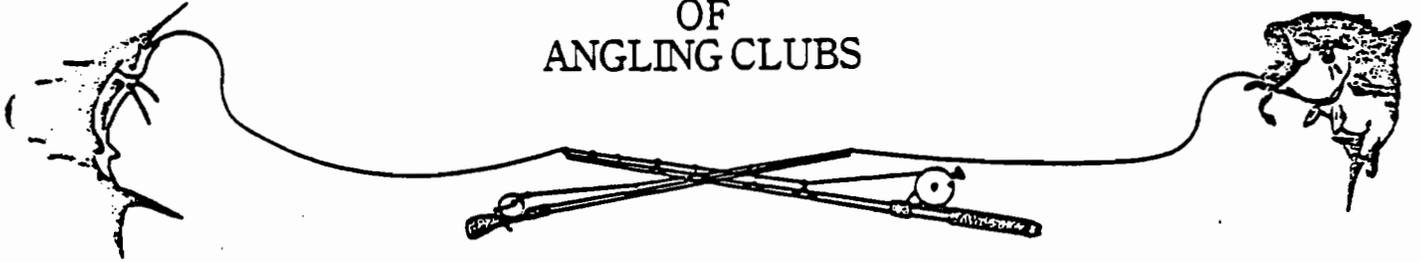
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(Source: Fishing data by Japan's Tuna Fishing Industries.)

(Note)

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2. Figures in () are estimates.

107
CONSERVATION COUNCIL
OF
ANGLING CLUBS



P.O. BOX 606 NORFOLK, VIRGINIA 23501-0606

CAPE HENRY
HILLFISH CLUB

CONFEDERATE
BASS MASTERS

EASTERN SHORE
ANGLERS CLUB

NORFOLK COUNTY
ANGLERS CLUB

PENINSULA SALT-
WATER SPORT
FISHING ASSN.

PORTSMOUTH
ANGLERS CLUB

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ANGLERS CLUB

VIRGINIA
ANGLERS CLUB

VIRGINIA BEACH
ANGLERS CLUB

VIRGINIA BEACH
SANDWICHES

EAST COAST
SPORTSMAN CLUB

VA. BLUEWATER
GAMEFISH ASSN.

TIDEWATER CHARTER
BOAT ASSN.

South Atlantic Fisheries Management Council
1 Southpark Circle Suite 306
Charleston, South Carolina 29407

MAY 10 1973
COMMUNICATIONS SECTION
U.S. DEPARTMENT OF COMMERCE
WASHINGTON, D.C.

The Conservation Council is an affiliation of the marine recreational fishing clubs of Virginia. One of its purposes is to express the thoughts of more than 4,000 recreational fishermen, in matters affecting their interests.

The enclosed comments on the proposed Management Plan for Swordfish are the result of a thorough review of the FMP, and intensive discussions by representatives of our member organizations.

Very truly,

L. Carl Herring Jr. -President

James F. McHugh -Vice President

James R. Martin -Sec. & Treasurer

The Conservation Council of Angling Clubs of Virginia has several serious reservations concerning the proposed Fishery Management Plan for Swordfish. In general, these are based on the fact that the total of our study of available scientific information, when added to our experiences, observations, and information obtained from reliable sources; in other areas, indicate that this species is being subjected to dangerous fishing pressures. We are concerned that the results of these pressures will have a permanent, negative effect on the stocks.

While we fully appreciate the problems involved in proposing a reasonable management scheme, we do not feel that adequate management measures have been proposed to provide against the very real contingency of irreversible stock declines. Although the Variable Season Closure Calendar is, theoretically, an acceptable concept, we feel that the proposed Management Plan does not contain adequate measures to make it practically effective.

Historically, the commercial Swordfish fishery is a harpoon effort. In this method of harvest, the species is subjected to fishing effort during a relatively short season, and the capture is largely confined to mature fish. With the discovery, in the mid 1960's that Swordfish were vulnerable to longline fishing, effort expanded to a year long season, and since longlining is an indiscriminant method of effort, smaller and immature swordfish are being harvested in substantial numbers. From an initial participation of only a few boats in Swordfish longlining, entry into this fishery has continually increased to a present unconfirmed estimate of 500 full or part time participating boats. Between 1960 and 1980 landings have increased from 1 million to 7.5 million pounds (NMFS data).

Added to this brief historical background, and additionally contributing to the reason for our concerns, is the current

scientific and statistical data available in the Source Document for the Swordfish Fishery Management Plan, (SAFMC. May, 1982). This document states, (page 8-1) that, "Age at first spawning was reported to be five to six years." and further on, "Estimates of (size at) sexual maturity off the southeast coast of the U.S. are 163.1 lbs. for females". Relying on the factor used by the source document, this estimate converts to 122 lbs. dressed weight.

On page 8-7, the Source Document states, "Berkeley and Houde (1981) observed fish in age classes 0 to 11 in South Florida longline catches; however, more than 50% of the catch was composed of ages 1 through 4." The referenced figure, for this comment, (Fig. 8-2), indicates that the statement was made on the basis of 22,800 fish observed, of which 75% in 1979, and 60% in 1980, were immature. 55% in 1979, and 60% in 1980 were under 100 pounds round weight. The investigators do not provide an estimate of the fish observed as a percentage of the total harvest. Other data states that the South Florida harvest was 1.7 million pounds in 1979 and 2.6 million pounds in 1980, both round weight.

With this information for a substantive background, we fail to see how the proposed Fishery Management Plan provides for even a stabilization in the harvesting of immature fish. While, theoretically, the scientific community may argue that the variable closure scheme, and YPR method of estimating stocks will accomplish this desirable result, the FMP contains no proposal for controlling effort in a timely manner: its method of implementing catch reductions lags the triggering condition by a full fishing year; and the proposed size of the sample on which the closure decisions will be made seems so small as to be extremely vulnerable to serious challenge, should a closure become necessary.

Since landing prices for Swordfish are in the \$2 through \$4 range, continued referral to the Source Document cannot help but lead to the conclusion that socio-economic considerations were a most significant factor in the finalization of this FMP. While recognizing the necessity for these considerations, the fact that

this species is a premium priced commodity in the marketplace necessitates an in depth appraisal of the potential impact on stocks resulting from continued effort at the presently increasing levels.

"If revenues are rising at a rate greater than costs, the fishermen will continue to fish despite declining abundance. Furthermore, most currently used management regulations will not effectively reverse this situation. This can be a serious problem because there is no economic disincentive to harvest fish as abundance is reduced" (Norton & Strand, University of Maryland, 1980).

In this situation another economic problem is a distinct possibility. Increasing prices tend to attract additional entries into the fishery. Such a condition is a documentable trend in the Swordfish fishery, at the present time. Increased effort in the face of declining abundance must result in a reduction in CPUE. Over-capitalization is the direct result.

A review of the socio-economic data included in the Source Document does not seem to indicate that these factors have been taken into adequate consideration in considering the potential problems in this fishery.

It is the firm belief of our organization that the Swordfish FMP should include measures which will reduce juvenile mortality. In our opinion this may be done by either reducing the number of participants in the fishery, or strictly regulating the time and method of effort.

Perhaps the clearest and simplest statement of the current condition of this fishery can be found in no better place than in Sec. 2(a)(2) of the Magnuson Act, which says, "As a consequence of increased fishing pressure and because of the inadequacy of fishery conservation and management practices and controls (a) certain stocks of such fish have been overfished to the point where their survival is threatened, and (b) other stocks have been so substantially reduced in number that they could become similarly threatened."

The draft FMP clearly states that, "Growth overfishing is expected in 1981 and will likely become more intense". This is 1983, and there are no prospects that this plan will be implemented before 1984. Currently there are no restraints on U.S. fishing effort, nor any adequate data collection regime in place. If there is an validity in the statements contained in Sec. 2(b)(1)(3) and (4) of the Magnuson Act this Swordfish FMP should be drafted to provide for adequate conservation and proper management. In its present form it does neither.

Directly addressing the content of the FMP, the Virginia Council of Angling Clubs has the following comments:

1. The variable closure scheme does not provide for a shift in effort from area to area. Since a prohibition against such activity may be difficult to enforce, it would seem that a viable alternative would be to close the longline and gill net fishery, and prohibit the traffic in either fresh or frozen swordfish, from November 1 until May 1.

Closure of the longline fishery for these six months is a desirable alternative, based on the following knowledge:

- a. Since the longline fishery is indiscriminant, the directed longline fishery for Swordfish results in a substantial by catch of Bluefin tuna and marlins.
- b. The major spawning areas, and the annual migratory tracks of all these species are well established, with the bulk of the spawning taking place in the Gulf of Mexico, December through April, and a major portion of the northly annual migration occurring through the Straits of Florida, and between southeastern Florida and Bahama, from March through May. Since these locales constitute "choke points", with maximum distances between land masses being less than 100 miles, these species are particularly vulnerable to an infinite number of longline sets up to 60 miles in length. Southeast Region Observer

records indicate that the Japanese longline fishery deployed their vessels in these areas. NMFS catch records, by areas, attest to the fact that the greatest increases in the total annual U.S. harvest of Swordfish have taken place on Florida east coast and Gulf of Mexico. (Source Document, SAFMC, Table 8-14 and 8-15). Since, as has been previously demonstrated, the greatest percentage of the southern Florida harvest is immature fish, a total closure of this area, during the spawning and migratory seasons would be not only proper, but reasonable management of the stocks. As a matter of fact, not to do so would seem to be a violation of National Standard 1, 2, and 3. The concept is compatible with Standard 4 since we would, undoubtedly, witness the reverse of the present practice in which northern longline vessels go south, and work north with the migration. Given a closure, the southern based vessels would come north and work from that location where they find fish on May 1, and again south in the Fall until November 1. Until further data is accumulated, evaluating the continued impact of the longline fishery on immature fish, the question of efficiency contained in Standard 5 need not be raised. The concept of the closure seems to be in accord with Standards 6 and 7.

2. We assume that the letters of intent and authorization described in Sec. 10.2(D)(1) of the FMP is the equivalent to a permit. We believe that all vessels participating in the longline fishery should be permitted. We further believe that mandatory participation of a percentage of the participants, selected by lottery, or scientific formula is desirable, if it is workable, and if it results in producing data adequate to proper management of the fishery.

We do believe however, that the sampling scheme, as it is described in this section is weak with regard to the intent to implement it, e.g. "every effort will be made to assure that

no vessels will be observed more than once a season" and "If at any time on-board technicians are not necessary for stock assessment they will be eliminated". We do not consider this language either proper, or necessary, if an assessment plan is to be implemented objectively. Certainly the actions they describe may be taken at the management level, when in the opinion of the authorities, they are justifiable. To state, is to provide loopholes for escapement from participation.

A matter of additional concern, in this section, is the proposed size of the sample. Given prevailing conditions, in which numbers, rather than average weight, are significant it would seem that observation of the greatest possible number of individual fish would provide the most stable indicator of the percentage of immature fish being harvested. Witness the fact that Berkeley and Houde observed close to 8,000 fish in 1979, and close to 15,000 in 1980. The 20% sample proposed by the Mid Atlantic FMC seems much more like a realistic minimum.

In any event, and from purely a standpoint of statistical methodology, it does not seem that a sample size of equal numbers in each of the three active fishing areas will produce an accurate, meaningful result. Such a proposal seems to provide too great an opportunity to play with numbers. If, for example, 75% of the fish observed in the New England area are observed in the harpoon fishery, then these average weights will substantially skew the average weight of all the fish observed. If, on the other hand, the vessel selection is made in proportion to the number of boats participating in the longling or the harpoon fishery, a greater absolute number of longliners will be observed. While this may well provide an acceptable abstract number for scientific theorizing, we do not believe it will accurately reflect the true condition of the fishery, and the direction in which it is headed.

It must be remembered that, while the southern Florida longline fishery is exerting severe pressures on immature fish, thereby culling the stocks from the bottom, the New England harpoon fishery has, in recent years, introduced the spotter airplane, thereby greatly increasing their efficiency while culling the stocks from the top. Best available data (Canadian - Source Document: SAFMC, Table 8-3) indicates that prior to the introduction of a longline fishery, and presumably prior to intense airplane spotter support, the Canadian harpoon fishery annually harvested 3 million to 6 million pounds, dressed weight, of Swordfish. With the advent of longlining, the harpoon catch dropped steadily from 606 m/t to 83 m/t in an 8 year period (Source Document SAFMC, Table 8-3).

In summary we believe that a much more detailed statistical plan should be spelled out in the FMP. It is common knowledge that the Swordfish fishery has perceived reasons for desiring secrecy concerning their effort and harvest. Beyond the constraints imposed by the NMFS guidelines for confidentiality, we do not believe that the monitoring of the Swordfish fishery should be tailored to condone this secrecy. This is particularly true since the purpose of the monitoring plan is to obtain the best scientific knowledge available in order to properly conserve and manage the resource. We are not convinced that the present proposals will do so.

3. With regard to the proposed Foreign Fishing Management Measures, we believe that Alternative No. 3, a straight line, 20% annual, reduction, is not only the desirable alternative, but that it is totally consistent with the intentions of the American Fisheries Protection Act. We further believe that the foreign fishery should be closed before it becomes necessary to close the U.S. fishery, without any introduction of accelerated quota rates.
4. A final comment has to do with the Management Measures considered, and rejected. Comments contained in the reasons for rejection,

particularly in Sec. 10.7.2 and Sec. 10.7.9 seem to document our concerns for the methodology of the monitoring system being proposed in this FMP. They also, most certainly, dignify our concern that the approach to this FMP has been guided by some socio-economic considerations rather than necessary management of the resource. If the writers admit that mandatory reporting will provide more valuable, and more accurate data than they can expect to obtain by the proposed monitoring scheme, where we ask, is there any consistency with the legislative mandate to provide "the best scientific data available"?

In closing we wish to make it very emphatic that we have not raised the issue of tuna and other billfish, as an issue for consideration, in other than one passing comment. This has been done, after considerable debate, and finally, with some reluctance. We have failed to comment on these concerns, out of an apprehension that our comments would be regarded as coming from the "recreational fishery", and therefore, lacking in understanding, and motivated by selfish or biased concerns. We have done our best to avoid this type of evaluation of what we have said.

The facts of life, however, cannot be ignored. Longline fishing is longline fishing, whether it is conducted by foreign fishing vessels, or U.S. owners. The data concerning the by-catch mortality on tuna and billfish has been widely circulated, and commonly accepted. We have no reason, nor have we heard of one being advanced, that will give us any confidence that U.S. longlining will have any less of a by-catch, or will be conducted in such a manner as will substantially reduce mortality in there other species. We are not so unrealistic as to believe that a market does not exist, and will continue to develop, for these by-catch species, and that the result can only be a severe, and adverse impact on the U.S. recreational fishing industry.

III. 1984 COMMENTS

SECTION A AGENCY COMMENTS

SECTION B PUBLIC COMMENTS

SECTION A AGENCY COMMENTS



118
UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

LAW ENFORCEMENT BRANCH
P. O. BOX 425, DTS
PORTLAND, MAINE 04112

29 March 1984

To whom it may concern

From: *Robert F. Gowell*
Robert F. Gowell, Senior Resident Agent

Subject: MORTALITY OF SWORDFISH HOOKED AND RELEASED IN THE JAPANESE
LONGLINE FISHERY

On 29 March 1984, Mr. William Jerome of the National Marine Fisheries Service in Gloucester, Massachusetts informed me of the following information:

During the Japanese longline fishery from 30 June 1982 thru 18 January 1983, the mortality of the swordfish hooked and released were as follows;

1,028 Hooked
541 Released Alive
463 Released Dead
24 Unknown

During the Japanese longline fishery from 8 January 1983 thru September 1983, the mortality of the swordfish hooked and released were as follows;

122 Hooked
37 Released Alive
84 Released Dead
1 Unknown





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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

Southeast Regional Office
9450 Roger Boulevard
St. Petersburg, FL 33702

November 20, 1984 F/SER21:MEJ/clw

TO: Bruce Austin
South Atlantic Council

FROM: *Michael E. Justen*
F/SER21 - Michael E. Justen

SUBJECT: Draft Fishery Management Plan, Regulatory Impact Review
Initial Regulatory Flexibility Analysis, and Draft Environmental
Impact Statement for Swordfish

SOUTH ATLANTIC FISHERY
MANAGEMENT COUNCIL
NOV 29 1984

As provided, I reviewed the above documents to provide comments which, if followed, would strengthen the FMP and supporting documents and minimize potential problems during the secretarial review. The following comments follow:

1. The documents, as they are presented, do not technically comply with the Regulatory Flexibility Analysis (PL96-354) due to the absence of a regulatory flexibility analysis. As such, the regulations would lapse 180 days after implementation. Technical compliance can be shown in the following manner:

- o Change the title of the documents to be "Fishery Management Plan, Regulatory Impact Review, Initial Regulatory Flexibility Analysis, Environmental Impact Statement for Swordfish."
- o Insert the Phrase "1.0 Executive Order 12291" after the section 10 main title.
- o Insert the following statement after the first paragraph in section 10 to more fully describe the various laws which the documents need to comply with:

"In compliance with Executive Order 12291, the Department of Commerce (DOC) and the National Oceanic and Atmospheric Administration (NOAA) require the preparation of a Regulatory Impact Review (RIR) for all regulatory actions which either implement a new fishery management plan or significantly amend an existing plan, or may be significant in that they reflect important DOC/NOAA policy concerns and are the object of public interest.

The RIR is part of the process of developing and reviewing management plans and is prepared by the Regional Fishery Management Councils with the assistance of the National Marine Fisheries Service (NMFS), as necessary. The RIR provides a



comprehensive review of the level and incidence of impact associated with the proposed or final regulatory actions. The analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve problems. The purpose of the analysis is to ensure that the regulatory agency or Council systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way.

The RIR also will serve as the basis for determining whether or not the proposed regulations will have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (P.L. 96-354)."

"2.Regulatory Flexibility Act

The purpose of the Regulatory Flexibility Act (RFA) is to relieve small businesses, small organizations, and small governmental entities from burdensome regulations and recordkeeping requirements."

"3.Paperwork Reduction Act

The purpose of the Paperwork Reduction Act (PRA) is to control paperwork requirements imposed on the public by the Federal government. The authority to manage information collection and recordkeeping requirements is vested with the Director of Office of Management and Budget. This authority encompasses establishment of guidelines and policies, approval of information collection requests and reductions of paperwork burdens and duplications."

- o A definition of small businesses needs to be stated in section 10. Acceptable definitions based on size standards developed by the Small Business Administration for the commercial and for hire of charter vessels are:

—"The Small Business Administration (SBA) defines a small business in the commercial fishing activity, classified and found in the Standard Industrial Classification Code, Major Group, Hunting, Fishing and Trapping (SIC 09), as a firm with receipts up to \$2.0 million annually.

--"SBA defines a small business in the charter boat activity to be in the SIC 7999 code, Amusement and Recreational Services, not elsewhere classified as a firm with receipts up to \$3.5 million per year."

o Additional rationale for the harpoon and rod and reel exclusions are to minimize the impact on small businesses. I believe that virtually all of the vessels in the swordfish fishery qualify as small businesses under the SBA criteria. Therefore, exclusion of these sections would enhance the overall FMP's acceptability to SBA since two user groups would be excluded from the variable seasonal closure.

2. The foreign fishing measures in the FMP do not reflect those in the FMP for Atlantic Billfishes and Sharks. Attached are the actual regulations with the implemented measures. The main differences are: The Atlantic Area II Closure extends as far south as Cape Lookout, North Carolina and the proposed Tortugas Closure is a five sided closure, not the rectangular shaped closure.

3. The fixed costs associated with developing the FMP needs to be updated to show council, contract and other costs incurred to date. In addition, variable costs associated with the working panel, data collection, enforcement and other activities need to be stated.

4. The FMP and associated documents all appear to be in good shape. You and your team members have done an excellent job on a complicated fishery.

Attachment

SECTION B PUBLIC COMMENTS

7-Subsidiary



2931 N.E. 16th Street, Pompano Beach, Florida 33062

(305) 941-6174 • (305) 941-6175

March 9, 1984

South Atlantic Fishery Management Council
 1 Southpark Circle
 Suite 306
 Charleston, South Carolina 29407-4699

ATTN: Mr. Melvin R. Daniels, Jr. Chairman

Dear Mr. Daniels,

In reference to the management plan now proposed for the swordfisheries, there are several areas that should be addressed before such plan is implemented. We are all totally aware of the present problem and our need to prevent growth over fishing and recruitment over fishing and to reduce the mortality rate. Without holding up the present proposed plan to implement a closure time in the industry we want to impress the importance of developing an emergency amendment immediately.

One of the first items that should be considered as top priority item is Limited Entry. Mr. Pete Jensen of the U.S. Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fisheries Service was kind enough to supply us with accurate information concerning it's application and benefits to other fisheries and also the constitutionality of the act itself. According to the Knight Report which was prepared October 1975 by Mr. H. Gary Knight and Mr. James P. Lambert and dealt with the legal aspects, Limited Entry is considered as a management tool which maintains the economic objectives of this plan along with the variable season closure will prove very effective. Limited Entry has worked effectively in other areas, it should be then considered as an option in the management of the swordfisheries.

As we have already mentioned, we understand the necessity of a management program, however, to institute a workable plan it is



necessary to have proper data from which to draw up such a plan. At this point, we feel, that the majority of the information the National Marine Fisheries has has been taken from improperly reported landings from specific areas. The present proposed May closure, using the 30% as a guideline, will place catastrophic impact on the economy level of the Florida East Coast regional fisherman. We agree, again, that the closure times are necessary, however, not at the expense of putting the small fisherman out of business. We need, at this point, to challenge the records by which the May closure is being considered. While challenging these records, we feel strongly that the records should be kept and counted in terms of head count and not in terms of pounds which would permit us a closure time that would be more affective with less economic stress on the fisherman.

The Florida East coast, because of the large concentration of smaller boats, the closeness of fishing grounds and weather conditions would bear the brunt of the May closure. At this time of year the North Atlantic and Mid Atlantic areas have minimal fishing and their activity, at this time, is limited to gearing out for the summer fishing months. By imposing a May closure it would unevenly apply an economic hardship to the point that it would obviously be a discriminatory economic hardship in the Florida East Coast area and may well be in violation of the national standard. The proposed closure times should affect each area equally. The ideal time for closure, to protect the stock, should be decided from data supplied by landing records at peak production times.

Weather conditions during the winter and fall months permit the smaller boats very limited access to fishing. Because of this and other circumstance, May could represent 20 to 30% of their income. Add June and part of July, as is being considered in the 30% closure and you totally put them out of business. This country was founded by the small independant business man.

At this point, we recommend a more reasonable approach to protect the stock. Stop the effort, that is to cap the effort and make it more effective by using both the Limited Entry approach, using closure times and other managment techniques that would cause equal burden throughout the industry. We would recommend that the ideal closure time, to place equal economic burden, allow fishermen the possibility of supplementing his income and to arrive at the needed reduction in the mortality rate, would be early fall. This is definitely the time for closure everywhere. This information was supplied by Steve Berkly and Ed Erby and other knowledgeable people and supported by our own catch records which include catches in all 4 of the council areas.

On the other hand, if the proposed plan is to impose a total gear restriction, which we strongly oppose, we would then have to recommend a July 1st closure. July presents the following advantages. The first being that it would be the shortest closure time in which

to arrive at the 30% reduction. This time would include only one or two moons, best time for catching swordfish, where other closure times could include as high as 8 moons. Secondly, since this is to be a total gear ban and not wanting to expand the tuna fisheries, this closure time would be better than the proposed May closure because Tuna has very little market value until late August.

We would also like to recommend that economically it would be easier for all concerned if the closure time and if the 30% be adopted that it be implemented on a gradual basis over a 2 or 3 year period. This would allow the fishermen the gradual adjustment to the loss of income.

Our final recommendation would be to have a total ban on imports of all swordfish products into the country during closure time to eliminate the possibility of flooding the market with foreign product, thus making the market value lower when the closure times are finished. Another area to be considered is that this also would minimize the pressure on stock outside the conservation zone in the North-east region.

We appreciate your effort in our behalf.

Sincerely Yours,


Roy Merritt
Vice President

- 1. Jerry Grandineth 1350 Pocahontes St., Mt. Pleasant, S.C.

2. Jeffrey James Dealer's Choice Pompano Beach.
P.O. Box 173 / Ocean City, Md.

3. William J. Garret XIPHIAS, Pompano Beach
390 NW 39th St
Pompano Beach, Fla
"Triple Slammer"

4. Capt. Benjamin W. Dyer II 4130 NE. 2nd Road
Pompano Beach, Fla.
Triple Slammer

5. Bruce Johnny Ottavia Italian
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6. Joe Mott "Carol Ann"
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7. William J. Thorton "PROVIDER"
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TAMARAC, FLA. 33319

8. Jay Permentore Lisa Ann
1673 NE 30th Ct
Pompano Beach, FL

9. William Moore } Fishing Lady
Ocean City, Md.
Doug Patin
Keith Reed
Holland Lewis

9. Capt *Miss Paul* } "TRIPLE MARKER"
 31 NE 30th Ave
 Pompano Beach, Fla
10. Thomas P. Co } "TRIPLE MARKER"
 10912 Majors Dr
 JAX Fla 32216
11. Tony Beismann "Big Deal"
 1343 Fairmont Ave
 Mt Pleasant SC 29464
12. Mark P. *Fuller* } "Miss Deal"
 500 N.W. 34th #223
 Pompano Beach, Fl
13. Bruce Humphrey Full House
 1423 Holly Hunt Dr
 Ft. Rye Fla 32204
14. Leland M. McClellan Jr. "Big Deal"
 1175 Mathis Hwy. Rd., A-2
 Mt. Pleasant, S.C 29464
15. Mrs Mercer Kristin Fee - boat owner
 2691 N.E. 22nd Ct.
 Pompano Beach, Fla. 33062

16. Chip Coffin
2604 N Riverside Drive
Pompano Beach Desperado
17. John Stranz
3000 N.W. 5th St.
Pompano Fla. Miss Deal
18. Jimmy FLAGEL
3248 NE 16 ST
POMPANO FLA
30662
19. Bernard E Black
1525 N.E. 30th St.
Vero Beach, FLA No Problem
20. Rik Krantz
608 S. Riverside
New Smyrna Bch.
Fla. Full House
21. J. Hamiton
116 NW 22nd St
Wilton Manors, Fla. 33011 Go Getter
22. David Cantor
1199 NE 176 ST
Miami FL 33179 Miss Deal
23. Rick Kane Sandra Lee
259 S cypress Rd.
Pompano Bch. FL. 33060

- 24) Eddie B. Kirkland Go Getter
 340 SE 7th St
 Pompano Beach 33060
- 25) Bruce Underwood Go Getter
 1410, Ada St
 Lansing Mich. 48910
- 26) J.B. Smith Outlaw
 3203 Robbins Rd
 Pompano Beach, Fla.
- 27) RICHARD BARTLETT
 NE 16TH ST POMPANO BEACH
- 28) Angela Matthews Hays D.
 2758 NE. 34 ST L.H.P.
- 29) 2931 NE 16TH ST Pomp. Fla
 Lynde Hagen - Sandra Lee

NAME	ADDRESS	BOAT
ESLIE (HANK) HAWIGER Capt for Se Mattie	2402 N.E. 20th Ave. #6 Pompano Beach, Fla. 33062	TRIPLE HEADER
John Ewald	4100 N.E. 15th Terr. Pompano Beach Fl.	ARBITRATOR
Charles La Miller	2624 U. Riverside Dr. Pomp. Bch. #6	Sir Fish A Lot
Kenneth C. Brock	802 S.E. 16 St Dunford Bch. Fla. 33441	Sir Fish-a-Lot
	1209 N.E. 55th Pomp. Bch	TRIPLE THREAT
Serge J. Criscione	8301 NW 46th Ct Laud Fla.	Triple-A-Boat
Richard Penn	2002-A S. 10 St Pompano Beach Fla	Misty Dawn
Paul A. Davis	1021 N.E. 27th Ave. Pompano Beach Fla. 33062	MERCHANT'S BOAT
Lester H. Kleinberg	408 Hibiscus Pompano Beach Fla.	Misty Dawn
Capt. James E. Hill	1228 NE 6 Ave FT. LAUD. FL. 33304	TRIPLE HOOKER
Capt Tom Mabee	250 W. Sample Rd. Apt 2102 Pompano Beach Fla.	HAPPY NIGHT TONIGHT
Capt Allen Esterson	234 N.E. 11th Delray Beach, Fla 33444	Triple Trouble
James Welchley	700 N. Ocean Blvd. Pompano Beach Fla.	Happy Night Tonight

- THOMAS F. WARES 70-01 SW 19th CT Happy Night Engraver
 Pompano Fla 33068
- Rich Fides 2797 NE 57th St Merchant Boat
 Ft Lauderdale Fla
- Patrick Davis 2204 N.W. 3rd Ave
 Wilton Manors Fla. Merchant Boat.
- Woody Davis 4491 NE. 15th Way Wild Card
 OAKLAND PK. FLA
- Steve Brubaker 390 NW 39th ST Triple M.
 Pompano Bch Fla
- Jerry McArthur 4289568 Triple M.
 5248 NE 15 AVE
 Pompano Beach Fla
- Bill Mumford 2840 SW 22nd Ave "Frolie"
 Delray Beach, Fla
- James P. McCallum 67 SW 10th Terr Triple Threat
 BOCA RATON, FLA
- Dennis J. Mahoney 1423 Holly Heights DR. Wild CARD
 Ft. Lauderdale. FLA.
- Bob Bradley 2823 NW. N AVE Wild Card
 FT LAUD. FLA. = THINK
- Dan Kennedy 2903 N.W. 11 Ave. Wild Card
 Ft. Laud. Fla.
- Stephen Soto 3137 NW 6th Ct
 Ft. Laud. Fla. Triple Threat
 640 NE 24th ST

Nichole E. Mueggrosso 3305 S.E. 5th St
Pompano

PAT BRENNAN 801 S. FEDERAL Hwy Pomp

Randy DiAmico 3011 NE 45th St L.H.P. Misty
Dawn

Don Lundy 812 SW 80th St #3 Triple
Rim

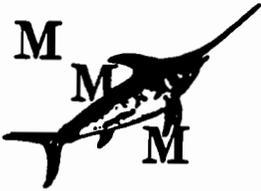
Edward T. MEANEY 5809 N.W. 20th Ct
Margate, FLA.
33063

~~Hank Hallise 3222 Main St Triple
Pompano Beach Fla. HEADER~~

Judy Bagley 1331 SW 7th Ave. Triple M
Deerfield Beach Fla.

Lidia E Beals 1620 N.E. 34th Ct.
POMP BEACH FLA 33064 Triple M

Andrea Polvere 2301 N.E. 6th Ave
Pompano Beach. Slammer
Fla. 33064



TRIPLE M SEAFOOD

EQUIPMENT DISTRIBUTORS, INC.

785-4200

March 20, 1984

Gentlemen, my name is _____ and I am here representing the fishermen who operate through TRIPLE M SEAFOOD. The information I am reading into the record is drawn from records provided by TRIPLE M. This information is paralleled by MERRITT's SEAFOOD Inc., with virtually identical results. The combined total catches of TRIPLE M and MERRITT's represent 75% of the Florida East Coast (F.E.C.) fishery and as such must be considered as a valid sampling.

Our records show that the average carcass weight for F.E.C. landings was 89 lbs. This figure was arrived at by dividing the total 1983 F.E.C. poundage of 750,513 lbs. by the head count of 8,472. The size frequency of the combined TRIPLE M and MERRITT's catch with the carcass weight greater than 50 lbs. is 60% of the catch. These figures are from the most current and best available F.E.C. data and as such are cause for a re-evaluation of the percent of the proposed reduction.

Total production for TRIPLE M and MERRITT's for 1983 was 1,500,000 lbs. This figure represents 75% of the F.E.C. fishery and not 50% as indicated by Council records. The difference in the production figures as opposed to the Council figures is due to the fact that the weight receipts at TRIPLE M were counted as F.E.C. fish, when in fact some of these fish were landed outside the F.E.C. and trucked to Triple M. This has caused some fish to be counted two times and has distorted the F.E.C. landings to a level above the actual figures. This distortion has caused the total landings to also be overestimated in the area where fish were counted twice. These facts must be considered and the errors re-dressed.



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TRIPLE M SEAFOOD
EQUIPMENT DISTRIBUTORS, INC.

785-4200

PAGE 2

In regards to the closure starting date of May 1, we object to May 1 and propose July 1, as an alternate. May 1 would place a severe economic burden upon the F.E.C. fishermen only, due to the high price of swordfish in May and the lack of production in other areas. July, on the other hand, has the benefit of giving the total fishery the shortest possible closure at a time when the vessel price is lower than in May. This gives us the shortest and most equal economic burden as prices are uniform up and down the east coast.

Our opinion on the question of limited entry would be that all vessels currently fishing as of June 1, 1984 should be admitted and licensed, the license being the possession of the owner or boat. New vessels entering the fishery could only do so upon transfer and retirement of a licensed vessel.

In closing, we feel that the information provided in this letter adds new and significant data which must be considered.

Thank you for your time.



University of Miami
Miami, Florida 33149

DIVISION OF BIOLOGY AND LIVING RESOURCES

Dorothy H. and Lewis Rosenstiel
School of Marine and Atmospheric Science
4600 Rickenbacker Causeway (305) 361-4151

Ref: 673-027-SAB:mg 27 March 1984

Dr. C. Bruce Austin
South Atlantic Fishery
Management Council
One South Park Circle
Suite 306
Charleston, SC 29407

RECEIVED
MAR 30 1984

SOUTH ATLANTIC FISHERY
MANAGEMENT COUNCIL
CHARLESTON, SC 29407

Dear Bruce:

After having been to the Swordfish Management Plan public hearings in Davie, I believe a number of issues need to be considered by the Council. First, it was pointed out that South Carolina data was being used as the major reason for triggering a 30% closure. I have several comments on this:

- (1) South Carolina produced much less fish than Florida or New England. If South Carolina data is to be used in conjunction with data from elsewhere, all data should be weighted to reflect each area's contribution to total landings. For example, we know that the western Gulf of Mexico is dominated by small fish and always has been. An unweighted mean size based largely on fish from Texas would certainly underestimate the true population mean.
- (2) If the data now being made available from Merritts and Triple M is legitimate, then the mean size of fish in the Florida Straits has remained relatively constant. Our assumption when we performed the original yield analysis (Berkeley and Houde 1981) was that data from the Straits of Florida was representative of the entire population since fish of all sizes and sexes were caught here. We felt that juveniles used the area as a nursery and that adults passed through the area to spawn. Thus if the fishery was pursued year-round then the size (age) distribution of the catch would be representative of the size distribution of the stock. Due to changes in fishing strategy I'm not sure this assumption is still valid. However, you can look for changes in size frequency distributions between 1979-1980 and 1983 on a month by month basis by comparing data recently given you with data I collected previously (if Triple M agrees to this).

Dr. C. Bruce Austin
Page 2

- (3) The South Carolina size frequency distributions can be interpreted in just the opposite way as they are now being interpreted. The large percentage of small (20-30 lbs.) fish showing up suddenly may very well represent a big year class rather than a shift in size at entry. I have some trouble understanding why the size at entry (recruitment) would change unless gear or fishing strategy changed. In the absence of such changes, size at entry should be constant regardless of fishing effort. I suggest that total mortality (Z) be calculated for South Carolina fish using the previous size at age estimates broken down by sex (using data that I would guess Wilson and Dean have) but eliminating the 20-30 lb. size class. If you assume natural mortality is the same as it was in 1979-1980, then the difference in total mortality will be due to fishing. Eliminating this size class will eliminate the potential bias caused by a big year class now recruiting into the fishery. The same should be done for Straits of Florida fish for comparison with 1979-1980 mortality estimates.

Most fishermen now admit that the fishery is in some trouble and most responsible people feel that management is necessary. However, while I originally felt that this plan (using variable season closures) was the best available management technique I now have serious doubts. My original suggestion for a management technique (see Berkeley and Houde, 1981) was to have season and area closures based on known sex ratios and size distributions. This would make it possible to increase the size at entry and thus increase yields by closing areas having concentrations of small fish. Fishing mortality on small females could be manipulated by such an approach. The original objections to this approach may no longer be valid (i.e., the entire burden being placed on one region such as the Gulf of Mexico). While I realize the frustration of having to re-write a management plan 3 years in the making, I strongly urge the council to reconsider the above approach. If such an approach were adopted, there would be long term rewards for the fishery and the fishermen in terms of increased total yields and mean size. The stock would certainly benefit by reducing the possibility of recruitment overfishing.

Considering the potential long term benefits that such an approach would have I feel that serious discussion of this alternative should be considered.

Please let me know your thoughts on these matters.

Sincerely,



Steven A. Berkeley
Senior Research Associate
Division of Biology
and Living Resources

RECEIVED

APR 4 1984

SOUTH ATLANTIC FISHERY
MANAGEMENT COUNCIL
CHARLESTON, S.C. 29407

March 27, 1984

Dear Sirs:

My name is Jeff Hurley and I am the owner and operator of a 46 foot fiberglass long-line boat. Prior to owning my boat, I worked for four years as a deck hand on other fishing vessels. Recently, I attended a meeting in Florida concerning the proposals for the regulation of Swordfishing with long-line gear.

I have owned my boat for two years and have a great deal of money invested in my long-line equipment. I have a wife, a baby due in April and many other responsibilities. As it stands now, I am just able to keep my head above water. If many of the proposed regulations were to go into effect, it would be a great economic burden to me to say the least. After investing over \$200,000.00 into the boat and equipment to Swordfish, it would be disastrous for myself and for other people in my position if there were to be a major shutdown of long-line fishing.

I normally fish the Mid-Atlantic states from June through December and the Florida Straits from March through May. I would very much be interested in finding out who the members of the Mid-Atlantic Fishery Management Council are, since they are in favor of a 75% closure of Swordfishing.

Enclosed, are some points that were brought up at the meeting in Florida. I would like you to know how I feel about them. I hope you will take the time to read them and take my opinions into consideration when making the laws that will drastically affect my life.

Sincerely,

Jeff Hurley

Jeffery D. Hurley
Route 1, Box 289
Ocean City, Maryland
21842

- 1) I am opposed to the importation of Canadian fish into the United States.
- 2) I am opposed to the May closure of Swordfishing. If a closure is necessary, it should be in January, February, or August.
- 3) I approve of the limited entry to Swordfishing and Tuna fishing. There are already too many people long-lining and I feel this should be regulated as soon as possible.
- 4) I am opposed to the gill netting of Swordfish, since so many other species are killed in such nets.
- 5) Foreign fishing should be excluded from the waters of the United States completely.
- 6) If there is a closure, I feel that the harpoon fishermen should also be included in the closure.
- 7) If there is a closure on Swordfish, I feel that I should be able to use my long-line gear to catch Shark, Tuna, and other species.
- 8) Last of all, I would like to know if there is a shutdown of the Swordfishing season, are we, the fishermen, going to be compensated by the government in any way or are we going to be allowed to lose our businesses and possibly our homes in the deal?

To whom it may concern:

Most fish stocks that are now in jeopardy have reached such a state largely due to the efforts of foreign fishing interests. In many of these cases the foreign boats have been fishing inside of United States and Canadian conservation zones. Now that these stocks are in trouble and many of the foreign boats are gone, the American fisherman is told that we must take measures to conserve the fish that remain. Most of us realize that this is true if we are to continue our way of life, and are willing to take reasonable measures. However, when these measures almost insure that a substantial percentage of us will not survive. I for one have to ask why should we be the victims of foolhardy and shortsighted government policy that has virtually given away our natural resources.

Respectfully submitted,

Captain James E. Vogel

March 28, 1984

Mr. John Bryson
Mid-Atlantic Fishery Management Council
Room 2115 Federal Building
300 South New St.
Dover, DE. 19901



Blue Water

Blue Water
Fishing Tackle Co.
10 North Preston Street
Philadelphia, PA 19104
(215) 222-8220

Dear Mr. Bryson,

I am very concerned about the proposed swordfish management plan, as I stated in our recent phone conversation.

The majority of our business involves the sale of gear to commercial longliners, most of whom fish for swordfish. The proposed management plan, in its present form, would cause a severe and unfair disruption of our business and our customers' businesses.

Since I became aware of this new proposal, I have held many hours of discussion with dozens of swordfish longliners from Maine to Texas to evaluate the plan. We find serious fault with the proposed plan on several major points.

- I. The conclusions concerning the average size of swordfish landed are inaccurate, because they are based on incomplete data. None of our customers, nor any fishermen they know, have been surveyed to consider their catch data in evaluating the state of swordfish stocks. Most of the longliners we have contact with indicate that the average size of their swordfish has been stable, or even increased somewhat during the past year. As a result, we must challenge the basis for the extreme measures suggested in the proposed management plan. I hope that in light of the new catch information now being provided by fishermen and fish buyers, no such drastic action will be taken at this time. Instead, an intensive research effort should be undertaken to collect complete data on ALL swordfish catches along the entire Atlantic and Gulf Coasts. A sensible management plan must be based on accurate and complete research data.
- II. When a management plan is eventually implemented, it must be fair and even-handed.
 - A.) Any effort to protect swordfish must begin with the foreign fishing fleets. It would be outrageous to require American fishermen to stop fishing while foreign vessels are permitted to work within our Fisheries Conservation Zone and kill swordfish. As I am sure you are aware, large numbers of swordfish are being destroyed by Japanese longline boats and by large squid druggers of various nationalities. It is only reasonable to eliminate foreign fishing in our waters before requiring drastic and potentially devastating sacrifices by American fishermen. This is especially true in the case of swordfish in the Atlantic and Gulf, where the foreigners'

March 28, 1984
 Mr. John Bryson
 Page 2



Blue Water

Blue Water
 Fishing Tackle Co.
 10 North Preston Street
 Philadelphia, PA 19104
 (215) 222-6220

by-catch composes a substantial portion of the total number of swordfish caught.

B.) The plan in its present form would prohibit long-lining for all species of fish during any swordfish closure. There is no justifiable reason to prevent fishermen from fishing for and catching tuna, tilefish, and other species during a closure of the swordfish fishery.

If all longlining were prohibited during a closure the plan would effectively close fishing for many species of fish. Presumably this should not be the objective or the result of a swordfish management plan.

Additionally, the economic and personal impact of a closure must be considered. If longliners were prevented from swordfishing for an extended period of time, as proposed, the results would be harsh. But if these fishermen were prevented from long-lining for any species, they would have to remain at the dock during any closure. They would face a protracted period when mortgages must be paid, families must be cared for, and fishermen would be prevented from earning the money they need to cover these expenses. The results would be ruinous.

C.) The plan in its present form would allow harpooning during any fishery closure. It is blatantly unfair to require an immense sacrifice by some fishermen, while asking nothing of others. In addition, if harpooning were permitted while other fishing methods are prohibited, hundreds of additional boats would be encouraged to go harpooning. The result would be to render the closure less effective and to mandate a massive assault on the larger breeding-age fish, which are the primary targets of the harpoon fishery.

I hope you will give serious consideration to these points and share my ideas and the Longliners' ideas with the members of the other Management Councils.

It is imperative that a swordfish management plan be developed on the basis of complete and accurate data, and that the plan, in its final form, be equitable and effective. No fishing method or group of fishermen should be unduly favored or restricted by the management plan. American fishermen must be given priority over foreign fishing operations.

March 28, 1984
Mr. John Bryson
Page 3



Blue Water

Blue Water
Fishing Tackle Co
10 North Preston Street
Philadelphia, PA 19104
215) 222-3220

I urge you not to act hastily on the basis of incomplete research, to implement a plan which would be both unjust and economically disastrous. The livelihoods of boat owners, captains, crews, and on-shore support industry personnel--- thousands of individuals and families--- are at stake.

If there is anything further that I can do to aid you in developing a sound and equitable swordfish management plan, please let me know. I am anxious to participate.

Thank you for your consideration.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Alan D. Weiss".

Alan D. Weiss, President

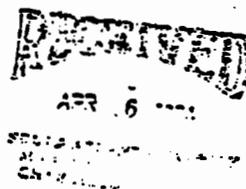


SOUTHEASTERN FISHERIES ASSOCIATION, INC.

ALABAMA • FLORIDA • GEORGIA • LOUISIANA • MISSISSIPPI • NORTH CAROLINA • SOUTH CAROLINA • TEXAS

EXECUTIVE OFFICES: 312 EAST GEORGIA STREET • (904) 224-0812 • TALLAHASSEE, FLORIDA 32301-1791
 ROBERT P. JONES - RES. PHONE 365-7628 GEORGE T. PATRINO, JR. - RES. PHONE 366-8882

April 4, 1984



Mr. Jack Brawner, Regional Director
 National Marine Fisheries Service
 9450 Koger Boulevard
 St. Petersburg, Florida 33702

Dear Jack:

Southeastern Fisheries Association would like to express its opposition to a proposal in the Swordfish FMP which calls for a 30% reduction in harvest level.

Our members who are swordfishermen would be forced into bankruptcy if they had to take a 30% cut. I'm sure most people would be in the same circumstance if almost a third of their income were denied them.

If the swordfish fishery is in a decline, and we are not sure that it is, then let's think more toward a 10% reduction across the board including limiting the importation of swordfish during the time that domestic harvesters are idle. In other words, why stop our fishermen from working yet allow foreign fishermen to continue to harvest the resource and send them to the U.S. market?

Before the Council makes its final decision, we respectfully request that an economic analysis of the 30% reduction be undertaken and we request the same consideration that the Texas charterboat firm received when it was able to get an exemption from the 12" snapper management measure.

I have advised all the swordfishermen here in Florida to band together and hire counsel for the long process ahead.

Thank you for your consideration in this matter.

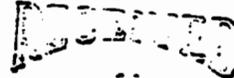
Sincerely yours,

Bob Jones
 Executive Director
 eds

cc: SFA Officers and Directors
 Mr. Wayne Swingle
 Mr. David Gould

new york sport fishing federation

April 9, 1984



APR 12 1984

SOUTH ATLANTIC FISHERY
MANAGEMENT COUNCIL
CHARLESTON, S.C. 29407

Mr. David H. G. Gould
Executive Director
South Atlantic Fishery Management Council
1 South Park Circle, Suite 306
Charleston, S. Carolina 29407-4699

Dear Mr. Gould:

The New York Sportfishing Federation (an organization made up of Forty Five fishing clubs representing Thirty Five Thousand marine recreational fishermen in the metropolitan New York-Long Island area) would like to comment on several areas of the proposed Swordfish FMP.

The first area we would like to comment on is gillnets. For the following reasons we want gillnets banned in the Mid-Atlantic Council area. There will be a large bycatch of billfish, sharks and tuna when these net are used in the "Canyons" of the Mid-Atlantic region. As the source Document for the Swordfish FMP says in section 8.1.5.3, "Additional evidence of the efficiency of gillnet gear is provided by its extensive use in the Western Pacific to catch swordfish, striped marlin and several species of tuna. Since 1972 drift gill net gear has been rapidly replacing harpoon gear in the Japanese billfish fisheries". At the time these nets would be used in the "Canyons" of the Mid-Atlantic region there is a great number of other commercial and recreational boats in the area. With the limited fishing space the addition of these nets will add greatly to the gear conflicts of all people in the area.

Due to the few swordfish taken on rod and reel we support exempting rod and reel from the variable season closure and from needing "letters of intent".

With regard to Mid-Atlantic Councils intent to have rod and reel fishermen get "letters of intent". Where the March 1984 plan summary says "letters of intent" may be required, anyone who has dealt with the Mid-Atlantic Council knows that before long the "letter of intent" will be required.

The "letter of intent" for rod and reel fishermen is useless. As Mr. John Mason said on April 22, 1982 at the Mid-Atlantic Council meeting, "If the problem is going to be anybody that has an opportunity to catch swordfish, you are going to get into the bluefin tuna situation where everybody and his brother is going to have to have a permit just in case they catch a swordfish." According to NMFS as of December 31, 1983 there were 12,467 general permits in the bluefin tuna fishery. You can multiply this number by 2.5 to 3 times to get the number of boats that would apply for "letters of intent"

P.O. BOX 240 OAKDALE N.Y. 11769

new york sport fishing federation

April 9, 1984

Con't

Let me explain why we say there will be such a large number of boats that would apply. There is a large recreational shark fishery in the Mid-Atlantic region. According to NMFS's Marine Recreational Fishery Statistics Survey, Atlantic and Gulf Coasts, 1980, in the Mid-Atlantic region 1,296,000 sharks were caught during 1980. The same methods used to catch sharks also catch swordfish. Granted very few swordfish are caught in the Mid-Atlantic region but as Mr Mason said people will get "letters of intent" just in case they catch a swordfish.

As for the questionnaires Mid-Atlantic Council wants to send out to rod and reel fishermen with "letters of intent", 99.7% of the questionnaires will come back with useless data. Due to the large number of (just in case) "letters of intent". It is proposals such as these by the Mid-Atlantic Council that is breeding contempt in the recreational community for the whole fishery management system.

We feel that your data needs can be met by surveys done by states such as New York and New Jersey and organizations like Market Facts Inc. doing surveys for NMFS. Another alternative would be a publication along the lines of pages 6, 9, and 10 of NMFS's Southeast Fisheries Center "Cooperative Game Fish Tagging Program Newsletter 1982".

Getting to the last area the Federation would like to comment on - foreign fishing. We support the adoption of measures pertaining to swordfish in the Preliminary Fishery Management Plan for Billfish and Sharks into this plan. We do not support the cap on foreign bycatch allotment but support the declining bycatch quota in the 1983 plan version.

It is totally wrong to have American fishermen sitting at the dock because of a closure and foreign fishermen still taking swordfish as a bycatch. Therefore we demand

**IF THERE IS A VARIABLE SEASON CLOSURE FOR ANY U.S. FISHERMAN,
THAT ALL FOREIGN FISHING METHODS WITH SWORDFISH AS A BYCATCH CEASE!**

Very truly yours,

Floyd Carrington
Floyd Carrington
Billfish Committee Chairman

CC. Mr. John C. Bryson
Executive Director
Mid-Atlantic Fishery Management Council
Room 2115 Federal Building
300 South New Street
Dover, Delaware 19901-6790

P.O. BOX 240 OAKDALE N.Y. 11769

2C. Regional Councils
 - NMFS - Gloucester
 - Secretary of Commerce

Comments on Swordfish Management Plans.

Quenn McClain
 387 Church St.
 Marshfield, MA 02050

617-834-7584

These comments are presented as written, without grammatical or sentence correction. The basic ideas will show through and be of some use, I hope.

Reasons for objecting to Spring closure, May-July.
 New England & Florida area.

- ① Page 10, Appendix B - One source, note how mean weight of fish decreases as the season progresses, - Trips #25-32, #43-49, #76-84. From my own experience I know that this pattern is consistent, check other sources, as the waters warm up you get an abundance of smaller fish along shelf areas where longline boats have access to fishing areas. It may be true all the way to Flemish Cap that this pattern exists. It has been noted that the quantity of fish (increasing) that the Canadians catch in late summer are also on the average small enough to pass FDA restriction on imports.

- ② To close the season early and then open it during late summer will have a two or three fold negative effect.

- ① Concentrates effort at a time more small fish are vulnerable, increasing pressure on recruitment fish.
 ② Catches fish of less monetary value. (Documented fact)
 ③ Parameters no restriction on the Canadian fishing which is focusing on the same stock & whose imports contribute to decreasing prices. (Documented fact)

- ④ Catches of smaller fish in late summer will alter statistics and lower average mean weights making it appear that stocks are continuing a decline because the plan focuses effort on small fish.

① Conversely, a plan which focuses effort on larger fish & limits catches of small fish will raise the average mean weight of landed fish.

- ② More heavy effort during longline closures will mean less big fish caught on longlines & also may have an effect on size averages.

- ③ Because many boats are experienced with fishing warm water for small fish (Florida experience or Gulf Stream exp), this

APR 9 1984
 SOUTH ATLANTIC REGIONAL
 FISHERY MANAGEMENT BOARD

trend has been for fish longliners to seek warm waters for swordfish, this has promoted the fishery focus on catching quantities of the smaller swordfish.

(4) Lobster & crab gear has proliferated along the shelf in recent years and has pushed longliners out of some of the most productive fishing grounds on the shelf areas, this problem coupled with numbers of boats fishing has meant that access to good fishing areas is limited and is one of the major problems causing economic hardship to longliners. It has also obviously provided a conservation zone of sorts for swordfish, and I don't feel that the courts have considered this factor enough in their consideration of conservation measures. In no other fishery is access so limited on such a large scale for boats that cannot fish in the areas of prime fish concentration with a very high risk of total gear failure. Fixed gear locations are documented, out to 250 Fathoms in some locations.

(5) Other limiting factors on swordfishermen

(a) You cannot conduct a fishery where there is a quantity of sharks present as well as swordfish.

(b) You cannot fish where there are druggers working.

(c) You cannot fish where there are hydrographic vessels working.

(d) You cannot (legally) fish in Canada where a major portion of the fish are (at times)

(e) Other areas of swordfish abundance available are 1000 miles east on the Grand Banks, as well as to say access there is limited as well.

(f) You cannot fish in any kind of weather, longliners need fair weather to make fishing economically feasible.

(g) You cannot fish longline boats close together, concentrated in a small area, as practically in other fishery tends to do when fish are located.

I could go on about its limitations but the point is made, if you look at a chart and document all these areas as being effectively closed to large scale longlining, you can see that

the longline fisherman, particularly from the Mid-Atlantic to the Northeast region, has more conservation areas, presence of windows of no fishing, whatever you want to call a place that is off limits to fishing than I question the need for further limits of an arbitrary nature, particularly in these areas. The above facts are creating enough economic hardship as it is.

Even management planning and scenarios such as those I outlined earlier in these pages are enough to put many people out of business.

P.S. I read with interest that development is pushed for further efforts on squid, swordfish & hake, and various food fishes of swordfish, is it any wonder that swordfish more or less squid trawls are hard to compete with when it comes to feeding time for the sword, and how about the ridiculous swordfishing on the shelf back when the Russians were catching all the food.

As to a fall closure, there is a possible alternative in tuna fishing, late summer & fall, longliners can concentrate effort on daytime fishing, using small tuna hooks & fishing different areas to maximize bycatch of swordfish, release live fish etc. to provide an alternate fishery during a time of possible closure.

Fall closure also has the double edge sword (Repeat) of limited Canadian fishing by closing access to the U.S. of Atlantic imports, if withdrawal into consideration would possibly mean less closure time for U.S. boats if it is determined that cutbacks are to be implemented.

Date Collection suggestions

- ① Go over mean weight dates for areas to determine when highest incidence of small fish are being taken, (also see heading on if data is barely). It achieves management objectives to close areas during times of small fish catches.
- ② You may achieve goal of conserving numbers of fish, etc.

monthly data on percentage of weight caught for the year does not ~~consider~~ (to my knowledge) consider # of fish being caught in the areas at those times. Again, more fish will be conserved by closure at the proper times than by just a blanket closure based on weight. If, in fact, females spawn at an earlier age there is important information to be gathered, (or collated) if you have it already, or whether it is more important to be saving greater numbers of smaller fish, than just weight percentages based on yearly catch.

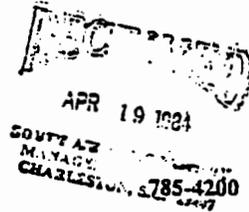
Another question, what is the weight of importance of large spawners vs. small spawners in # of eggs successful spawning and is this knowledge of good management tool

An aside - It is possible that frozen fish imports (which will keep prices depressed enough to bankrupt more swordfish boats - further decrease effort.

An aside - Contrary to the opinion of some, swordfish is not a big numbers fishery, considering its widespread nature, and as shown by the fishing effort documented 1974-78 in your 6 Appendix, there were not many days of big hauls for fishermen, we all want to turn the clock back to better fishing days, and when there were less boats fishing for swordfish times were no doubt better, but ~~this is not~~ it is not the aim of the Management plan to critically wound the industry. I feel that management effort should focus on protecting nursery areas, as a first measure of conservation, where they are documented. This is the most effective management tool in the fishery conservation arena, Stay away from blanket closure



TRIPLE M SEAFOOD
EQUIPMENT DISTRIBUTORS, INC.



APRIL 13, 1984.

Dear Sir,

I was a speaker at the Broward County meeting in March. I will try not to bore you with this letter of protest on the closure of the swordfish for a % of time.

To refresh your memory, I mentioned during my speech that I recently retired from fishing, and now work for Triple M Seafood at the Triple M Commercial (Long Line Equipment).

I'm not sure if I told you that I left school at age 16, to continue on a full time basis with Commercial Fishing. I consider the fact that I have more than 34 yrs. of fishing experience, and have never filled in with a steady job, or a job of any kind for that matter, that I am truly a Commercial Fisherman.

I have seen many Fisheries fail and in all cases this was avoidable, but unfortunately nothing was ever done to prevent it.

The Shrimping that I did from the beginning, had a limited amount of boats, so the ocean floor would not have been destroyed to the point of depleting the fishery!

Striped Bass, which were Haul Seined and even though I am a Commercial Fisherman at heart, I blame them, because Bass are a Beach Fish (so to speak) and once a net of this type goes around a school , there is no hope for the fish.

Now for the Sword's, I feel this way, first of all, you have compiled a few years of Data which is of some value, but cannot give a true picture. I contend that these deep water fish are not only abundant along the 100 to 1000 fathom curve, but that they can be found almost everywhere!

I have talked to Longline Tuna Fisherman, who tell me that 600 miles off shore while fishing for Tuna, they caught 1 or 2 Swords daily. This in itself tells you something, doesn't it!

I'm sure you have studied how warm bodies of water break off from the Gulf Stream and travel off shore, soaking up some scattered swords, and upon returning to the Gulf Stream deposit them along the 1000 Fathom curve .

You talk of a 10 to 30 % closure and this does not make sense at all, if you stop and think about it, lets say for example there are 200 boats fishing for Swords, and that for 1yr. period they catch 20,000,000 lbs.

2600 N.E. 5th AVENUE, POMPANO BEACH, FLORIDA 33064



TRIPLE **M** SEAFOOD
EQUIPMENT DISTRIBUTORS, INC.

785-4200

and you say this is okay, or not okay - first of all if a certain poundage can be determined to be okay, who is to say it's not greater or less than the 20,000,000. Now we assume 20,000,000 is okay, but one year later there are now 222 boats, so now we have increased the size of the fleet 1/8. Unless you stop this fleet right now from growing anymore, in 5 yrs. you'll be asking for closure of 30 to 50% as 300 boats or more will fish them.

There are many Shrimpers, Draggers and sports that have geared up Part Time to do this fishing. It's not fair to ask Sword Fisherman to give up time while these other people will not be affected, and will simply return to their own fishing job or what ever they were doing before.

I'm trying to say, if you monitor this fishing for a few years, limit the fleet to the boats that are in it now, and only the boats that can show it's their full time occupation (IRS RETURNS ETC.) This way you can decide if 10% 30% or what ever should be closed. Perhaps 20,30, or 100 more boats will be given the opportunity to enter the fishery, because each year the average fish or amount of lbs. will be okay.

Who can say really how many fish are off shore and venture in and out, or up and down.

Some careful consideration will really be appreciated, not only by me, but every serious Commercial Sword Fisherman.

I must remind you that I am receiving about 3 calls per wk. at Triple M Commercial inquiring about setting up someone with longline gears. We better stop soon.

I am free for consultation's anytime. Please feel free to use my life time of fishing knowledge for the betterment of any other Fishery.

P.S. Mr. Anthony Taromaina who has now retired from N.Y.C. Conservation & Environmental control, now replaced with Mr. Chet Zawacki (man in charge) has asked me for help several times, to set guide lines with laws, etc. in N.Y. area Both men can verify this. I am available to give my expertise and opinions to you if so desired, please feel free to ask anytime.

Sincerely,


Floyd Wihstutz

2600 N.E. 5th AVENUE, POMPANO BEACH, FLORIDA 33064

Swordfish

The swordfish boom continues in the 1983-84 season as harvests topped 2 million pounds, compared to the 1982-83 harvest of 1.7 million pounds. Biologists see no reason to limit the fishery in the near future, and increased effort by those lucky enough to have licenses is likely to yield bigger harvests for some time.

The swordfish market is strong, but volatile. As 1983 ex-vessel price swings of \$1.65-\$1.40 per pound proved, prices are likely to drop if volume increases.

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Gillnetters have substantially increased their share of total swordfish harvests in the last three seasons: from 50 percent in 1981 to 97 percent in 1983. That percentage will drop again as El Niño fades, but will probably stay well above 1981 levels now that gillnetters are allowed to target on swordfish. El Niño cut harpoon harvests by forcing swordfish deeper as they searched for the thermocline.

Of the 14,192 swordfish landed from the 1983 May opening through the end of December, only 415 were harpooned. In 1982, 10,635 fish were harvested, 1,016 of them harpooned. In 1981, 4,700 fish were harvested — almost half (2,314) harpooned.

Like every California fishery swordfish had its El Niño puzzle. 1983 was the year swordfish came to Monterey. It's uncertain whether this unexpected development was a one-time reaction to the war in currents or the beginning of a new trend.

The pattern of landings shows that swordfish migrated north toward Morro and Monterey Bay in the summer and south as ocean temperatures cooled. Most Monterey landings were made between May and September. By October, when landings peaked and prices dropped, the fish had

begun to move south and further offshore.

Increased northern gillnet effort also contributed to 1983 Monterey landings, which made up about 20 percent of the total 1983 catch. If gillnetters continue to drop nets for swordfish, they may continue catching them, even in years with normal ocean temperatures. It's possible, say biologists, that swordfish could have been found off Monterey in other summers, but no one looked in the right places to find them.

"The boats are getting a little bit bigger each year and going out a little farther," said one swordfish manager. As the swordfish began to move offshore in October, the fishermen followed. By year-end, many fishermen were working the Tanner and Curtes banks off the Channel Islands.

This trend should continue in 1984, as a few California fishermen motor outside the 200-mile zone to fish. A law



Swordfish accounted for 60 percent in 1983 state swordfish landings. The harpoon and harpoon fishing methods are the primary methods used to harvest swordfish. Prices were volatile, but showed a high for the 1983-84 season. Swordfish landings during the 1983-84 season.

situations in ex-vessel prices, ranging from a low of \$2.10 in Santa Barbara to a high of \$5.95 in San Francisco.

The wholesale price of imported frozen loins was steady at \$4 per pound most of the year, although some Japanese and Mexican imports sold for as little as \$2.50 per pound. Inexpensive imports may have contributed to the October drop in domestic ex-vessel prices, but didn't cut overall demand for domestic product.

Halibut

California halibut landings dropped in 1983 as part of a historical population cycle, although El Niño probably contributed to the decline as well. Landings are predicted to drop further in 1984.

When final figures are in, biologists expect the 1983 California halibut catch to be about 990,000 pounds statewide, compared to 1.2 million pounds in 1982 and 1.25 million pounds in 1981. However, 1983 landings were well above the 30-year historical average of 811,000 pounds. The CDF&G says halibut peak in abundance about every 7-9 years, so harvests are expected to decline for the next two or

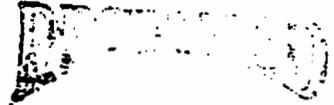
three years.

El Niño evidently accentuated a recent trend toward increased northern landings. Prior to 1983, 85 percent of California's halibut was caught south of Point Conception. By 1983, Southern California's share of the catch had dropped to 65 percent, while halibut harvests increased in the north, especially in Monterey and San Francisco. El Niño contributed to larger northern landings in 1983 by sending some halibut north in search of cooler water. But the increase is also attributable to the growth of the northern gillnet fishery.

El Niño may have reduced 1983 landings by contributing to the disappearance of the halibut's favorite food — squid. Supplies of other food fish, such as anchovy and mackerel, were also down. However, the halibut harvested didn't appear to be undernourished, as many of the state's salmon were.

1983 ex-vessel prices held steady at \$1.75-\$1.80 per pound during 1983, up almost a quarter from average 1982 prices of \$1.55 per pound. Ex-vessel prices of \$1.50 per pound were reported in Eureka during 1983. Wholesale prices ranged from \$2.25-\$2.50 per pound for halibut in the round in San Diego, with filets selling at \$1.50 per pound in San Francisco.

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SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL
MANAGER
CHARLESTON, S.C. 29407

South Atlantic Fishery Management Council:

I am writing you concerning the Swordfish plan. This is for the record.

I have recently begun to work as a mate on a commercial fishing vessel and have known some of these fishermen for several years. I am from the Florida East Coast, (FEC). I don't own a boat. However, I do have some common sense and I am concerned with the effects this law will have on the fish and the fisherman.

First thing that comes to mind is at the Public Hearing on March 30, 1984 in Key West, Florida we found out that this federal commission has had since 1981 to gather information and they have to pass laws on the facts they have available. This means they can sit on their butts, find out very little, and pass laws without really doing what they are being paid to do. Gather facts. At the Key West meeting fishermen got up and said they asked for information to be sent to them at last years hearing and a year later got nothing. This is typical federal government commissions. Seems to be uncaring and is definitely short on the facts it should have to pass a fair and equitable plan. But it will anyway.

When fishermen are told or asked they should put input into this plan and try to, but get nothing in return or appreciation. You wonder why they should follow the plan. Its simple, you will take their boats. You know if you take the time, which you have not done in the FEC region to talk to the fishermen about fishing and their fishery, you will find they are not ignorant people and are fairly reasonable. They don't want to catch too many small fish. They understand whats up here. But your're doing things in reverse in the FEC. First of all, this commission is proposing closing the fishery here in May through July which is when the big fish are here. Why did this commission propose a May closure and July opening date? They are telling fishermen down here to save the big fish and catch the small ones. The whole point of the plan is to save the small fish. This commission doesn't know when they catch their big fish and when they catch the small ones. All that takes is a phone call to a sea food market (Merritts or Triple M down here) in the area. When do you catch the big fish? When do you catch the small fish? That takes less than 10 minutes on a phone and this commission hasn't even done that. But based on the information they have they pass laws into effect.

Another thing that concerns me is the amount of people you are going to put out of business down here. You're cutting these fishermen's annual income from 30 to 50% in one year. Come on, how many people or industries can assume a 40% cut in an annual income and still pay their bills. This can be implemented over 2 or 3 years. When is the last time you took a 40% cut in pay?

Another thing that scares me is the people who will not honor this plan and our government, this commission is saying that's OK. I'm talking about Canadian Swordfish and importing it while we are told "You can't fish." Here you will be letting us save the Swordfish while you are patting Canadians on the back for not helping to save them. I think most of us fishermen will take our lumps and stop fishing when the small ones are here. Most of us can survive and we're helping the fishery. Like I said fishermen aren't ignorant when it comes to fishing. But you let imported Swordfish in when these guys can't fish, asking, telling them to take their lumps you're kicking them in between the legs at the same time and saying "Hey, we don't really care about you guys, your bills, your families, or the fish." Canada is more important. This is a US commission isn't it? People getting fed up with government commissions, being more concerned with others first.

At the Key West meeting a lobbyist for the Japanese fishing industry stated it was discriminatory to restrict foreign squid crawlers from an incidental catch of swordfish and not domestic vessels. But for this commission to tie our boats up to the dock, lock up our gear and say we can't fish while the foreign vessels fish for tuna and catch swordfish was fine. That is discriminatory. I guess a lobbyist can only see one side. I'm not that blind. Another so called fact out of that Key West meeting was three Japanese tuna boats fished for three months in the Atlantic and caught 27 swordfish. That 270 sets, 1 swordfish every 10 days. That's bull, and I believe somebody is living on a very large basis. Apparently this commission will swallow anything.

Finally at the Key West meeting a guy brought up what I thought to be the best idea of all for counting carcuses and weights, but it is probably got to much common sense. Boston and New York are the two main markets on the East Coast of the US. Why not have an inspector there so he can count the number of fish and amount of weight in each container? At Merritts it goes off the boat to the scale and at times directly into a refrigerated container strapped Merritts Seafood to the airport to Boston. You will need someone who can count, if reading is too much trouble, you can have Merritts paint their containers orange, somebody elses blue, green, etc. But you will have to get someone who isn't colorblind. Seems that would save alot of time, trouble, and expense and seems to be the most logical way to count carcuses and weight. You may need a few more

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inspectors at other seafood markets but Boston and New York in marked containers seems real efficient.

I have written this for the record and will appreciate a reply letting me know this was received and is part of the record. There are also a couple of questions I would like an answer to. Thank you.

Sincerely,

A handwritten signature in cursive script that reads "Steve Jakala". The signature is written in dark ink and is positioned above the typed name and address.

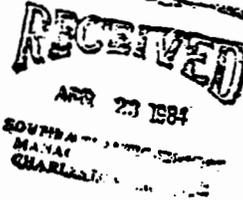
Steve Jakala
391 NE 29th Street
Pompano Beach, FL. 33064

(808) 484-6104

J. J. V., INC.
 Commercial Fishing
 28 LIGHTHOUSE WAY
 LOVELADIES, N. J. 08006



April 16, 1984



We feel it is very important that you be made aware of our thoughts on the proposed swordfish management plan. As commercial fishermen and people in related businesses, we will be the ones who must bear the economic impact of the plan. For this reason, we request that an invitation be extended to a person or persons delegated by us to attend the next intercouncil meeting on the plan to address the councils and observe the proceedings. We also request that we have a person or persons representing us added to the advisory panel to assist in the formulation of the final plan.

While none of us would argue the need for a swordfish management plan, we feel strongly that the magnitude of protective measures should not be decided until all available information has been gathered and analyzed. The duration of any closure of the fishery, and the starting date of such a closure, should be left open until a complete and accurate assessment of the fishery and the swordfish stocks has been made.

At the public hearing in Philadelphia on March 28, 1984, a committee member of the Mid Atlantic Fisheries Management Council made a number of statements which were in direct conflict with most of the other information presented. We found his ideas and attitude alarming. We are deeply concerned that he might not be giving due consideration to the socio-economic impact of the management plan and to the facts upon which the plan should be based.

There are a few points in the proposed plan upon which we would like to make suggestions. First of all, limited entry is an idea that should be considered seriously. The positive effects of a closure would be diminished significantly if the fishery were open to any number of new boats. We feel that if permits were issued to commercial fishing operations that rely on pelagic longlining as their primary source of income, the swordfish stocks and the fishery itself would be better protected.

In the past two years there has been a major effort to establish a viable domestic tuna fishery. If a total closure of pelagic longlining were enacted the growth of this fishery would be crippled. If a swordfish closure is necessary, we request that we be permitted to continue a directed tuna fishery. By changing our hooks to a size thirty-six Japanese-type tuna hook, which is significantly smaller than the hooks we presently use, we could affect a substantial reduction in the number of swordfish hooked. If this were done in conjunction

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April 16, 1984

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with the granting of a swordfish by-catch, as is allowed for the Japanese, we would be able to continue fishing. This would go a long way toward easing the adverse economic impact of a swordfish closure. In addition, we feel that it would be unfair to force American fishermen to stop fishing while foreign vessels are permitted to continue longlining operations in our waters.

We also believe that if there is to be a closure on swordfishing, it must include all methods of capture other than rod and reel fishing for recreation. There would be a major increase in the number of boats harpooning swordfish if this method were not included in the closure. This would certainly reduce the beneficial results that a closure might achieve.

With regard to gillnetting operations, there is very little solid data on its effects at this time. Until such data is available it would be foolhardy to allow an expansion of this fishery. We feel that the three vessels currently involved in gillnetting swordfish should be granted permits, on a temporary basis, until solid data is available on the impact of this fishery. At that time a Final decision could be made regarding the acceptability of gillnets.

We would like to thank you for taking the time to study this letter and ask that you give serious consideration to the proposals we have put forth.

Respectfully submitted,

Capt. James C. Vogel F.V. Barbara Lee
 Capt. Curt Bluminger F.V. Voyager
 Capt. Dan Means F.V. Atlantic Queen
 Capt. Dan Means F/V FRANCES Anne
 Capt. Chris Conner F.V. Monica
 Capt. Louis Parker F.V. Honor Francis
 Richard A. Moch F/V Olympia Javelin
 David J. Shepley F/V Theodora
 Nelson R. Beishman F/V SENECA II
 George Sully F/V PROFIT

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28 LIGHTHOUSE WAY
LOVELADES, N. J. 08008



Edward E. Warden
Robert Luettker
Martin T. Cassidy Sr.
Robert M. Knight
John Allen Knight

EDDAWN
FRAYLLER
Dock MASTER - VIKING VILLAGE
RESTAURANT
BARNEGAT CT, NJ
Boat Owner "Carol Ann"
Boat Owner John P. Watt II



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RFD# 1 Box 321
S. Harpswell, ME
April 17, 1984

04079

APR 20 1984

SOUTH MEADOWS
MEADOWS
CHARLESTON, ME 04017

Acting Director, NEFMC
NMFS
Federal Bldg.
14 Elm St.
Gloucester, MA 01930

Dear Sir:

My name is Charles Johnson, captain/owner of the fishing vessel Powhatan, a 93 foot vessel rigged for dragging and longlining. I would like to make some comments on the swordfish management plan and have them included in the record.

At the public hearing in Portland, ME on March 29th, I was asked to send in the trip weights for comparison of average weights per trip per year. I have sent them to John Hoey at the SAFMC.

I'd like you to consider the likelihood that there is a separate stock of swordfish at the Grand Banks - different from those along the East Coast of North America. I have been tagging swordfish since 1980 and Phil Ruhle has been tagging since 1974, but there have been no returns of any tags. The fish also look different, although that could be due to different conditions of the area. When I've fished on the East side of the Grand Banks, the swordfish have a tendency to move east with the Gulf Stream current, or even faster than the current at times.

I don't know whether any of the staff biologists have ever talked with Roy Scheffer of the Tiki XII, but he has passed on some observations to me. Roy has been swordfishing longer than I have and fishes all along the East Coast, according to the season. In his experience, once he goes south of 32° N, 80% of all the fish he catches are small, that is under 100 lbs, known as "the mark". Also, while he catches females with roe south of Cape Hattaras, he has never caught one with roe to the north of Cape Hattaras. Roy

claims that fully one-half of the female swordfish caught south of 32° N are roe fish. He also fishes on the Grand Banks during the mid to late summer through late fall and has never caught a roe female there. In 1983, he had three fish that weighed between 600 and 700 lbs, 34 fish weighing between 500 and 600 lbs, with "not many" between 200 and 400 lbs.

I have also talked with Phil Ruhle, Sr. of the F/V Audrey Lyn, perhaps the best-known and most respected swordfisherman on the East Coast. The following is what he told me of his observations of fishing along the East Coast of North America.

He notes that in the 1960's, there were a lot of boats fishing off Cape Hattaras and there were yearly fluctuations in the catch, just as there are in any fishery. In 1976, Phil noted that roe fish can be caught all year round in the Florida area. Since then he has seen "a steady, rapid decline" in the number of fish, indicating to him that females are being caught before releasing their spawn. Phil wanted to refer you to studies made by a Canadian named Beckett in the 1960's covering the swordfish effort from Florida to Cape Hattaras, and check his findings at that time against the information you have now and are receiving.

Phil is concerned with the nature of the Florida fishery, in that it is so easy to catch swordfish there. He has knowledge of couples who live on their boats who can decide to go out fishing with absolutely minimal preparation (and expense) and catch swordfish; there are even retired people who go swordfishing "as a lark".

In talking about the harpoon fishery and the proposal to exempt it from any closure, Phil said that he had noted that "90% of all harpoon fish are females", and is very interested in having a technician verify his observations.

Phil is so worried about the future of the swordfishery that he has decided not to go this year at all.

As for myself, I will continue to tag small fish. Since using the longer monofilament gangions, a good percentage of the fish are hauled in alive, contrary to what I've heard from various sources that most fish are caught dead.

I have been told also that it's impossible to direct an effort toward large fish. It's not by accident that I've never had a trip with the average weight below 95 lbs, and only two trips since 1974 have been below 100 lbs average. However, in a crowded area, since the effort has increased so drastically, among those who fish all in a bunch, some are unavoidably pushed into the warm water where the small fish seem to be. But, I have seen boats actually direct their effort toward a larger concentration of small fish, just to get the numbers.

I have fished all the way from northern Virginia (although only once that far south) all the way to the seamounts east of Flemish Cap and I have never caught a roe fish north of 40° N latitude. Usually when a fishery is in trouble, the spawning area is the first place to be protected, and as far as I know, the only spawning area is off Florida. However, it could be hard on the stocks if all the larger southern boats were then to steam up and fish on the Grand Banks.

I do not think that exempting the harpoon fishery from the closure is a good idea. It takes only a little investment to turn a longliner into a harpoon boat and I think that the effort in harpooning will expand significantly if it is exempted.

I'm concerned about the effects of the closure, or more specifically the re-opening of the season on the market. After a "dry spell" and high (hard-to-resist) prices, there will suddenly be a large amount of fish in a very short time showing up on the market. It's been my experience that just two trips of 25,000 lbs (more or less) each coming on the same or even consecutive days is enough to drop the price

drastically. This closure will not only reduce the number of fish caught, but will also lower the price until all the boats have had one or two trips, enough to begin staggering the landing dates.

My largest concern in the Florida fishery. I'm very worried about an area where people - anyone with even the smallest boat - can catch swordfish with such little investment that they need not concern themselves in any way for the future of the fishery. With little to lose, they have everything to gain by catching every fish they can, no matter how small, no matter whether spawn or not. They may prefer to catch larger ones, but for what they have in their effort, why bother to pay any mind at all to conservation?

I was asked to be an advisor to the Swordfish Committee, and have agreed to do anything I can to help keep the swordfishery viable.

Sincerely yours,

Charles W. Johnson, III

Charles W. Johnson, III

cc: John Hoey
NEFMC
Dr. Bruce Austin

RECEIVED

APR 19 1984

SOUTH ATLANTIC FISHERY
MANAGEMENT COUNCIL
CHARLESTON, S.C. 29407

**COMMENTS OF THE
JAPAN TUNA ASSOCIATION
ON THE PROPOSED CHANGES
IN THE ATLANTIC SWORDFISH FMP
AS BROUGHT TO PUBLIC HEARINGS
MARCH 22 - APRIL 5, 1984**

April 18, 1984

.....

The following comments on the proposed changes in the Atlantic Swordfish Fisheries Management Plan (FMP), as brought to public hearing from March 22 to April 5, are hereby respectfully submitted to the Atlantic and Gulf of Mexico Fisheries Management Councils by the Japan Tuna Association (JTA):

**1. Foreign Tuna Longliner Bycatch Negligible,
Has No Effect on Swordfish Stock.**

U.S. fishermen have by far the greatest impact on the size and condition of the northwest Atlantic swordfish stocks. According to ICCAT data, U.S. fishermen take about 64% of all the swordfish caught by all nations in the northwest Atlantic, while Canadians take about 18%. If there is any "growth overfishing" of these stocks, responsibility must reside with U.S. domestic and Canadian fishermen. Conversely, any conservation program to reduce "growth overfishing" must be applied against the primary cause of the problem, those responsible for such "growth overfishing."

The bycatch of swordfish incidental to the catch of tuna by Japanese longliners in the Fishery Conservation Zone (FCZ) is a statistically insignificant percentage of the total swordfish catch in the northwestern Atlantic, amounting to less than one percent. As swordfish are released at the waterline by the Japanese longliners, swordfish mortality resulting from such bycatch is at least 40% lower than the recorded catches, thus reducing the significance of the Japanese fishing activities even more.

In 1980, the base year for most of the management measures in the FMP, U.S. swordfishermen caught at least 125,000

swordfish in Atlantic and Gulf waters. This was the estimate of swordfishermen and swordfish dealers at the Advisory Committee meetings in preparation for the development of this FMP. The NMFS estimates used in most of the FMP were derived from sampling selected fish houses and are admittedly very low.

The swordfish mortality caused by the incidental catch of Japanese tuna longliners in the Atlantic and Gulf FCZ in 1980 was only 2,761 fish, a mere 1.4% of total western Atlantic swordfish mortality. This 1.4% could have had no significant impact either way on the conservation of swordfish. In 1982, swordfish mortality attributed to Japanese tuna longlining was only around 490 fish, a mere 0.2% of total western Atlantic swordfish mortality. Even if the under-stated U.S. catch figures are used, swordfish mortality in the FCZ attributable to Japanese longlining in 1982 only amounted to only 0.5% of the U.S. catch. If eliminated it would not help reduce growth overfishing nor recruit overfishing, as the percentage is even much smaller than the statistical margin of error in yield per recruit or population estimates.

In proposing to cap the incidental swordfish catch of foreign tuna longliners at 1,136 fish, the councils are really proposing to limit their bycatch mortality to around 680 fish, 0.8% of the published 1982 U.S. catch. A more reasonable cap, and one which still would have no effect whatsoever on the size and condition of the stock, would be 5% to 10% of the U.S. catch.

Almost all conservation programs, after all, allow at least a 10% bycatch of the species under conservation management.

The proposal to reduce the foreign bycatch of swordfish by the same amount as the U.S. domestic direct catch reduction has no logical justification because the allowable foreign bycatch level in itself is a severe limitation on catch that would be in effect even if there were no limitations on the U.S. domestic catch. A reduction from that limitation would be a double restriction, compounding the already severe cap restriction. In addition, such a reduction from a bycatch cap has no scientific justification because the cap level itself is too small to have any measurable conservation effect on the stocks.

In sum, there is no scientific, logical, nor legal justification for either restricting the foreign tuna longline bycatch to a maximum catch level of 1,136, nor for reducing this number by a percentage equal to whatever reduction percentage may be applied against the U.S. domestic fishery.

2. Area Restrictions Unnecessary;

Gear Conflicts Almost Non-Existent

In 1983, according to the NMFS, there were no recorded gear conflicts between Japanese tuna longline vessels and U.S. domestic fishermen (See MAFMC Review of Atlantic Billfishes and Sharks PMP, 3/13/84). This was achieved even though there were a

greater number of U.S. vessels engaging in longlining for swordfish and tuna.

In any longline fishery there are bound to be gear conflicts, as wind and currents sweep lines together. On any given fishing day, there are dozens of entanglements among the lines of U.S. domestic swordfish and tuna fishermen. The entanglements generally are resolved fairly quickly and in a manner that minimizes loss of fish or fishing time.

Japan's tuna industry has worked out procedures with its vessels and U.S. fishermen to minimize problems arising out of gear conflicts. All Japanese tuna vessel captains are instructed to broadcast to U.S. fishing vessels the location and direction of their sets and to avoid setting in areas that would conflict with U.S. fishing gear. We provide weekly broadcasts to our vessels of certain fixed gear locations and all captains monitor the Coast Guard broadcasts for changes in fixed gear location.

We also maintain a representative in the U.S. to render assistance in cases where gear conflicts inadvertently occur. In addition, the presence of U.S. government observers on all our vessels fishing in the Atlantic FCZ helps to prevent or resolve gear conflicts.

In view of all these efforts, it is unnecessary, overly restrictive, and injurious to restrict Japanese tuna longlining

further by extending the time or location of current fishing area closures, as proposed in the hearing document.

3. Time or Area Extension of Current PMP Closures, or Enforcement of Unimplemented PMP Closure Regulations Would Deprive Japan's Longliners of Reasonable Opportunity to Catch Tuna, as Required By Magnuson Act

According to the formal legal opinion of the NOAA General Counsel, the United States must ensure foreign longline vessels a reasonable opportunity to catch tuna.

The opinion, Formal Legal Opinion 82, Billfish Management Under The FCMA, NOAA Legal Counsel, 3 Oct. 1979, stated that "In light of its express exception for tuna management, the FCMA has left intact the freedom of foreign vessels in the FCZ to fish for tuna."

As one conclusion of its legal analysis NOAA General Counsel stated: " It would appear from the FCMA policy against impeding or interfering with such legitimate uses, as well as the international 'reasonable regard' principle, that in managing billfish resources the United States must ensure foreign longline vessels a reasonable opportunity to catch tuna." (Emphasis added.)

President Reagan, in his Exclusive Economic Zone Proclamation, also emphasized that the United States would not impair foreign access to tuna in the U.S. 200-mile zone.

Imposition of fishing area closures would deprive foreign tuna fishing vessels of their ability to catch tuna in the FCZ and therefore contravene the mandated injunction against extending U.S. fishery management authority to this species of fish.

The 100-mile wide closure of the area from the Baltimore Canyon north to the U.S.-Canadian border already has deprived our longliners, who have traditionally fished in the area, of a reasonable opportunity to catch tuna. As a result of this cut-off of prime tuna fishing grounds, only several of our vessels plan to fish in the Atlantic FCZ this year.

Any additional closures, either by extension of closure time or area, will make it impossible to catch tuna, and would therefore be in violation of the Magnuson Act.

Japan's tuna industry has had a long and amicable relationship with the Atlantic and Gulf of Mexico Fishery Management Councils. Our tuna industry has been highly responsive to every concern of the Councils and American fishermen. Voluntarily, our tuna industry reduced and then stopped their catch of bluefin tuna in the Gulf, reduced their incidental

catches of billfish in both the Gulf and Atlantic through high density avoidance measures, and instituted a host of other measures to improve communications with U.S. fishermen and avoid gear conflicts.

In view of all the effort we have made to maintain an amicable and mutually rewarding fisheries relationship with the U.S., its fishermen, and the Councils, we respectfully request that the Councils refrain from imposing any more constraints upon our fishing in the FCZ. Instead, we urge you to rely upon the good will and sincere desire to work out a satisfactory solution to problems which have been the keystone of our relationship since 1978.

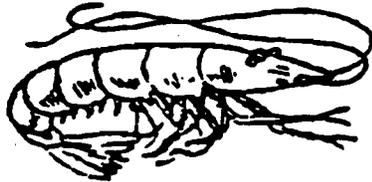
Thank you for your understanding.

End

171
Georgetown Shrimp Company
"Retail & Wholesale Seafoods of All Types"

Post Office Box 809
Georgetown, South Carolina
29440

Telephone (803) 546-0511



April 19, 1984

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SOUTH ATLANTIC FISHERY
MANAGEMENT COUNCIL
CHARLESTON, S.C. 29407

South Atlantic Fishery Management Council
Southpark Building, Suite 306
1 Southpark Circle
Charleston, SC 29407

Gentlemen:

I am the General Manager of The Peregrine Corporation,
doing business as "Georgetown Shrimp Company."

The Peregrine Corporation is a vertically integrated fishing
company involved in:

Harvesting raw fish material

Semi-processing for value added

Marketing fresh fish in the U. S. A.

Marketing through joint ventures and contracting
for the export of frozen fish

Operation of a packing house for bottom fish,
swordfish and shrimp

My experience in the fishing industry has spanned my entire
adult life, involving all phases of the fish industry including
finance and vessel management.

My company and I, as an individual vessel owner, are opposed
to any closure of the swordfish industry, especially as now pro-
posed in the fishery management plans. Any such closure would
immediately increase pressure on an already suppressed industry.

South Atlantic Fishery Management Council
Page 2
April 19, 1984

In Georgetown, S. C. at this time we have seven long line swordfish vessels working with us:

THE PLAYMATE
THE MISS OLIVE
THE CAPTAIN JASON
THE REBEL
THE BOY SHRIMPER
THE SMILELEE
THE BOBBIE GALE

Although seven vessels do not constitute a fleet, many other swordfish vessels from out of state fish for us during the season in our area. The seven regular South Carolina vessels so engaged, represent approximately \$1,500,000.00 in value and there combined production annually is approximately \$1,800,000.00. All of this revenue either stays in, or is returned to Georgetown. Closure of this fishery in the high season will have dramatic and lasting effects economically on the fishermen, our company, banks and the economy of Georgetown.

Closure will also cause vessels to overwork and over produce other species which in turn will flood the market place and lower prices. We do produce during the spring of the year, according to our records, higher averages of bottom fish, thus any increased pressure in order for swordfishermen to economically survive, will impact the market place drastically. This fact coupled with the increase fishing vessel expense yearly, is in my judgement, the beginning of the end for the commerical fisherman in South Carolina.

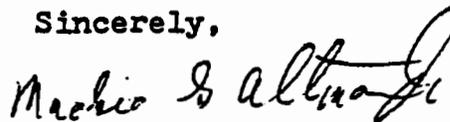
The North Atlantic season starts in June and the Gulf of Mexico season in November, leaving the South Atlantic (us) with the April-May season, which the plan proposes to close. Needless to say, if the proposed plan goes into effect, it is our death knoll. Then there is the fairness doctrine:

- (1) Harpoon fishing continuing during the closure.
- (2) Foreign vessels being able to take fish off our coast during this proposed closure.
- (3) The lack of agreement by the Canadian Government to close their season, thus depriving us of our markets.

South Atlantic Fishery Management Council
Page 3
April 19, 1984

In summary, I do not believe that the current proposal has either been fully thought through as to its critical economic impact or as to its fairness. The evidence presented so far does not persuade us that the fishery needs to be curtailed or closed. Finally I raise a question as to why the majority of the members of the swordfish committee are from the North East Council. Is it possible there is the smell of fish in the air?

Sincerely,

A handwritten signature in cursive script that reads "Mackie G. Altman, Jr." The signature is written in dark ink and is positioned above the typed name.

Mackie G. Altman, Jr.

**Federal Land Bank of Columbia and
Federal Intermediate Credit Bank of Columbia**

P. O. Box 1499
1401 Hampton Street
Columbia, South Carolina 29202
Telephone (803) 799-5000

April 20, 1984



Mr. David H. G. Gould
Executive Director
South-Atlantic Fishery Management
Council
One South Park Circle
Charleston, SC 29407

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APR 24 1984

**SOUTH ATLANTIC FISHERY
MANAGEMENT COUNCIL
CHARLESTON, S.C. 29407**

Dear Sirs:

We have reviewed the proposed fishery management plan for the swordfish fishery in the Northwest Atlantic. As an institution involved in financing commercial swordfish vessels and related shore-side facilities, we would like to furnish some additional thought for your consideration.

We endorse the council's concern for the long-term viability of all marine fisheries and support the intent of the proposed fishery management plan for swordfish. Sound and fair management will continue to be a key to the long-term livelihoods of the commercial fishing industry which we serve. Along with the fishery management council's responsibility to protect the resource, is the mandate to promote its wise utilization. It seems appropriate for the fishery management councils, at the same time it restricts or regulates, to also encourage ways of mitigating adverse economic impacts of these restrictions. For example, the proposed swordfish management plan includes substantial closures of overall harvesting of the primary species of numerous commercial fishing enterprises on the east coast. As was evident at most of the public hearings on the plan, there is serious apprehension about the ability of these small businesses to absorb any substantial decrease in total catch permitted. Knowing that the councils will use the best available and most current scientific knowledge to evaluate the impacts of these closures, we hope that responsible related agencies also look one step beyond the implementation of controls such as those proposed; and, at the same time, provide assistance in working through the adverse impacts which inevitably would arise from such controls on production. If, in fact, the closures come about, these boats will face months either seeking new, less profitable fisheries or tied to the docks.

This situation represents an opportunity to further fishery and financial management programs managed by the National Marine Fishery Service. As you are no doubt aware, with passage of the American Fisheries' Promotion Act amendments to Title 11 of the Merchant Marine Act of 1936, expanded financial assistance is available through the National Marine Fishery Service.



Letter to David H. G. Gould
April 20, 1984
Page Two

Perhaps an appropriate use of this financing would be in response to the proposed plan. For example, much of the adverse economic impact could be ameliorated if the National Marine Fishery Service would consider the use of the fisheries' obligation guarantees, and related subfunds in federal ship financing, to guarantee income and expenses related to high risk developing fisheries; guarantee operating loans to transfer a vessel to a new or developing fishery during the closure, or, to guarantee lines of credit, etc. for use by processors or fishermen that they might minimize the risk in taking inventory positions on new or under-utilized species which could be targeted during the closure periods. Many swordfish long line fishermen have expressed considerable interest in pursuing a similar fishery for tuna during any closure. If, (in this case), swordfishermen might pursue financing via a fishery's obligation guarantee, it would offset the substantial risks faced in committing their resources to these new developing fisheries.

It appears that the successful implementation of both the Magnuson and American Fishery Promotion Acts will increasingly rely on the integration of both fishery and financial management programs conducted by the government. It is our feeling that the swordfishery represents an excellent opportunity for management to not only regulate, but if restriction results, to assist in redirecting those which will be displaced.

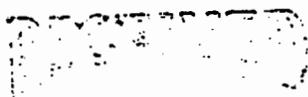
We endorse your attempts to provide a viable resource for the commercial industry and hope that future fishery management efforts insure both the viability of fishery resources, and the livelihoods of those who depend on the sea for a living. We appreciate your consideration in this matter and we look forward to discussing this or any topic which may be of interest in the future.

Sincerely,



Thomas J. Murray
Aquatic Specialist

njh



MAY 1 1954

302 27 April 1954

Dear Dave

 SECRETARY OF THE U.S. DEPARTMENT OF COMMERCE
 NATIONAL MARINE FISHERIES SERVICE
 CHARLESTON, S.C. 29405

My schedule and a snow storm prevented me from commenting on the "Summary of the Swordfish plan for Public Hearings March 1954".

My comments are brief:

① Enforcement of the closure.

Protection of the swordfish need not prohibit the shark and tuna fisheries completely. Since the swordfish is taken on longlines only as required it seems wasteful not to be able to utilize longlines for shark and tuna during daylight hours during the closure.

② Spawning closure.

Our source document and supporting scientific papers by Tainy, Arata, and Martin are quite specific about the area and time of swordfish spawning.

Biologists Beakley and Taly knew the location of spawning grounds when they maintained that fishing there would not diminish the resource.

Longline fishing the straits of Florida know very well the the area and time of swordfish spawning.

How can "onboard technicians" find a "concentration of roe fish" that has already been eliminated?

If these two situations are not addressed, we will have a plan that will eliminate pelagic longlining and not restore the swordfishing.

Yours truly
Marty Benth
Swordfish AP

The answer to this

SOUTH ATLANTIC COUNCIL UPDATE

VOL. 1 NO. 1

MARCH 1984

"WHERE'S THE BEEF!"

"Where are the markers?"

"My average size and catch rates keep falling — yet my gear is much better — If I'd fished like this 7 years ago - I'd be a millionaire - instead I'm loosing -if someone would buy my boat I'd get out tommorrow."

"Fifty-two percent of the commercial swordfish harvest landed in S. C. is less than 40 pounds dressed weight - consisting of prereproductive females and males, some of which may have been reproductively active for the first time."

"I've been in it since 1963 but I can't do it anymore - If something isn't done now - swordfish will be an endangered species in a few years."

"Twenty to thirty pound carcasses are predominant."

"We are all totally aware of the present problem and our need to prevent overfishing and reduce mortality rates."

"Large increase in effort but no catch."

"Something has to be done — the burden of a closure should be shared equally."

"What is happening to the swordfish?"

Comments such as these from fishermen, dealers, scientists and managers highlight the critical status of the swordfish fishery. These changes have been so significant that some fishermen and dealers have now volunteered swordfish data so that a preliminary stock status analysis can be based on larger numbers and on a sample drawn from all areas of the U. S. swordfish fishery. The five Fishery Management Councils involved with the Atlantic swordfish management plan are prepared to conduct public hearings. They will discuss new data that have recently become available, preliminary stock assessment analysis and its implications for an immediate seasonal closure, alternate closure starting dates, a proposed data collection program, the gillnet controversy, and additional management measures which could complement the variable season closure. It is vital that interested fishermen attend these public hearings and comment on these issues. This feedback is absolutely essential so that all parties understand the proposed regulations and so that industry input can be properly assessed in subsequent plan development. The critical status of the fishery demands immediate attention and rapid implementation of the swordfish plan. Now is the time for comment and testimony from interested parties.

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

1 SOUTH PARK CIRCLE, SUITE 306

CHARLESTON, S. C. 29407-4699

TELEPHONE (803) 577-4366

15 this!

February 3, 1984

F/NER72:PDC

TO: Federal Fisheries Permit Holders
for Atlantic Groundfish

FROM: *Richard H Schaefer*
Richard H. Schaefer
Acting Regional Director

SUBJECT: Haddock Spawning Areas Closed to Fishing March, April and May.

Contact Richard H. Schaefer, Acting Regional Director for additional information (617-281-3600).

During the months of March, April and May, two areas off the New England Coast are closed to all fishing activities capable of taking groundfish species. The closure begins on March 1, 1984, and continues through May 31, 1984. These areas are known locations where haddock spawn at this time of the year. They have been closed to fishing annually for many years as a conservation measure designed to minimize disturbance of the spawning fish and to prevent excessive exploitation of the haddock when they are concentrated on these spawning grounds.

As in past years, these regulations prohibit the use of any type of gear in the two spawning areas other than the following:

1. Pot gear designed and used to take lobster.
2. Hooks with a gape of not less than 30 mm (1.18 inches).
3. Dredges designed and used to take scallops.

It should be noted that the taking of any cod, haddock or yellowtail flounder by the gear types permitted for use may be considered a violation of the area closure.

The closed areas are bound by straight lines connecting the following coordinates in the order stated:

CLOSED AREA I

41⁰ 50' N, 69⁰ 40' W
40⁰ 53' N, 68⁰ 58' W
41⁰ 35' N, 68⁰ 30' W
41⁰ 50' N, 68⁰ 45' W
41⁰ 50' N, 69⁰ 40' W

CLOSED AREA II

42⁰ 20' N, 67⁰ 00' W
41⁰ 15' N, 67⁰ 00' W
41⁰ 15' N, 65⁰ 40' W
42⁰ 00' N, 65⁰ 40' W
42⁰ 20' N, 66⁰ 00' W
42⁰ 20' N, 67⁰ 00' W



Portland Me.
Thu 11 May 1984

David Gould
John Hoey
SEFMC
Swordfish Advisory Panel (SAP)

RECEIVED
MAY 14 1984

SOUTH ATLANTIC FISH &
MANAGEMENT BOARD
CHARLESTON, S.C. 29405

Dear Friends -

By now I hope you have length and/or weight data for the populations of New England and Gulf of Mexico swordfish as we first sampled them with longlines in the early sixties and late sixties respectively.

When you finish reviewing these data along with early Penobscot and other landings from the Straits of Florida in 1975, I think you will agree that we have caught the medium sized fish and are surviving on the large spawners and juvenile

recruitment from the Antilles spawning area.

I have deep feelings of regret for not "picking up" on what was happening at Tuesday's meeting. What we did was decide to sacrifice the large spawners in our own fishing to preserve the one part of that fishing that still exists while promising to protect the young infiltrating our zone of "conservation" from spawning areas elsewhere.

Gentlemen, we are going on wellfire! Because of our overindulgence we have put ourselves in the position of a man who decides to eat the broody hen, promising to protect

his neighbors chicks when they
stray under his fence.

I dont trust this man. At best
he is hoping to restock his empty
henhouse with my chicks.

At worst well, I'm going to
build one believe fence tomorrow.

In automotive terms, were putting
a new oil filter on a blown engine.

Regretfully yours.

Martin Bartlett

Dear Mrs. Loh,



I am a Swedish
longline Fisherman. At the
time of the meeting in October
30 I will be out fishing.
I understand there is some
talk about closing off fishing
for two years. It may be of
some interest to you that
in the season of 1984 I made

over

.52 sets in 5 trips - 3 of
the trips were to the Grand
Banks of Newfoundland Two
trips Southeast of Georges Bank
The Two Georges trips were in
the month of May & June -
My average for these two trips
was 120 lbs per fish - My
Average for the Three Grand
Bank trips was 130 lbs.

The problem doesn't seem
to be there aren't any

large fish in my opinion
If I had wanted to I could
have caught a boatload of
small fish by sitting in
the middle of the Gulf Stream
To sum it up - the little
fish seem, for the most part
to be in the very warm with
the large ones the cooler
water. I hope this may
be of some interest to
someone.

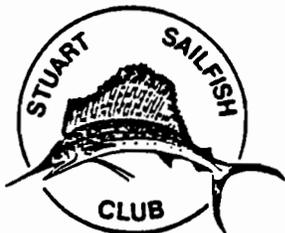
over

I ~~also~~ have a gillnet for
Swordfish. I have caught
one shark and no other
kind of fish except swordfish
in it. Certainly wish I could
be at this meeting.

Sincerely Yours

Robert H. Brown
9 Sycamore St
Marblehead, Mass
FV Hannah Boden

617-631-7099



RECEIVED

NOV 13 1984

SOUTH ATLANTIC FISHERY
MANAGEMENT COUNCIL
CHARLESTON, SC 29407

STUART SAILFISH CLUB

P.O. BOX 2005
STUART, FLORIDA 33495

November 8, 1984

Mr. David H. G. Gould, Executive Director
South Atlantic Fishery Management Council
Suite 306, 1 Southpark Circle
Charleston, S.C. 29407

Dear David:

The Stuart Sailfish Club is in favor of and supports the Swordfish Management Plan as described in the October 1984 brochure for the Atlantic, Gulf and Caribbean. As recreational anglers we were forced out of the newly developed swordfish fishing in three years when stocks off the Southeast Florida Coast collapsed due to overfishing by commercial longliners. We are convinced the proposed management measures are needed and necessary.

The proposed domestic fishing management measures of a variable season closure to reduce the catch of smaller fish is an equitable method to fishermen and will protect swordfish stocks. Basing the closure on the percent of small fish taken in each area with the variable factor makes the proposal scientifically and statistically sound.

We find no part of the proposed plan objectionable and encourage the quick implementation of the management plan.

Sincerely,

Bob Pelosi

Capt. Bob Pelosi
Director-(for the Board of Directors)
STUART SAILFISH CLUB

November 26, 1984

NOV 23 1984

My name is Al Mercier. I own and operate the Kristin ^{SOUTH ATLANTIC FISHERY} ~~Team~~ I've been in the swordfish business for 7 years and before ^{MANAGEMENT} ~~that~~ was in the charterfishing business business. I'm an independent and fish only for myself. I fish from Tampa to Montauk, N.Y. I'd like to say that my catch records differ from the data that has been presented to us.

As for the closure, I don't believe there should be one. I know the scientists don't want one. I believe that we are having a baby boom of small fish. In the last year I have caught some of the largest fish of my 7 years. The only way to get accurate data is to have a 2-3 year study with observers on the boat or at the dock, not sitting in some office. This is our livelihood.

If it was necessary for a closure, I believe a short one (one month) would be best to see how catches differ. Or instead of the closure the possession law with fish under 25 pounds (dress weight) being illegal not 50 pounds. I say 25 pounds because the whole fish weights about 45 pounds and a 50 pound fish weights about 75 pounds before being dressed out. We have recently heard that the closure and the possession law are going to be put into effect together! We feel we are being bombarded with this all at once!!!! Why not try one of these things at a time and see how it works. As it is many fishermen are going to be put out of business.

As for foreign fish, as an american fisherman I believe that foreign fish should not be bought. Our fishermen provide plenty of fish, so we think there should be a total ban on foreign fish. If you have any questions please feel free to contact me.

Al Mercier

2691 N.E. 22 Ct.

Pompano Beach, Fla. 33062

305-781-6595

**COMMENTS OF THE
JAPAN TUNA ASSOCIATION
ON THE PROPOSED CHANGES
IN THE ATLANTIC SWORDFISH FMP
AS BROUGHT TO PUBLIC HEARINGS
OCTOBER - NOVEMBER 1984**

December 17, 1984

.....

The following comments on the proposed changes in the Atlantic Swordfish Fisheries Management Plan (FMP), as brought to public hearing during October and November 1984, are hereby respectfully submitted to the Atlantic and Gulf of Mexico Fisheries Management Councils by the Japan Tuna Association (JTA):

-more-

1. Foreign Tuna Longliner Bycatch Negligible,
Has No Effect on Swordfish Stock.

The draft FMP for Atlantic Swordfish proposes to limit the swordfish bycatch of foreign longliners to the lesser of 1.5% of the U.S. catch or 1,136 fish in the Atlantic and Caribbean and 400 fish in the Gulf of Mexico. Such a restriction has no biological or rational justification and will unlawfully deprive foreign fishermen of a reasonable opportunity to catch tuna in the FCZ, as required under the provisions of the Magnuson Act. Any provision in the FMP to establish the cap at the "lowest recent historical levels" would have the same effect:

U.S. fishermen have by far the greatest impact on the size and condition of the northwest Atlantic swordfish stocks. According to FAO data, U.S. fishermen take about 75% of all the swordfish caught by all nations in the northwest Atlantic, while Canadians take about 20%.

The bycatch of swordfish incidental to the catch of tuna by Japanese longliners in the Fishery Conservation Zone (FCZ) is a statistically insignificant percentage of the total swordfish catch in the northwestern Atlantic, amounting to less than one percent. As swordfish are released at the waterline by the Japanese longliners, swordfish mortality resulting from such bycatch is at least 40% lower than the recorded catches, thus reducing the significance of the Japanese fishing activities even more.

In 1980, the base year for most of the management measures in the FMP, U.S. swordfishermen caught at least 125,000 swordfish in Atlantic and Gulf waters. This was the estimate of swordfishermen and swordfish dealers at the Advisory Committee meetings in preparation for the development of this FMP. The NMFS estimates used in most of the FMP were derived from sampling selected fish houses and are admittedly very low.

The swordfish mortality caused by the incidental catch of Japanese tuna longliners in the Atlantic and Gulf FCZ in 1983 was less than 300 fish, a mere 0.2% of total U.S. Atlantic swordfish mortality. This 0.2% could have had no significant impact either way on the conservation of swordfish. If eliminated it would not help reduce growth overfishing nor recruit overfishing, as the percentage is even much smaller than the statistical margin of error in yield per recruit or population estimates.

In proposing to cap the incidental swordfish catch of foreign tuna longliners at 1,136 fish, the councils are really proposing to limit their bycatch mortality to around 680 fish, 0.7% of the published 1983 U.S. catch. A more reasonable cap, and one which still would have no effect whatsoever on the size and condition of the stock, would be 5% to 10% of the U.S. catch. Almost all conservation programs, after all, allow at least a 10% bycatch of the species under conservation management.

The proposal to apply the same restrictions to foreign fishermen as are applied to U.S. fishermen in such cases as the application of the VSC for longlines is excessive, unwarranted, and unjustified. The allowable foreign bycatch level in itself is a severe limitation on catch that would be in effect even if there were no limitations on the U.S. domestic catch. Application of a restriction on top of that would be a double restriction, compounding the already severe proposed cap restrictions and the existing area restrictions. In addition, such further restrictions have no scientific justification because the cap level itself is too small to have any measurable conservation effect on the stocks.

In sum, there is no scientific, logical, nor legal justification for either restricting the foreign tuna longline bycatch to a maximum catch level of 1,136, nor for reducing this number by applying VSC restrictions.

2. Area Restrictions Unnecessary;

Gear Conflicts Almost Non-Existent

In 1983, according to the NMFS, there were no recorded gear conflicts between Japanese tuna longline vessels and U.S. domestic fishermen (See MAFMC Review of Atlantic Billfishes and Sharks PMP, 3/13/84). This was achieved even though there were a greater number of U.S. vessels engaging in longlining for swordfish and tuna than in any previous year.

In any longline fishery there are bound to be gear conflicts, as wind and currents sweep lines together. On any given fishing day, there are dozens of entanglements among the lines of U.S. domestic swordfish and tuna fishermen. The entanglements generally are resolved fairly quickly and in a manner that minimizes loss of fish or fishing time.

Japan's tuna industry has worked out procedures with its vessels and U.S. fishermen to minimize problems arising out of gear conflicts. All Japanese tuna vessel captains are instructed to broadcast to U.S. fishing vessels the location and direction of their sets and to avoid setting in areas that would conflict with U.S. fishing gear. We provide weekly broadcasts to our vessels of certain fixed gear locations and all captains monitor the Coast Guard broadcasts for changes in fixed gear location.

We also maintain a representative in the U.S. to render assistance in cases where gear conflicts inadvertently occur. In addition, the presence of U.S. government observers on all our vessels fishing in the Atlantic FCZ helps to prevent or resolve gear conflicts.

In view of all these efforts, it is unnecessary, overly restrictive, and injurious to restrict Japanese tuna longlining further by extending the time or location of current fishing area closures, as proposed in the hearing document.

3. Time or Area Extension of Current PMP Closures, or Enforcement of Unimplemented PMP Closure Regulations Would Deprive Japan's Longliners of Reasonable Opportunity to Catch Tuna, as Required By Magnuson Act

According to the formal legal opinion of the NOAA General Counsel, the United States must ensure foreign longline vessels a reasonable opportunity to catch tuna.

The opinion, Formal Legal Opinion 82, Billfish Management Under The FCMA, NOAA Legal Counsel, 3 Oct. 1979, stated that "In light of its express exception for tuna management, the FCMA has left intact the freedom of foreign vessels in the FCZ to fish for tuna."

As one conclusion of its legal analysis, NOAA General Counsel stated: " It would appear from the FCMA policy against impeding or interfering with such legitimate uses, as well as the international 'reasonable regard' principle, that in managing billfish resources the United States must ensure foreign longline vessels a reasonable opportunity to catch tuna." (Emphasis added.)

President Reagan, in his Exclusive Economic Zone Proclamation, also emphasized that the United States would not impair foreign access to tuna in the U.S. 200-mile zone.

Imposition of fishing area closures would deprive foreign tuna fishing vessels of their ability to catch tuna in the FCZ and therefore contravene the mandated injunction against extending U.S. fishery management authority to this species of fish.

The 100-mile wide closure of the area from the Baltimore Canyon north to the U.S.-Canadian border already has deprived our longliners, who have traditionally fished in the area, of a reasonable opportunity to catch tuna. As a result of this cut-off of prime tuna fishing grounds, only a small number of our vessels fished in the Atlantic FCZ this year.

Any additional closures, either by extension of closure time or area, will make it impossible to catch tuna, and would therefore be in violation of the Magnuson Act.

Although Japanese tuna fishing vessels have not in recent years fished for tuna in the Caribbean, and have no plans to do so, closure of the Caribbean to foreign tuna fishing vessels would be clearly in contravention of the Magnuson Act because such a closure would foreclose any opportunity to catch tuna. We therefore oppose any such provision in the PMP in principle.

Japan's tuna industry has had a long and amicable relationship with the Atlantic and Gulf of Mexico Fishery Management Councils. Our tuna industry has been highly responsive to every concern of the Councils and American fishermen.

Voluntarily, our tuna industry reduced and then stopped their catch of bluefin tuna in the Gulf, reduced their incidental catches of billfish in both the Gulf and Atlantic through high density avoidance measures, and instituted a host of other measures to improve communications with U.S. fishermen and avoid gear conflicts.

In view of all the effort we have made to maintain an amicable and mutually rewarding fisheries relationship with the U.S., its fishermen, and the Councils, we respectfully request that the Councils refrain from imposing any more constraints upon our fishing in the FCZ. Instead, we urge you to rely upon the good will and sincere desire to work out a satisfactory solution to problems which have been the keystone of our relationship since 1978.

Thank you for your understanding.

End

APPENDIX B

REGULATIONS

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Parts 611 and 630

(Docket No. 50581-5127)

Atlantic Swordfish Fishery

AGENCY: National Marine Fisheries Service (NMFS), NOAA, Commerce.

ACTION: Final rule.

SUMMARY: NOAA issues a final rule to implement the Fishery Management Plan for the Atlantic Swordfish Fishery (FMP). This rule provides for (1) the framework for closing areas for specific times, and (2) the establishment of a data collection program in the Caribbean. The intended effect of the final rule is to maintain high landings in the form of larger fish that are preferred in the market, prevent growth overfishing, provide a buffer against possible recruitment overfishing, and obtain the information necessary to monitor the fishery and refine the management regime.

EFFECTIVE DATE: This rule is effective September 18, 1985 (except for § 630.4 which becomes effective January 1, 1986) through December 31, 1987. This rule is being issued prior to approval by the Office of Management and Budget (OMB) of the information collection requirements in § 630.5. When OMB approval is received, a notice will be published in the Federal Register making this section effective on September 18, 1985.

ADDRESS: A copy of the combined final regulatory impact review/regulatory flexibility analysis (RIR/RFA) may be obtained from Donald W. Geagan, Southeast Region, National Marine Fisheries Service, 9450 Koger Boulevard, St. Petersburg, FL 33702.

FOR FURTHER INFORMATION CONTACT: Donald W. Geagan, 813-893-3722.

SUPPLEMENTARY INFORMATION: The Regional Director, Southeast Region, NMFS, initially approved the fishery management plan for the Atlantic Swordfish Fishery on July 19, 1985, under the authority of the Magnuson Fishery Conservation and Management Act (Magnuson Act). Proposed

regulations to implement the FMP, prepared by the South Atlantic Fishery Management Council in cooperation with the Caribbean, Gulf of Mexico, Mid Atlantic, and New England Councils (Councils) were published on May 31, 1985 (50 FR 23159). Comments on the FMP and proposed rule were invited through July 12, 1985. The preamble to the proposed rulemaking contained a description of the swordfish fishery, the condition of the stocks, and fishing practices within the commercial and recreational sectors. Also discussed were problems in the fishery (i.e. increasing number of small fish in the landings and possible growth overfishing). These discussions are not repeated here.

Comments and Responses

Eighteen written comments were received addressing 45 issues. The sources of the comments were State natural resource agencies, the Department of State, a sports fishing organization, a foreign fishing association, Fishery Management Councils, a commercial fisherman's organization, law firms, a fishing tackle company, two members of Congress, and seven individuals.

Fishery Permits for Rod and Reel Fishermen

One state marine resource agency recommended that the requirement for rod and reel fishermen to possess fishing permits and report their catch in the Mid-Atlantic area (§ 630.4(a)(2) in the proposed rule) be extended to apply to rod and reel fishermen in all areas. Application of these requirements to rod and reel fishermen in only one area was considered inequitable, and because the Councils are considering implementing a comprehensive data gathering program, these requirements are unnecessary and NOAA has omitted them in the final rule. The same state agency suggested that these rod and reel permits remain valid until the permit owner requests otherwise or the vessel is sold. It was also recommended these permits be added to the bluefin tuna permit. Since the requirements for rod and reel permits and reporting by recreational fishermen have been deleted, these suggestions also are not applicable.

Prohibition of Imports

A law firm cited the need for import restrictions. The FMP provided for import restrictions during the variable season closure (VSC); however, that measure was disapproved, because it was not in compliance with Executive Order 12291, i.e. benefits and costs were not evaluated adequately. This measure

may be readdressed and submitted for approval in the future.

A State marine resource agency recommended that the time period for the prohibition of imports after a variable season closure be the same (10 days) for all areas instead of varying from seven to 11 days. Because NOAA has deleted this measure, the agency's comments are not applicable.

Entanglement Nets

One recreational fishermen's organization questioned the authorization of the use of entanglement nets in the fishery. They expressed the opinion that the use of this gear would give a select few fishermen an excessive part of the resource and the non-selectivity of the gear would be harmful to other species such as marlin and sailfish. NOAA is gathering information on the effect of this gear. However, because of the lack of scientific information at this time regarding entanglement nets, no further restrictions on the use of this gear are proposed at this time.

Regional Director Authority

The same sportsmen's organization objected to the Regional Director's (RD), Southeast Region, authority to review and approve or disapprove recommendations made by the Councils under § 630.21(c). In their opinion, this allows the RD to disapprove the Councils' recommendations at his discretion, thereby denying the Secretary of Commerce (Secretary) the opportunity to review them. The RD has been delegated the authority to approve or disapprove FMPs by the Secretary and as such acts as the Secretary's designee. In addition, the RD may not arbitrarily disapprove a recommendation submitted by the Councils. To disapprove a recommendation, the RD must find that the recommendation is inconsistent with the objectives of the FMP, the Magnuson Act or other applicable law. Therefore, this measure is implemented as proposed.

Time Restrictions for Longliners

Restricting the fishing of longlines to the period 1800 hours to 0500 hours throughout the year was recommended by a recreational fishermen's group to mitigate the bycatch of billfish. However, to do so for other pelagic fisheries during the variable season closures would defeat the purpose of the measure because most swordfish are caught during these hours and to do so during the remainder of the year would

cause an unjustifiable restriction on the swordfish fishery.

Foreign Fishing Restrictions

The Department of State and one foreign tuna fishing association objected to the restriction for foreign tuna longline vessels in the proposed regulations. The Department of State and the association recommended deletion of the prohibition of nighttime pelagic longline fishing by foreign vessels, the cap on the foreign longline incidental catch of swordfish and the closure of the south Atlantic portion of the FCZ. They considered the prohibition of nighttime longline fishing during the VSC by foreign fishermen to be excessively burdensome for the Japanese fishing fleet which operates far from its home base and to operate efficiently must fish 24 hours a day. In addition, they pointed out that only 20 swordfish were caught by the Japanese during 1984 in the area north of Cape Hatteras that was scheduled to be closed for 24 days under the VSC. With regard to the cap on the incidental take of swordfish, the State Department noted that the FMP does not provide statistical or other justification to illustrate how this measure will contribute directly to the objective of controlling the harvest of small swordfish. Also, the bycatch of swordfish by the Japanese longline fleet has dropped from 8,074 swordfish in 1980 to 402 swordfish in 1984. It was also indicated that in its opinion the closure of the southern portion of the FCZ was unnecessary because of the reduced effort by the Japanese fleet in the area in recent years and the corresponding decline in conflicts. NOAA concurs with the Department of State and the tuna association and the measures in the amendment to the Foreign Fishing Regulations at 50 CFR 611.60 and 611.61 disapproved by NOAA are omitted in this final rule.

Definition of Rod and Reel

A representative of one State agency recommended that the definition of rod and reel fishermen be modified to read "means any individual using a hand-held fishing rod with a manually operated reel attached." This would exclude the option of using rods with electrically operated reels. The commenter suggested that electric reels are not currently used but could be used to violate the proposed regulations. NOAA believes that this additional restriction would not be consistent with the intent of the Councils to exempt all legitimate rod and reel fishing from the closure.

Advance Notification

Representatives of two state agencies and one commercial fisherman commented that the requirement of a 10-day advance notification of departure for vessels selected to carry an onboard technician was impractical and unnecessary. They suggested that the notice period be reduced substantially. NOAA has disapproved the mandatory observer program for swordfish and § 630.5 as published in the proposed rule is modified in the final rule to reflect this disapproval. Therefore, these comments are no longer appropriate.

Fishing Outside Western North Atlantic Stocks

A representative of one State agency indicated that U.S. vessels occasionally fish for swordfish "outside the area identified as the Western North Atlantic Swordfish stock (zone)" and asked if fish from those areas could be possessed or landed during a closure. In a closed area (shoreward of the seaward boundary of the FCZ) swordfish could not be possessed at sea or landed during a closure. This same commenter asked if it was the intent of the FMP to force U.S. fishermen to land their catch in another country. This is not the intent of the FMP. The FMP is designed to reduce the harvest of swordfish less than 50 pounds dressed weight by closing areas at times when these small fish are predominate. These closures in the FCZ are also intended to encourage compliance among any fishermen fishing on the Western North Atlantic stock of swordfish. Any fishing effort applied during a closure to the same stock of swordfish would diminish the effectiveness of the FMP closures and, therefore, the benefits to the fishermen.

This commenter also asked how swordfish from the Western North Atlantic stock will be distinguished from the Eastern North Atlantic stock. There is no mechanism for differentiating these fish at this time. It is, in fact, this inability that underscores the necessity of prohibiting the possession at sea or landing of all swordfish in a closed area. An exception for swordfish harvested from other than the Western North Atlantic could easily preclude effective enforcement of a closure. NOAA believes that the need for effective enforcement of the closures outweighs the potential burden on the relatively few fishermen who occasionally fish beyond the boundary of the Western North Atlantic. Therefore, this regulation is implemented as proposed.

Fishery Management Councils Comments

The New England Council requested that the Secretary implement the Swordfish FMP without the harpoon cap provision. The Council noted that this measure: (1) Does not contribute to any of the FMP's objectives; (2) is not necessary to enhance enforcement as implied; and (3) would result in unnecessary and excessive costs and burdens associated with recordkeeping. Further, the harpoon fishery selectively harvests large fish and is, therefore, consistent with the primary objective of the plan. NOAA concurs with these comments and has disapproved the measure on the basis that it is inconsistent with section 303(a)(1)(A) of the Magnuson Act and Executive Order 12291.

This Council also stated that in southern New England many recreational boats regularly use harpoons to take swordfish, billfish, and tuna and under § 630.5(a) could be required to accommodate an onboard technician. NOAA has disapproved the mandatory observer program. Therefore, these comments are no longer applicable.

The South Atlantic Council suggested a number of technical corrections to the proposed rule. The Council stated that the numerical expression of ~~opinion~~ yield, i.e. number of swordfish under 50 pounds dressed weight that can be harvested, should be changed from 33,750 to 30,250. The published number was incorrect because of an error in the original calculation. NOAA agrees that the revised number, 30,250, is accurate and reflects the Councils' intent of using the number of swordfish less than 50 pounds harvested in 1980 and has made the appropriate corrections in the final rule. A slight modification in the definition of "gangion" was also recommended, i.e. changing "ground line" to "main line." This change has been incorporated in the final rule. The Council suggested that under § 630.4(b)(9) wording can be added to require anyone indicating that he/she could not accommodate a technician to provide an explanation. This comment is no longer applicable because of NOAA's disapproval of the mandatory observer program.

The South Atlantic Council also questioned the wording added by NOAA to § 630.21(c)(6) that provided a 15-day public comment period after publication of the Federal Register notice implementing modifications to the VSC. In addition to the Council recommended that the wording of

§ 630.21(c)(5) be changed to read "Changes in the starting date and resulting lengths of closures as determined by the most recent year's data, and any other changes to the FMP must be approved by all five Councils". In § 630.21, paragraph (c) *Adjustments* has been reserved to comply with disapproval of the provision requiring concurrence of all five Councils to establish or adjust the closures under the VSC. NOAA has designated the South Atlantic Council as the responsible Council for the management and Amendment of the FMP. The management measures to implement the closures under paragraph (c) as well as other necessary procedures will be implemented when the FMP has been amended to reflect this change in management responsibility. Therefore, the South Atlantic Council's comments are not appropriate.

The Council also requested that the wording in the first sentence of § 630.4(a)(1) be changed from commercial fishing vessel to . . . commercial longline fishing vessel and that corresponding language in the preamble be changed also. These changes are in the final rule. The Council further recommended that language be added to the preamble to indicate that existing data collection for the bycatch of swordfish by the foreign squid trawl fishery be continued as the U.S.-squid fishery shifts from joint ventures to ultimately a domestic fishery. Finally, the Council suggested minor modifications to the wording in sections of the proposed rule relating to foreign fishing measures and import restrictions. These comments are not applicable because these measures were disapproved and are deleted from the final rule.

Observer Requirements

A legal firm representing two commercial fishermen, a representative of a commercial fishermen's organization, and two members of Congress have expressed concerns about requiring observers aboard domestic vessels. All three commenters raised the issue of the vessel captain's liability regarding observers and stated that the government should bear the cost of necessary insurance and other associated costs. These commenters also noted that in some cases vessels lack sufficient space to accommodate observers and might be forced to reduce their customary crew size. This would reduce efficiency and could jeopardize safe working conditions. NOAA believes that there are legitimate reasons for concern about space, safety, liability, and crew size. Until these

problems are resolved NOAA has disapproved implementation of the mandatory observer program.

The legal firm and the commercial fishermen's organization suggested that the observer program for entanglement nets is inconsistent with Executive Order 12291 and National Standard 7. The commenters also suggested that less costly alternatives for data collection, i.e. use of data collection forms, should be adopted. These comments are no longer appropriate since NOAA has disapproved implementation of the mandatory observer program and deleted it from the final rule.

Variable Season Closure

Comments on the VSC were received from nine sources including seven commercial fishermen, one law firm, and a representative of a fishing tackle company. The law firm suggested that the FMP and the variable season closure were based on insufficient data. The VSC was based on a combination of NMFS swordfish landings data and size frequency data provided by fishermen and dealers. The size frequency data were available for 1962-1984, with most emphasis on the period from 1930-1984. More than 8,400 trip sheets and 270,000 individual carcass weights from all areas of the fishery were analyzed. NOAA has concluded that the VSC and the FMP are based on the best scientific information available. The firm also recommended closing different areas at different times as opposed to the overlapping closures proposed in the FMP. The best available information indicates that the fall months are when most of the small fish are caught. Further, the fall closures would achieve the necessary reduction of small fish while minimizing the loss (delay) of total landings, and fall is the season of lowest value per pound. Staggered closures would encourage shifts in fishing effort to avoid closures and thereby reduce effectiveness of the closure and complicate enforcement. This same commenter suggested that fishermen know where and when small fish are concentrated and that an economic disincentive would deter the take of small fish. The VSC is an economic disincentive. To the extent that fishermen can voluntarily avoid small fish, the closure would be reduced and could be eliminated if the take of small fish did not exceed the 1980 level.

Five commercial fishermen stated that the proposed closure, based on 1984 data, would create an economic hardship for them, and four fishermen suggested that the shorter closure, based on 1983 data, be implemented. Implementation of the 1983 based

closure would not result in achievement of optimum yield and would not be based on the best scientific information available and would, thus, violate national standards 1 and 2. Setting the closure during the fall months would minimize, to the extent possible, the reduction (delay) in total landings. The FMP also allows daytime longlining for tuna during the VSC to mitigate the short-term impacts of the closure.

One fisherman suggested that exempting harpoon fishermen from the VSC was unfair. The harpoon sector was exempted because it can and does selectively harvest large swordfish and, therefore, does not contribute to the problem of increasing harvest of small fish which necessitated the closure.

The representative of the fishing tackle company recommended that a minimum size be imposed instead of a seasonal closure. The Councils considered a minimum size limit but concluded, on the basis of a preliminary analysis by the Southeast Fisheries Center, that until mortality of small fish can be reduced significantly there would be no substantial benefit. Benefits would accrue only if fishermen would forgo trips where significant numbers of small fish would be encountered or if survival rates of small fish hooked and released were sufficiently high. Neither of these conditions currently would be met. The analysis indicated that too few trips would be avoided to reduce mortality. This commenter also stated that long closures in areas with primarily large fish defeats the economic objective of the plan. Such closures are less efficient than closures of areas with a higher ratio of small to large fish; however, the delay in harvest will produce overall gains.

The fisherman suggested that basing the closure on where small fish were landed rather than where they were caught is inappropriate. NOAA agrees, in principle, with this comment, but believes that the potential for error is minimal. The defined areas are very large thus minimizing the likelihood that vessels would fish in more than one area on a given trip. Further, much of the data supplied indicated area fished, e.g. logbooks, and area fished was determined by interviews with fishermen or dealers when possible.

Another fisherman stated that it was unfair to impose a closure in an area where the percentage of small fish landed had declined. NOAA disagrees. The effectiveness of the plan depends on reducing the total number of small fish landed. In the case cited by the commenter, the percentage of small fish landed declined slightly, but the total

number of small fish landed increased significantly. The swordfish stock is affected by the number of small fish killed, not by their percentage relative to total landings.

Two fishermen claimed that the proposed closures were in the wrong place at the wrong time. The Councils analyzed a substantial amount of landings and size frequency data from all areas of the fishery to determine the most appropriate closure dates. These data indicated that relatively more small fish were caught during the fall months in all areas. Also, the fall closures would minimize the length of the closure needed to achieve a given reduction in catch of small fish. Although some variation in individual's catch patterns would be expected, NOAA believes the available data support the Councils' decision for fall closures. Landings data will be updated and reevaluated annually.

Three fishermen and a representative of a tackle company suggested that closures should be increased in the southern areas or that some southern areas should be closed completely because of the preponderance of small fish. Even though the percentage of small fish was higher in the southern areas, large numbers of small fish were landed in all areas. As previously indicated, the stock is affected by the numbers of small fish landed, not necessarily the percentages. Closures in the southern areas were shorter because the landings of small fish were more concentrated within a discrete time period. The Councils are, however, considering options that would place more emphasis on closures in areas with higher ratios of small to large fish, i.e. the southern areas. The concept of total closures in some areas was rejected by the Councils. Since all areas landed substantial numbers of small fish, it was determined that all areas should contribute to the necessary reduction. Total closures would also have severe impacts on shore-based facilities and smaller, less mobile boats. Based on the available information, NOAA concurs with the Councils' determinations.

Comments relative to the proposed VSC closure dates are not applicable since no closure dates are implemented in the final rule. Any future closure dates will be implemented by publication of a notice in the Federal Register. A 15-day public comment period will be provided prior to implementation.

Changes From the Proposed Rule

The final rule differs from the proposed rule in the following respects, for the reasons discussed above and to

clarify other minor aspects of the regulations:

Part 611

The amendment to Part 611 has been deleted to eliminate the additional requirements for the foreign fleet fishing for tuna and squid in the FCZ.

Part 630

Table of Contents is modified by omitting §§ 630.24 and 630.25 and numbering "§ 630.26 Specifically authorized activities" as § 630.24.

Section 630.2

The definition for rod and reel fishermen is clarified by including the phrase "(includes rod-holder)."

The definition for gangion is revised for clarification.

Definition of technician is deleted as the result of NOAA's disapproval of the mandatory observer program.

Section 630.4

In paragraph (a), the word "longline" is inserted between the words "commercial" and "vessel" to clarify the specific requirements for having a permit aboard a vessel.

Paragraph (a)(2) requiring permits for rod and reel fishermen in the Mid-Atlantic area is deleted.

Paragraph (b)(9) is deleted to conform with the disapproval of mandatory observer program.

Section 630.5

Paragraph (a) has been deleted as a result of NOAA's disapproval of the mandatory observer program.

Paragraph (c) requiring twenty percent of all swordfish fishermen (including commercial and recreational) to provide additional data by questionnaire is deleted. This corresponds with the deletion of the requirement of permits for rod and reel fishermen in the Mid-Atlantic area.

Paragraph (d) requiring dealers to make available records for harpoon harvested swordfish is deleted. This corresponds with the deletion of the harpoon quota § 630.24.

Section 630.7

Paragraph (a)(1) is modified to conform with the revision of § 630.4 regarding the deletion of the requirement of permits for rod and reel fishermen in the Mid-Atlantic area.

Paragraph (a)(3) is deleted to conform with NOAA's disapproval of the mandatory observer program.

Paragraph (a)(10) is deleted to correspond with the deletion of § 630.25 Quotas.

Paragraph (a)(11) is deleted to reflect the deletion of § 630.25 Import restrictions. Paragraphs (a)(4) through (a)(20) are renumbered as (a)(3) through (a)(17).

Section 630.21

Paragraph (a) of this section has been revised to delete reference to the dates of variable seasonal closures until they are implemented by notice action under paragraph (c). This modification is necessary due to a lack of agreement among Councils for initially establishing closure dates based on available data.

In paragraph (b)(1) the wording "if the closure occurs between June and October" was deleted to conform with the deletion of § 630.24 Quota (harpoon quota).

Paragraph (c) is reserved pending amendment to the FMP described under "Fishery Management Councils' comments".

Classification-

The Regional Director determined that the approved portions of the FMP are necessary for the conservation and management of the Atlantic swordfish fishery and that they are consistent with the Magnuson Act and other applicable law.

The Councils prepared a final environmental impact statement for this FMP; a notice of availability was published on August 9, 1985; 50 FR 32306.

The NOAA Administrator determined that this rule is not a "major rule" requiring a regulatory impact analysis under Executive Order 12291. A summary was published at 50 FR 23161, May 31, 1985.

The Councils prepared a final regulatory flexibility analysis which describes the effects this rule will have on small entities. You may obtain a copy of this analysis at the address listed above.

This rule contains a collection of information requirement subject to the Paperwork Reduction Act (PRA). The collection of this information has been approved by the Office of Management and Budget, OMB Control Number 0648-0149. The collection of information requirements subject to the PRA at § 630.5 has been submitted for approval by OMB.

The Councils determined that this rule will be implemented in a manner that is consistent to the maximum extent practicable with the approved coastal zone management programs of all the affected States. This determination was submitted for review by the responsible State agencies under section 307 of the

Coastal Zone Management Act. The State agencies agreed with this determination.

List of Subjects

50 CFR Part 611

Fisheries, Foreign relations, Reporting and recordkeeping requirements.

50 CFR Part 630

Fisheries, Fishing, Reporting and recordkeeping requirements.

Dated: August 19, 1985.

Carmen J. Blondin,

Deputy Assistant Administrator for Fisheries Resource Management, National Marine Fisheries Service.

For the reasons set forth in the preamble Chapter VI of 50 CFR is amended as follows:

PART 611—[AMENDED]

1. The authority citation for 50 CFR Part 611 continues to read as follows:

Authority: 16 U.S.C. 1801 *et seq.*

2. Section 611.60 is amended by adding a new paragraph (a)(3) to read as follows:

§ 611.60 General provisions.

(a) * * *

(3) Regulations governing fishing for swordfish in the same geographical area by vessels of the United States are published as Part 630 of this chapter.

3. Section 611.61 is amended by adding a new paragraph (b)(3) to read as follows:

§ 611.61 Atlantic billfish and shark fishery.

(b) * * *

(3) *Gulf of Mexico*. [Reserved]

4. Part 630 is revised to read as follows:

PART 630—ATLANTIC SWORDFISH FISHERY

Subpart A—General Provisions

Sec.

630.1 Purpose and scope.

630.2 Definitions.

630.3 Relation to other laws.

630.4 Vessel permits.

630.5 Reporting requirements.

630.6 Vessel identification.

630.7 Prohibitions.

630.8 Facilitation of enforcement.

630.9 Penalties.

Subpart B—Management Measures

630.20 Fishing year.

630.21 Seasonal closures.

630.22 Harvest limitations.

630.23 Gear limitations.

Sec.

630.24 Specifically authorized activities.

Authority: 16 U.S.C. 1801 *et seq.*

Subpart A—General Provisions

§ 630.1 Purpose and scope.

(a) The purpose of this part is to implement the Fishery Management Plan for the Atlantic Swordfish Fishery prepared by the South Atlantic, New England, Mid-Atlantic, Gulf of Mexico, and Caribbean Fishery Management Councils under the Magnuson Act.

(b) This part regulates fishing for swordfish by persons fishing on vessels of the United States shoreward of the seaward boundary of the fishery conservation zone (FCZ) in the Atlantic, Gulf of Mexico, and Caribbean.

(c) Regulations governing fishing by vessels other than vessels of the United States are published at 50 CFR Part 611, Subpart A and §§ 611.60 and 611.61.

§ 630.2 Definitions.

In addition to the definitions in the Magnuson Act, and unless the context requires otherwise, the terms used in this part have the following meaning:

Authorized officer means—

(a) Any commissioned, warrant, or petty officer of the U.S. Coast Guard;

(b) Any special agent of the National Marine Fisheries Service;

(c) Any officer designated by the head of any Federal or State agency which has entered into an agreement with the Secretary of Commerce and the Commandant of the U.S. Coast Guard to enforce the provisions of the Magnuson Act; or

(d) Any Coast Guard personnel accompanying and acting under the direction of any person described in paragraph (a) of this definition.

Carcass means a fish that has been gutted and the head and fins have been removed (dressed).

Center Director means the Center Director, Southeast Fisheries Center, National Marine Fisheries Service, 75 Virginia Beach Drive, Miami, Florida 33149; Telephone 305-361-5761, or a designee.

Commercial fisherman means a person who sells, trades, or barter any part of his or her catch of fish.

Councils means the following Regional Fishery Management Councils:

(a) South Atlantic Fishery Management Council, Southpark Building, Suite 306, 1 Southpark Circle, Charleston, South Carolina 29407-4699, telephone, 803-571-4366;

(b) New England Fishery Management Council, Suntaug Office Park, 5 Broadway, Saugus, Massachusetts 01906;

(c) Mid-Atlantic Fishery Management Council, Federal Building, Room 2115,

North and New Streets, Dover, Delaware 19901;

(d) Caribbean Fishery Management Council, Suite 1108 Banco de Ponce Building, Hato Rey, Puerto Rico 00918; and

(e) Gulf of Mexico Fishery Management Council, Lincoln Center, Suite 881, 5401 West Kennedy Boulevard, Tampa, Florida 33609.

Dressed weight (carcass weight) means the weight of a carcass after the fish is gutted and the head and fins are removed.

Fish in these regulations refers to the swordfish, *Xiphias gladius*.

Fishery conservation zone (FCZ) means that area adjacent to the United States which, except where modified to accommodate international boundaries, encompasses all waters from the seaward boundary of each of the coastal States to a line each point of which is 200 nautical miles from the baseline from which the territorial sea of the United States is measured.

Fishing means any activity, other than scientific research conducted by a scientific research vessel, which involves—

(a) The catching, taking, or harvesting of fish;

(b) The attempted catching, taking, or harvesting of fish;

(c) Any other activity which can reasonably be expected to result in the catching, taking, or harvesting of fish; or

(d) Any operations at sea in support of, or in preparation for, any activity described in paragraphs (a), (b), or (c) of this definition.

Fishing vessel means any vessel, boat, ship, or other craft which is used for, equipped to be used for, or of a type which is normally used for—

(a) Fishing; or

(b) Aiding or assisting one or more vessels at sea in the performance of any activity relating to fishing, including, but not limited to, preparation, supply, storage, refrigeration, transportation, or processing.

Gangion means one of the lines that bear hooks and which is attached at intervals along the main line of a longline. (Synonymous with leader.)

Gill net or *drift entanglement net* means a flat net suspended vertically in the water having meshes that entangle the head or other body parts of fish that attempt to pass through the net.

Handline gear means a fishing line set and pulled by hand that remains attached to the boat during fishing.

High flyer means a vertical pole that projects above the water attached to a longline that serves to mark its location.

Magnuson Act means the Magnuson Fishery Conservation and Management Act, as amended (16 U.S.C. 1801 *et seq.*).

NMFS means the National Marine Fisheries Service.

Official number means the official documentation number issued by the U.S. Coast Guard or the registration number issued by a State or the U.S. Coast Guard for undocumented vessels.

Operator, with respect to any vessel, means the master or other individual on board and in charge of that vessel.

Owner, with respect to any vessel, means—

(a) Any person who owns that vessel in whole or in part;

(b) Any character of the vessel, whether bareboat, time, or voyage;

(c) Any person who acts in the capacity of a charterer, including, but not limited to, parties to a management agreement, operating agreement, or other similar arrangement that bestows control over the destination, function, or operation of the vessel; or

(d) Any agent designated as such by any person described in paragraphs (a), (b), or (c) of this definition.

Pelagic longline means a type of fishing gear consisting of a length of line suspended horizontally in the water column above the bottom from lines attached to surface floats and to which gangions and hooks are attached.

Person means any individual (whether or not a citizen or national of the United States), corporation, partnership, association, or other entity (whether or not organized or existing under the laws of any State), and any Federal, State, local, or foreign government or any entity of any such government.

Radio buoy means a buoy attached to a longline which transmits a radio signal for purposes of marking its location.

Regional Director means the Director, Southeast Region, NMFS, Duval Building, 9450 Koger Boulevard, St. Petersburg, Florida 33702; telephone, 813-893-3141, or a designee.

Rod and reel fisherman means any individual using a hand-held (includes rod-holder) fishing rod with a manually or electrically operated reel attached.

Secretary means the Secretary of Commerce or a designee.

Swordfish means a fish of the species *Xiphias gladius*.

U.S. fish processors means facilities located within the United States for, and vessels of the United States, used for or equipped for, the processing or distribution of fish for commercial use or consumption.

U.S.-harvested fish means fish caught, taken, or harvested by vessels of the United States within any foreign or

domestic fishery regulated under the Magnuson Act.

Variable season closure (VSC) means the annual periods of closure for swordfish fishing in the five management areas as defined at § 630.21(a).

Vessel of the United States means—

(a) Any vessel documented under the laws of the United States;

(b) Any vessel numbered in accordance with the Federal Boat Safety Act of 1971 (46 U.S.C. 1400 *et seq.*) and measuring less than five net tons; or

(c) Any vessel numbered under the Federal Boat Safety Act of 1971 (46 U.S.C. 1400 *et seq.*) and used exclusively for pleasure.

Western North Atlantic swordfish stock means those swordfish in Food and Agricultural Organization statistical reporting areas 21 and 31. This area is bounded on the west by the North, Central, and South American land masses and on the east by a line running from the eastern coast of South America at 5°00' N. latitude out to 40°00' W. longitude, north to 36°00' N. latitude, west to 42°00' W. longitude, north to 59°00' N. latitude, west to 44°00' W. longitude, and continuing north to Greenland.

Whole fish means a fish that is not gutted and the head and fins are intact.

§ 630.3 Relation to other laws.

Persons affected by these regulations should be aware that other Federal and State statutes and regulations may apply to their activities. Certain responsibilities relating to enforcement and data collection may be performed by authorized State personnel under a cooperative agreement entered into by the State, the U.S. Coast Guard, and the Secretary.

§ 630.4 Vessel permits.

(a) **General.** Effective January 1, 1986, a vessel of the United States fishing for, possessing, retaining, or landing swordfish for sale, trade, or barter, or any commercial longline fishing vessel of the United States with a bycatch of swordfish, whether or not retained for sale, trade, or barter, operating in the Atlantic, Gulf of Mexico, or Caribbean FCZ must have onboard at all times the permit required by this part. Vessels fishing handline gear in the Caribbean and any vessels fishing rod and reel gear in the FCZ are exempt.

(b) **Application.** An application for a fishing vessel permit under this section must be submitted by the vessel owner or operator on an appropriate form obtained from the Regional Director. The application must be submitted to

the Regional Director and must contain the following information:

(1) Owner's name, mailing address, and telephone number;

(2) Vessel name, net tons, and length;

(3) Home port;

(4) State registration or Coast Guard documentation number;

(5) Target species;

(6) Gear type(s);

(7) Average trip length (in days); and

(8) Monthly distribution of fishing by area (e.g., Gulf of Mexico).

(c) **Issuance.** (1) Upon receipt of a properly completed application, the Regional Director will issue a permit within 30 days.

(2) Upon receipt of an incomplete or improperly executed application, the Regional Director will notify the applicant of the deficiency in the application. If the applicant fails to correct the deficiency within 30 days following date of notification, the application will be considered abandoned.

(d) **Expiration.** A permit expires on December 31 of each year.

(e) **Duration.** A permit is valid until it expires or is revoked, suspended, or modified under Subpart D of 15 CFR Part 904.

(f) **Alteration.** Any permit which has been altered, erased, or mutilated is invalid.

(g) **Replacement.** Replacement permits may be issued. An application for a replacement permit will not be considered a new application.

(h) **Transfer.** Permits issued under this part are not transferable or assignable. A permit is valid only for the vessel and vessel owner for which it is issued.

(i) **Display.** Any permit issued under this part must be carried aboard the fishing vessel at all times. The permit must be prominently displayed in the pilot house or offered for inspection upon request of any authorized officer.

(j) **Sanctions.** Subpart D of 15 CFR Part 904 governs the imposition of sanctions against a permit issued under this part. As specified in Subpart D, a permit may be revoked, modified, or suspended if the vessel for which the permit is issued is used in the commission of an offense prohibited by the Magnuson Act or by this part; or if a civil penalty or criminal penalty imposed under the Magnuson Act has not been paid.

(k) **Fees.** No fee is required for any permit under this part.

(l) **Change in application information.** Any change in the information specified in paragraph (b) of this section, such as the vessel owner or gear type, must be reported to the Regional Director within

15 days of the change. If there is a change in vessel owner, the vessel may not fish for swordfish until a new permit has been issued.

(Approved by the Office of Management and Budget under OMB control number 0648-0149.)

§ 630.5 Reporting requirements.

Owners or operators of vessels of the United States who have been issued a permit under § 630.4 to fish for swordfish in the Caribbean and land swordfish in Puerto Rico or the U.S. Virgin Islands must report their catch to the Center Director by individual carcass weight by providing copies of their weigh-out sheets for all swordfish landed.

§ 630.6 Vessel identification.

(a) *Official number.* A vessel of the United States engaged in the commercial swordfish fishery shoreward of the seaward boundary of the FCZ in the Atlantic Ocean, Gulf of Mexico or Caribbean Sea must—

(1) Display its official number on the port and starboard sides of the deckhouse or hull and on an appropriate weather deck so as to be clearly visible from enforcement vessels and aircraft. The official number is the documentation number issued by the Coast Guard for documented vessels, or the registration number issued by a State or the Coast Guard for undocumented vessels.

(2) The official number must be in block arabic numerals in contrasting color to the background.

(3) The official number must be at least 18 inches in height for fishing vessels over 65 feet in length and at least 10 inches in height for all other vessels.

(4) The official number must be permanently affixed to or painted on the vessel.

(b) *Duties of operator.* The operator of each fishing vessel must—

(1) Keep the official number clearly legible and in good repair, and

(2) Ensure that no part of the fishing vessel, its rigging, its fishing gear, or anything carried aboard obstructs the view of the official number from any enforcement vessel or aircraft.

§ 630.7 Prohibitions.

(a) It is unlawful for any person to do any of the following:

(1) Fish for, possess, retain, or land swordfish without a valid permit required under § 630.4 aboard the vessel;

(2) Purchase, sell, barter, or trade any swordfish taken by a vessel that does

not have a valid permit required under § 630.4;

(3) Falsify or fail to report information required to be submitted or reported as specified in § 630.5;

(4) Falsify or fail to affix and maintain vessel markings as required by § 630.6;

(5) Fish for, possess at sea shoreward of the outer boundary of the FCZ, or land swordfish in closed areas specified in § 630.21(a), except as provided in § 630.21(b);

(6) Land swordfish harvested in the commercial fishery except as specified under § 630.22;

(7) Fish in closed areas with pelagic longlines at times other than as specified in § 630.23(a);

(8) Possess swordfish in a closed area during a seasonal closure specified in § 630.21(a) aboard a vessel having gear other than harpoons, rod and reel, or (in the Caribbean area only) handlines capable of taking swordfish;

(9) Possess, have custody or control of, ship, transport, offer for sale, sell, purchase, import, land, or export any fish taken or retained in violation of the Magnuson Act, this part, or any other regulation under the Magnuson Act;

(10) Fail to comply immediately with enforcement and boarding procedures specified in § 630.8;

(11) Refuse to permit an authorized officer to board a fishing vessel subject to such person's control for purposes of conducting any search or inspection in connection with the enforcement of the Magnuson Act, this part, or any other regulation or permit issued under the Magnuson Act;

(12) Interfere with, obstruct, delay, or prevent by any means a lawful investigation or search in the process of enforcing this part;

(13) Interfere with, obstruct, delay, or prevent in any manner the seizure of illegally taken swordfish or the disposition of such swordfish through the sale of the swordfish;

(14) Forcibly assault, resist, oppose, impede, intimidate, threaten, or interfere with any authorized officer in the conduct of any search or inspection described in paragraph (a)(11) of this section;

(15) Resist a lawful arrest for any act prohibited by this part;

(16) Interfere with, delay, or prevent, by any means, the apprehension or arrest of another person, knowing that such other person has committed any act prohibited by this part; or

(17) Transfer directly or indirectly, or attempt to so transfer, any U.S.-harvested swordfish to any foreign fishing vessel, while such vessel is in the FCZ, unless the foreign fishing vessel has been issued a permit under section

204 of the Magnuson Act which authorizes the receipt by such vessel of U.S.-harvested swordfish.

(b) It is unlawful to violate any other provision of this part, the Magnuson Act, or any regulation or permit issued under the Magnuson Act.

§ 630.8 Facilitation of enforcement.

(a) *General.* The operators or any other person aboard any fishing vessel subject to this part must immediately comply with instructions and signals issued by an authorized officer to stop the vessel and with instructions to facilitate safe boarding and inspection of the vessel, its gear, equipment, fishing record (where applicable), and catch for purposes of enforcing the Magnuson Act and this part.

(b) *Communications.* (1) Upon being approached by a U.S. Coast Guard vessel or aircraft, or other vessel or aircraft with an authorized officer aboard, the operator of a fishing vessel must be alert for communications conveying enforcement instructions.

(2) If the size of the vessel and the wind, sea, and visibility conditions allow, loudhailer is the preferred method for communicating between vessels. If use of a loudhailer is not practicable, and for communications with an aircraft, VHF-FM or high frequency radiotelephone will be employed. Hand signs, placards, or voice may be employed by an authorized officer and message blocks may be dropped from an aircraft.

(3) If other communications are not practicable, visual signals may be transmitted by flashing light directed at the vessels signaled. Coast Guard units will normally use the flashing light signal "L" as the signal to stop instantly.

(4) Failure of a vessel's operator to stop his vessel when directed to do so by an authorized officer using loudhailer, radiotelephone, flashing light signal, or other means constitutes *prima facie* evidence of the offense of refusal to allow an authorized officer to board.

(5) The operator of a vessel who does not understand a signal from an enforcement unit and who is unable to obtain clarification by loudhailer or radiotelephone must consider the signal to be a command to stop the vessel instantly.

(c) *Boarding.* The operator of a vessel directed to stop must—

(1) Guard Channel 16, VHF-FM if so equipped;

(2) Stop immediately and lay to or maneuver in such a way as to allow the authorized officer and his party to come aboard;

