

PART II

SOURCE DOCUMENT
FOR THE
SWORDFISH
FISHERY MANAGEMENT PLAN

MAY 1982

Prepared By The
South Atlantic Fishery Management Council
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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INTRODUCTION

The Magnuson Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.) gives responsibility to the Regional Fishery Management Councils to prepare and submit fishery management plans for fisheries within their geographical area. The South Atlantic, New England, Mid-Atlantic, Gulf of Mexico and Caribbean Fishery Management Councils, in accordance with their legislative mandate, are preparing a joint plan for the swordfish fishery.

This source document contains the detailed scientific, technical and other supportive documentation on which the Fishery Management Plan for Swordfish is based. The source document is available for review at the following locations:

New England Fishery Management Council
Suntaug Office Park, 5 Broadway (Route 1)
Saugus, Massachusetts 01906

Mid-Atlantic Fishery Management Council
Federal Building, Room 2115
North and New Streets
Dover, Delaware 19901

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

Gulf of Mexico Fishery Management Council
Lincoln Center, Suite 881
5401 West Kennedy Boulevard
Tampa, Florida 33609

Caribbean Fishery Management Council
Suite 1108, Banco de Ponce Building
Hato Ray, Puerto Rico 00918

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
Southeast Regional Office
Duval Building
9450 Koger Boulevard
St. Petersburg, Florida 33702

National Marine Fisheries Service
Southeast Fisheries Center
75 Virginia Beach Drive
Miami, Florida 33149

National Marine Fisheries Service
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 weighing 20 kg whole weight.

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

DAH: Domestic annual harvest. For swordfish DAH (1980) was 7.5 million lb.

DEIS: A Draft Environmental Impact Statement is 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.

Dressed weight: .75 of whole weight after fish are gutted and head and fin are removed.

E.O. 12291: Executive Order 12291 establishes guidelines for developing new regulations and reviewing existing regulations to ensure that they are necessary, appropriate, and cost effective.

F: Instantaneous rate of fishing mortality calculated in yield-per-recruit analysis is that portion of total mortality attributable to fishing. It is equal to total mortality (Z) minus natural mortality (M). For swordfish, $F=0.17$ for males and $F=0.19$ for females.

FCZ: Fishery Conservation Zone established by the Magnuson Fishery Conservation and Management Act that extends 200 nautical miles seaward of the states' territorial seas.

FDA: Food and Drug Administration.

FDA Action Level: Maximum allowable mercury concentration in seafood measured in parts per million (ppm) (1971-78=.05 ppm; 1978-present=1.0 ppm).

F_{max} : Instantaneous rate of fishing mortality that maximizes yield-per-recruit.

FMP: Fishery Management Plan prepared by a fishery management council to aid in managing a particular fishery, as directed by the MFCMA.

Growth overfishing: Fishing effort beyond that which maximizes yield-per-recruit (MSY for a given gear assuming constant recruitment).

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 and sharks. Swordfish is an incidental catch of foreign longline fishing for tuna and foreign squid trawling.

M: Instantaneous rate of natural mortality calculated in yield-per-recruit analysis is equal to total mortality (Z) minus fishing mortality (F) or that portion of total mortality attributable to all causes except fishing for fish above the size at recruitment. For swordfish, $M=0.27$ for males and $M=0.14$ for females.

Maximum YPR: Maximum yield-per-recruit which is comparable to MSY if there is constant recruitment.

MFCMA: Magnuson Fishery Conservation and Management Act (P.L. 94-265) established the FCZ and eight Regional Fishery Management Councils to prepare, monitor, and revise fishery management plans.

MSY: Maximum sustainable yield is the largest quantity of fish that can be harvested continually from a stock.

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

Overfishing: Fishing effort above the level which will produce MSY, resulting in catches less than MSY.

OY: Optimum Yield is the amount of fish (1) which will provide the greatest overall benefit to the Nation and (2) is defined as maximum sustainable yield modified by relevant economic, social, or ecological factors. For swordfish, OY is equal to the maximum level of harvest that will not exceed maximum yield-per-recruit for female swordfish.

PMP: Preliminary 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: Harvesting to the point that reproduction by the remaining brood stock is inadequate to produce as many recruits as the habitat can support.

RIR: Regulatory Impact Review is an assessment of the economic impacts of proposed government regulations.

Secretary: Secretary of Commerce.

Stock: A group of fish manageable as a unit. For swordfish, the stock consists of swordfish in the western North Atlantic within the five Council FCZ.

TALFF: Total Allowable Level of Foreign Fishing which is OY minus DAH. For swordfish, the TALFF is zero because the fishery is fully exploited by U.S. fishermen.

Territorial Seas: The seas under the jurisdiction of a state.

VSC: Variable season closure.

YPR: Yield-per-recruit is a theoretical calculation based on known growth rates and natural 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 (in percents) compared to maximum yield-per-recruit which is comparable to MSY given constant recruitment.

Z: Instantaneous rate of mortality calculated in yield-per-recruit analysis is equal to the sum of natural mortality (M) and fishing mortality (F). Z represents the total instantaneous mortality from both natural causes and fishing. For swordfish, $Z = 0.44$ for males and $Z = 0.33$ for females.