

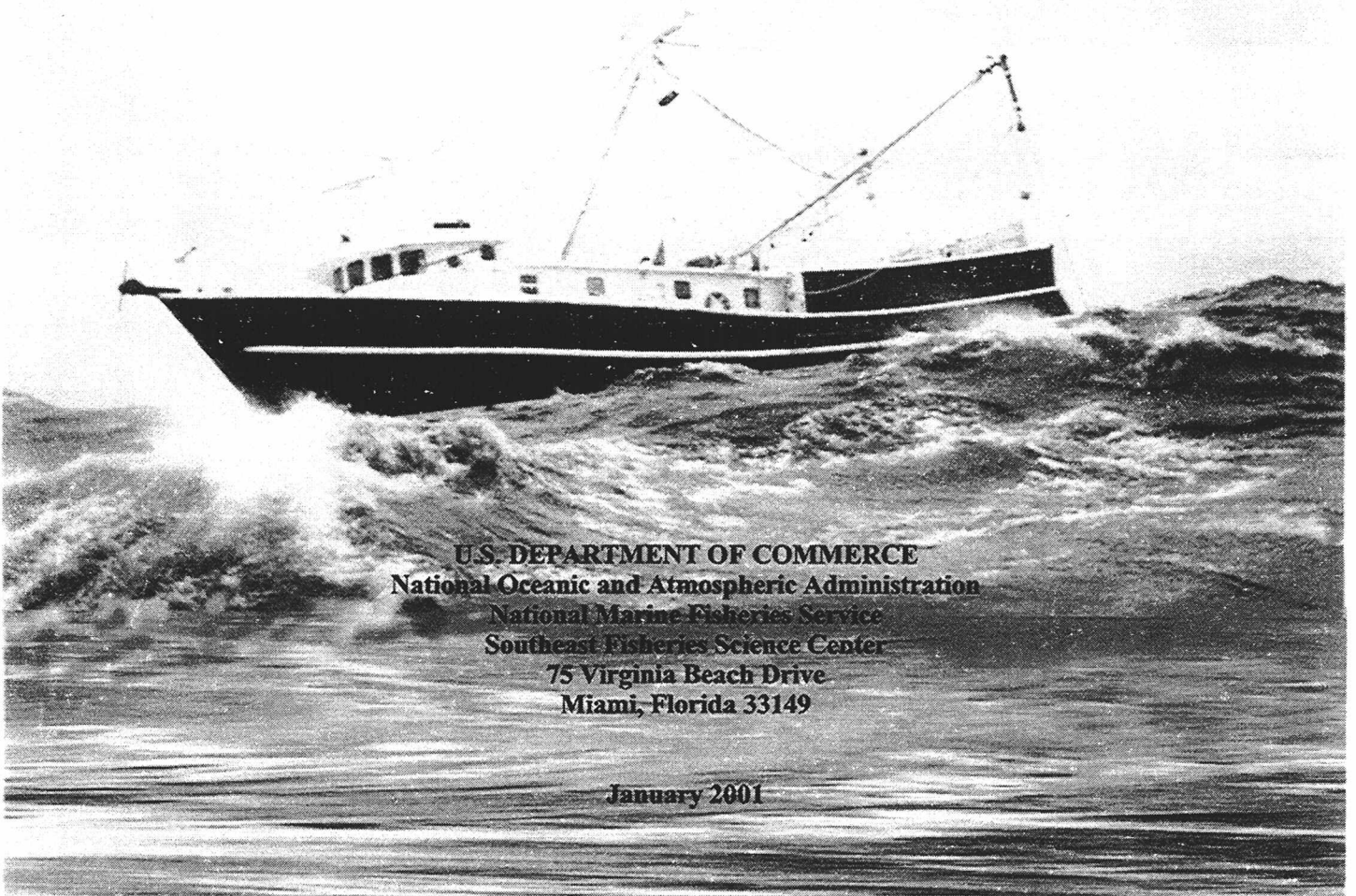


NOAA Technical Memorandum
NMFS-SEFSC-452

LARGE PELAGIC LOGBOOK

NEWSLETTER - 1999

Jean Cramer and Heather Adams



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
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January 2001

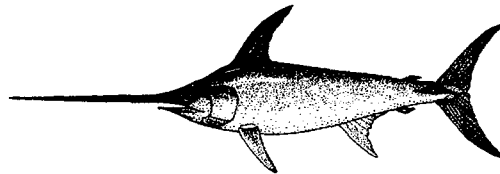


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by

Jean Cramer and Heather Adams



U.S. DEPARTMENT OF COMMERCE
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National Oceanic and Atmospheric Administration
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January 2001

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This is the tenth annual Large Pelagic Logbook Newsletter. The primary purpose of this report is to summarize data and activities related to the mandatory large pelagics logbook and observer programs. This newsletter serves as a vehicle for dissemination of information to those directly involved in the fishery. In addition to updating catch, effort, CPUE, and location information, and detailing revisions to logbook reporting in 2001, this year's newsletter includes sections pertaining to swordfish, yellowfin, bigeye and albacore stock status, bycatch, time area closures, mandatory dealer reporting, the longline observer program, and other related studies.

Comments and suggestions are invited; see section "WHOM TO CONTACT FOR WHAT."

COMPARISON OF 1997 - 1999 LOGBOOK CATCH AND EFFORT DATA

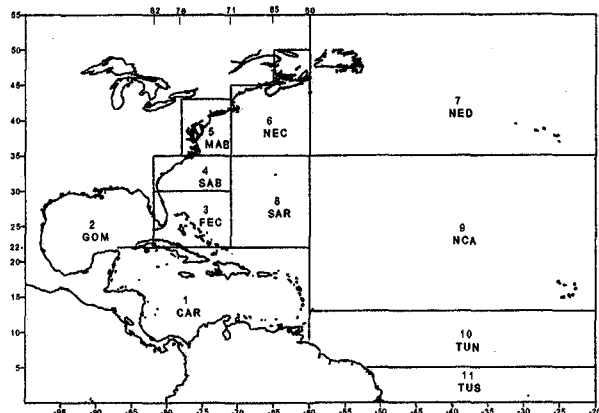
Four summary tables are included in this newsletter. The numbers of swordfish, tunas, and billfish reported caught, by area, for 1997, 1998 and 1999 (preliminary) are given for longline (Tables 1a-1c) and 1998 for gillnet (Tables 2a). Longline effort is reported in hooks and numbers of boats and gillnet effort is reported in sets and numbers of boats. The longline boat statistics are from logbook reports that were considered to represent all pelagic longline sets including summary records; bottom longline records were excluded. Exclusion of bottom longline records does not exclude all set targeting species other than swordfish and tuna.

Between 1998 and 1999 reported longline effort (hooks set) increased in the GOM, FEC, SAB, and MAB by 2 % to 18%. The GOM showed the greatest increase and the MAB showed the least increase in effort. All other areas reported a decrease in effort of 20% to 50%, except the TUS which reported a 2% decrease and the TUN which reported a 63% decline.

Total reported longline effort for 1999 was lower than reported for 1998. The total number of longline boats decreased in 1999 from the levels reported in 1997 and 1998.

Figure 1. Map designating the eleven areas used in analysis of the swordfish logbook data.

Locations of areas are shown in Figure 1.



Definitions are as follows: area 1 - Caribbean¹¹ (CAR), area 2 - Gulf of Mexico (GOM), area 3 - Florida East Coast¹ (FEC), area 4 - South Atlantic Bight¹ (SAB), area 5 - Mid Atlantic Bight¹ (MAB), area 6 - Northeast Coastal¹ (NEC), area 7 - Northeast Distant¹ (NED), area 8 - Sargasso¹ (SAR), area 9 - North Central Atlantic¹ (NCA), area 10 - Tuna North¹ - (TUN), and area 11 - Tuna South¹ (TUS).

The reported yellowfin tuna catch for the three-year period was approximately 75,000 (1997), 55,000 (1998), and 85,000 (1999) fish, respectively. Numbers of yellowfin tuna reported caught increased by 52% from 1998 to 1999 (Tables 1a-1c).

In the GOM, the reported catch of yellowfin in numbers increased annually from 1990 through 1992 and decreased annually from 1992 to 1995. GOM catches of yellowfin increased annually from 1996 through 1999, with the exception of a slight decrease in 1998. Total yellowfin tuna catches decreased in 1998, but increased above 1997 levels in 1999 (Tables 1a-1c).

In 1997 there were approximately 89,000 swordfish tabulated from longline records (caught = kept + discarded). There were approximately

footnote¹
These are arbitrary areas and do not constitute official geographic areas.

91,000 swordfish reported in 1998; and 86,000 reported in 1999 (preliminary). Reported swordfish catch declined annually from 1995 to 1997. In 1998 swordfish catch increased slightly from 1997. Swordfish catch declined again in 1999. The corresponding reported fishing effort for the three years was roughly 9.5, 7.7, and 7.6 (preliminary) million hooks, respectively (Tables 1a-1c). The preliminary number of reported hooks fished decreased by 2%, in 1999 compared to 1998.

Vessels operating in the GOM, FEC, SAR, and TUS (Tables 1a-1c), reported increases in annual swordfish catch by longline boats in 1999 compared to 1998. All other areas reported a decrease in annual swordfish catch in 1999.

The gillnet fishery was closed in 1997 and 1999. Table 2a contains the reported gillnet effort and catch for 1998.

REPORTED FISHING LOCATIONS IN 1997, 1998, AND 1999

The location of reported commercial pelagic fishing effort by year for 1997-1999 is shown in Figures 2-4. The general pattern for reported sets is similar across the three years along the U.S. coastline. Overall reported effort was reduced since 1997 with the greatest reductions in the offshore areas (NED, SAR, and NCA).

CPUE DATA

Tables 3a-3c represent 1997, 1998, and 1999 (preliminary) data, respectively, for swordfish and yellowfin tuna. These data are yearly totals, by areas as (defined in Figure 1) for: number of fish Kept; number Discarded dead and Discarded alive; Kept+Discarded; effort in HOOKS; the Number of sets; and the average of the individual catch rates, AV(C/E) (equivalent to average CPUE). This summary includes all gears that reported fishing with hooks that were not thought to be summary records. As such, this would include effort directed at species other than swordfish or tunas.

The totals reported in Tables 1a through 1c are different from the totals in Tables 3a through 3c because different criteria were used in selecting the

records to be used. Tables 1a through 1c represent data from longline boats only, including summary reports filed by longline boats. Tables 3a through 3c represent all records that reported hooks except summary reports. Gears represented include, but are not limited to, longline, bottom longline, and rod and reel boats.

The data summarized here are considered to represent nominal CPUE. No attempt has been made in this summary to standardize the data for factors not related to fish abundance, but known to affect the CPUE values. Those analyses are carried out for the purpose of stock assessments, and are reported elsewhere.

The reported swordfish catch rates in 1997 for the CAR, FEC, SAB, NED and the NCA were, respectively, approximately 2.0 fish/100 hooks, 2.1 fish/100 hooks, 1.5 fish/100 hooks, 2.1 fish/100 hooks and 1.6 fish/100 hooks (Table 3a); in 1998 approximately 1.9 fish/100 hooks, 2.9 fish/100 hooks, 3.2 fish/100 hooks, 3.2 fish/100 hooks and 1.9 fish/100 hooks (Table 3b); and in 1999 (preliminary) approximately 2.2 fish/100 hooks, 2.9 fish/100 hooks, 2.8 fish/100 hooks, 4.1 fish/100 hooks and 2.0 fish/100 hooks (Table 3c).

The highest reported 1999 swordfish catch rates (4.1 fish/100 hooks) was in the NED.

Average reported CPUEs for yellowfin, on an annual basis, have been consistently high and increasing in the GOM fishery since 1996. In 1999, however, a slight decline was observed. The reported catch rates in the GOM in 1997 were approximately 1.3 fish/100 hooks (Table 3a); in 1998 approximately 1.5 fish/100 hooks (Table 3b); and in 1999 approximately 1.4 fish/100 hooks (Table 3c). The highest CPUE reported for 1999 was 1.4 fish/100 hooks in the GOM.

Monthly reported CPUEs for swordfish, yellowfin, bigeye, and albacore from 1987 to 1999 are shown in Figures 5a -5d. The error bars represent ± 2 standard errors from the mean.

SWORDFISH STOCK STATUS

No new stock assessments for swordfish were conducted in 2000. However, some updated

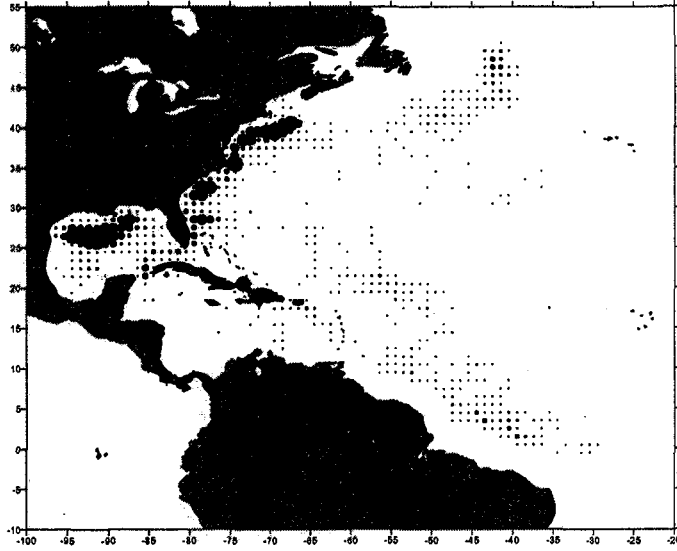


Figure 2. Location and density of reported longline effort in 1997.

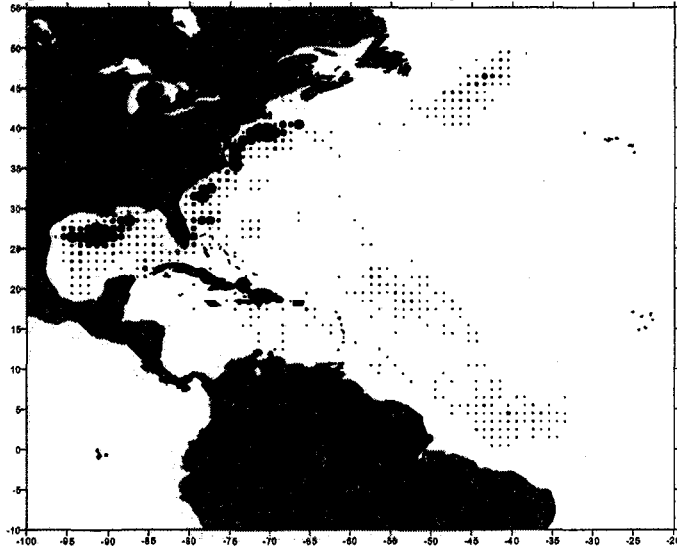


Figure 3. Location and density of reported longline effort in 1998.

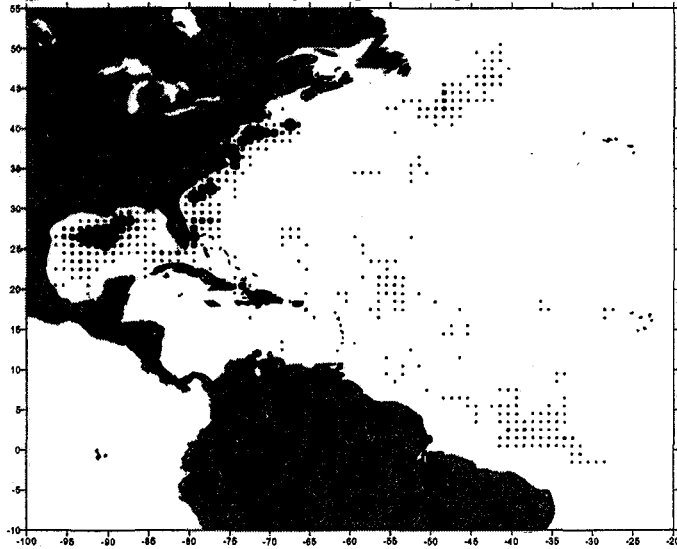
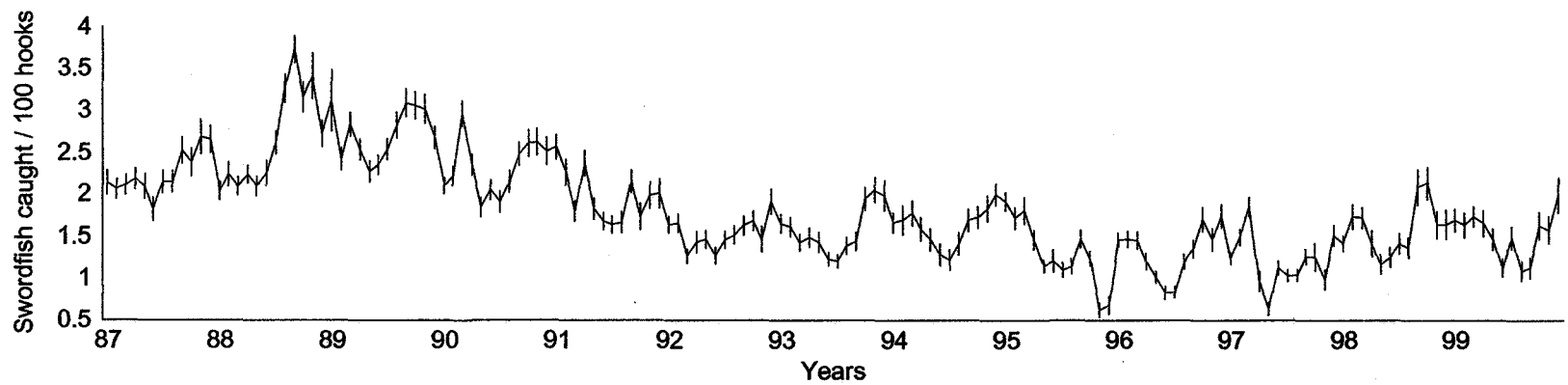
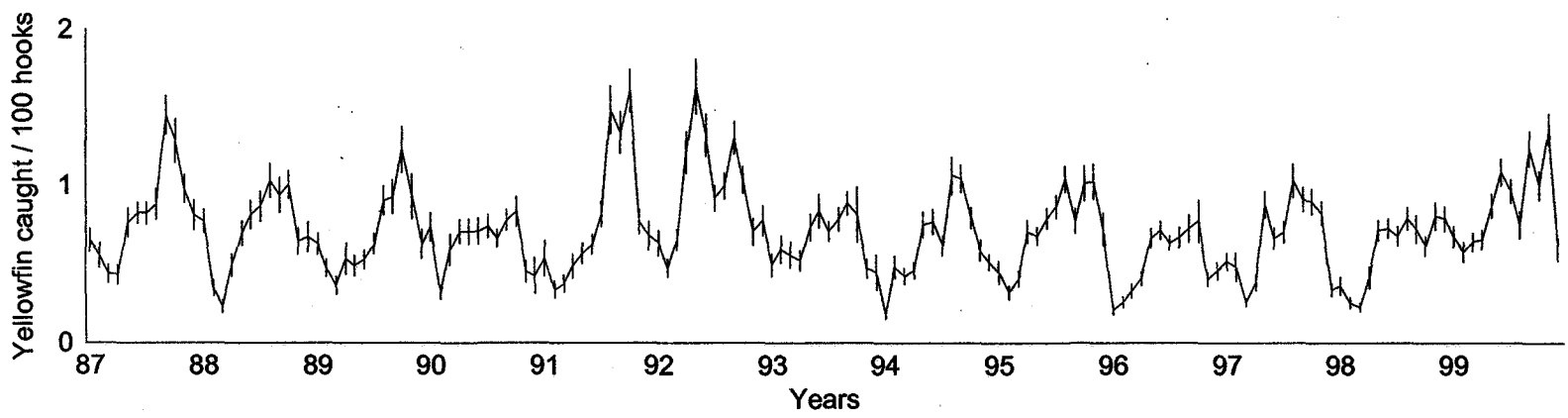


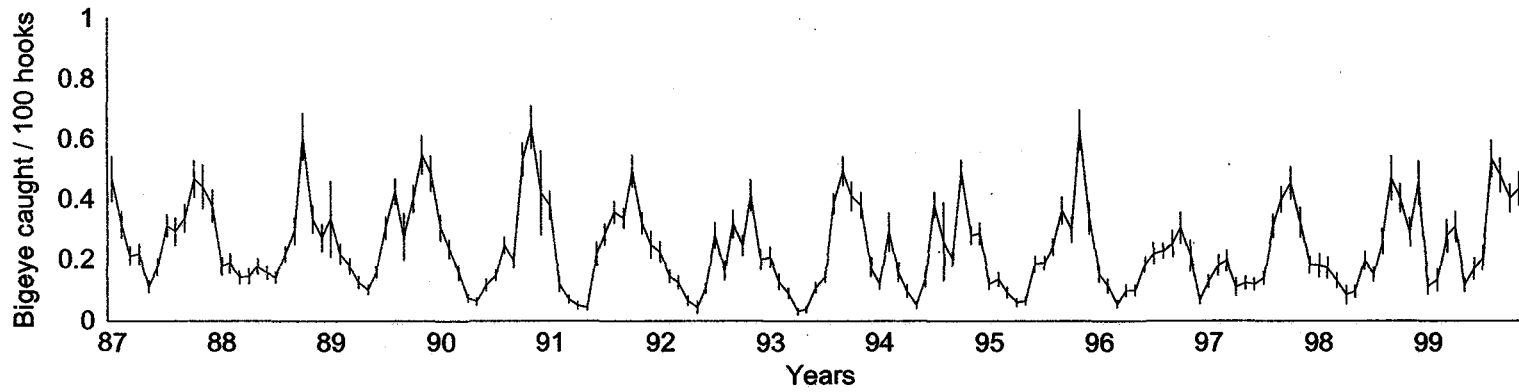
Figure 4. Location and density of reported longline effort in 1999.



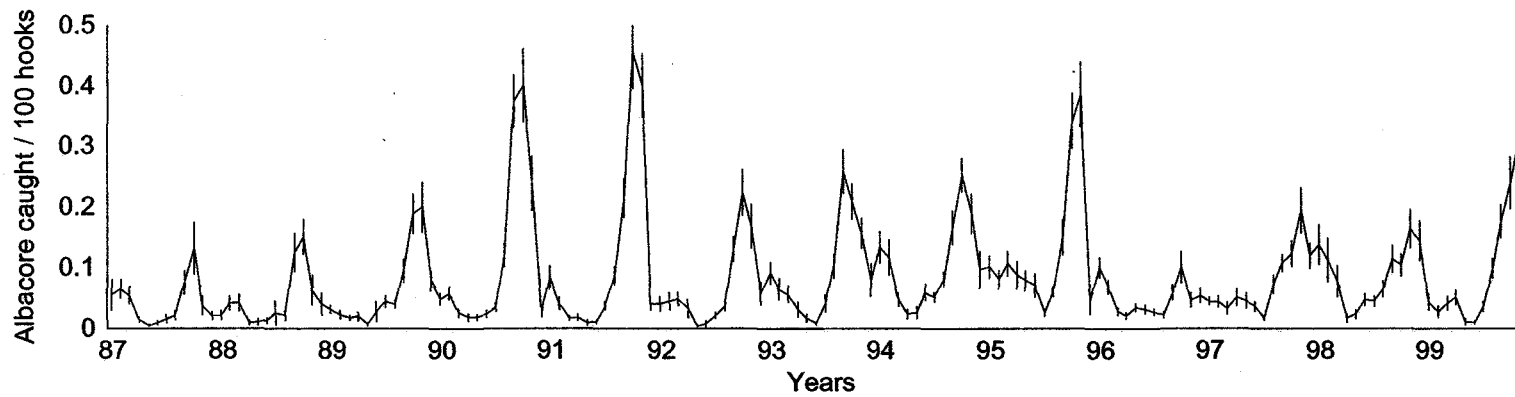
**Figure 5a. Monthly Swordfish CPUE's
1987 -1999**



**Figure 5b. Monthly Yellowfin CPUE's
1987 -1999**



**Figure 5c. Monthly Bigeye CPUE's
1987 -1999**



**Figure 5d. Monthly Albacore CPUE's
1987 -1999**

North and South Atlantic CPUE data were available. The available time series for the north stock continue to indicate that recent reductions in reported catch have slowed or arrested the decline in swordfish biomass. Furthermore estimated high recruitment could promote improvement in future spawning stock biomass, if these year classes are not heavily harvested. Biomass at the beginning of 1999 was estimated to be 65% (range: 51 to 105%) of the biomass needed to produce MSY, and the 1998 fishing mortality rate was estimated to be 1.34 (range: 0.84 to 2.05) times the fishing mortality at MSY (Table 4). The replacement yield for the year 2000 was estimated to be about 11,720 MSY Anticipated 2000 catches are expected to be close to replacement levels given the recent fishery performance and current regulations.

The status of the south Atlantic stock is more uncertain than the status of the north Atlantic stock due to the limitations of the indices of abundance and the absence of age and growth data. The one CPUE series examined for the South Atlantic was stable over the time series. Biomass at the beginning of 1999 was estimated to be 110% (range: 84% to 104%) of the biomass needed to produce MSY, and the 1998 fishing mortality rate was estimated to be 0.81 (range: 0.47 to 2.54) times the fishing mortality at MSY (Table 4).

ALBACORE STOCK STATUS

Northern and Southern albacore stock assessments were conducted in 2000. A summary of the resource status from those assessments are shown in the Table 5.

The 2000 assessment of the North Atlantic albacore stock was consistent with previous assessments. Equilibrium yield analysis, made on the basis of an estimated relationship between stock size and recruitment, indicated that current stock biomass is about 30% below that associated with MSY. However, the equilibrium yield per recruit analysis did not indicate growth over fishing of this stock. ICCAT concluded that the northern stock is probably below B_{MSY} , but the possibility that it is above B_{MSY} could not be dismissed.

The South Atlantic albacore assessment indicated that the stock is not being over fished and that the recent (1997-1999) level for landings can probably be maintained into the near future without causing a substantial decline in spawning stock biomass. Estimated biomass levels were above those at MSY and fishing mortality levels were about 50% below F_{MSY} . These estimates were based on models that did not fit the data well. Therefore it is possible that current fishing mortality has been underestimated.

BIGEYE STOCK STATUS

No new stock assessment for bigeye tuna was conducted in 2000. A summary of the resource status of bigeye from the 1999 assessment is shown in the Table 6.

The outlook for this stock remains highly uncertain. Despite the introduction of a moratorium on FAD fishing for the purse seine fishery and a catch limit imposed on Chinese Taipei, the catch increased in 1999. According to MSY and replacement yields estimates, the current level of catch can not be sustained and further decline in biomass is anticipated.

YELLOWFIN STOCK STATUS

A full assessment was conducted for yellowfin tuna in 2000. A summary of the assessment and updated yields are shown in the Table 7.

The 2000 production model analyses imply that although yellowfin tuna catches could be slightly lower than MSY levels, effort may be either above or below the MSY level depending on assumptions made about changes in fishing power. Consistent with the production model results, yield-per-recruit analyses also indicate that current (1999) fishing mortality rates could be above or about levels which produce MSY. Yield-per-recruit analyses further indicate that an increase in effort is likely to decrease the yield-per-recruit, while reductions in fishing mortality on fish less than 3.2 kg could result in substantial gains in yield-per-recruit and modest gains in spawning biomass -per-recruit.

In summary, yellowfin landings appear to be close to MSY level and fishing effort and fishing mortality may be in excess of the levels associated with MSY. It is important to ensure that effective effort does not increase further.

MANDATORY REPORTING IN THE ATLANTIC LARGE PELAGIC FISHERY

Federal regulations require that both fishermen and dealers assist the conservation and management of large pelagic species by providing statistics on fishing activity and seafood production respectively. Fishermen are required to submit data on daily fishing activity and catch, which includes individual carcass weights for the swordfish and other large pelagic species. Dealers are required to provide summary data on the landings (purchases) by market or size category and the price or value for the respective categories. Both fishermen and dealers are required to maintain an active Federal permit to fish for or purchase swordfish.

Fishermen Reporting.

All fishermen that fish for and land swordfish are required to have an active permit and report the catches from every set or daily trip. In addition to a completed logbook sheet for every set, fishermen are required to submit a copy of the weigh-out or sales receipt that provide the weights for the individual swordfish and other large pelagic species that are caught on the fishing trip. If either of these requirements are not met, the vessel is not in compliance and the vessel's permit can be revoked or denied at the annual renewal.

If the vessel did not fish during a calendar month, a "no-fishing" report must be submitted.

All logbook reports and weigh-outs are to be submitted to the

Southeast Fisheries Science Center
Logbook Program
P.O. Box 491740
Key Biscayne, Florida 33149-9915

Questions or requests for clarifications can be directed to Logbook Program at the Southeast Fisheries Science Center, telephone number (305) 361-4581.

During 2000, an active permit for the large pelagic fishery was issued to 459 vessels. These permits were not necessarily active during the entire calendar year, nor did all of these vessels actively fish for or catch large pelagic species. If logbooks and weighouts were not submitted for the catch of the 12 months in the reporting period prior to the expiration of the permit, the application for renewal was denied until all reporting was brought up to date.

As of July 1, 1999 access to swordfish permits was restricted to individuals qualifying on the basis of historic catch in the fishery. As of December 7, 2000, there are 379 active swordfish vessel permits, and of those, 210 are directed, 116 are incidental, and 53 are hand gear swordfish permits.

Numbers of Active Vessels.

A compilation of activity related to the vessels permitted during the period 1987 through 1999 is presented in Table 8. "Fished" implies a vessel submitted at least one positive fishing report during that year, "Caught Swordfish" means the vessel reported catching at least one swordfish during that year and "Caught Swordfish in 5 months" means the vessel reported catching at least one swordfish per month in at least five months of that year. "Hooks Reported" includes all submitted logbooks whether or not they represented single pelagic longline sets, summary records, bottom longline records, or sets with less than 100 hooks fished. For this reason, these numbers are higher than the numbers in Tables 1a-1c.

Dealer Reporting.

Permitted dealers are required to provide reports twice a month to the Science and Research Director for either the Northeast Region or the Southeast Region, depending on the dealer's geographical location. Complete and timely information from dealers is critical because these data are used to monitor the fishery quota for swordfish. Dealers are instructed to provide the U.S. Coast Guard documentation or state registration number for every vessel from which they purchased swordfish during each two week

reporting period. This information is used to check the dealer data against the daily catch data submitted by fishermen. This cross reference helps the SEFSC determine that all landings are included in the quota monitoring process and it also guards against potential double counting.

Reports should be mailed to:
 Science and Research Director
 Southeast Fisheries Science Center
 National Marine Fisheries Service
 75 Virginia Beach Drive
 Miami, Florida 33149
 Attention: A. Bertolino

except for a dealer whose principal place of business is in an Atlantic coastal state from Maine through Virginia. The appropriate address for those dealers is:

Northeast Regional Office
 National Marine Fisheries Service
 1 Blackburn Dr, Gloucester, MA 01930
 Attention: Greg Power

For most dealers in the Northeast Region, NMFS port agents contact and collect the dealer reports.

At sometime during calendar year 1999, a Federal dealer permit was held by 294 dealers. Of this total, 84 dealers had their primary location in the Northeast Region and 210 dealers had their primary location in the Southeast Region, which includes the Caribbean. In addition, there were 54 dealers that are located in other areas of the United States that have been issued swordfish dealer permits because they import swordfish. Overall, compliance with the reporting requirements has been good in this area. However, dealers that do not cooperate with the NMFS and do not submit the required bi-monthly reports will have their application for a permit renewal denied, and NMFS Law Enforcement will be notified. It should be noted that a report is required for every two week period, even if large pelagic species were not purchased. If no purchases were made, the respective Center Director must be informed. In the Southeast Region, a form so-stating must be submitted.

SWORDFISH LANDINGS

The Southeast Fisheries Science Center (SEFSC), Miami Laboratory, is responsible for compiling the landings of U.S. caught Atlantic swordfish from mandatory reporting data. The monthly reported landings for 1990 -1999 in the North Atlantic may be found in Table 9. U.S. North Atlantic swordfish landings decreased each year from 1990 to 1994, increased somewhat in 1995, then decreased again from 1996 to 1999.

Monthly cumulative annual landings of U.S. swordfish in the North Atlantic are compared in Figure 6 for years 1990, and 1995 to 1999. Yearly U.S. North Atlantic swordfish landings from 1995 to 1999 were lower than 1990 landings. These lower levels are, in part, the result of the minimum size regulation and due to fishery closures when allowable landing levels for the directed fishery were achieved.

SWORDFISH LANDED IN THE U.S. NORTH ATLANTIC.

Year	1,000 lbs. Dressed wt.	1,000 lbs. Whole wt.
1989	10,582	14,075
1990	9,107	12,112
1991	7,142	9,499
1992	6,383	8,489
1993	6,274	8,345
1994	5,578	7,419
1995	6,764	8,996
1996	5,889	7,832
1997	4,933	6,561
1998	4,754	6,323
1999	4,969	6,610

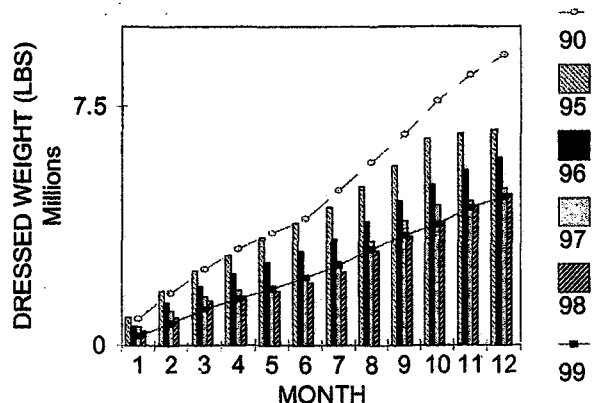


Figure 6. SWORDFISH LANDINGS IN THE NORTH ATLANTIC

SWORDFISH < 41 LBS. DRESSED WEIGHT - NUMBER AND PERCENT LANDED BY MONTH BY AREA

The cumulative percent of fish landed less than 41 lbs dressed weight from all areas and all months fell from 38% in 1990 to 12% in 1995, went up to 21% in 1998, and fell again to 19% in 1999 (Table 11). The within area percentage landed catch of fish less than 41 lbs decreased in most areas between 1991 and 1995, but increased from 1996 to 1998, and has declined in 1999 (Table 11). The highest numbers of undersize fish landed in 1999 were from the SAB region (Tables 10, 11 & 12).

SWORDFISH < 41 LBS. DRESSED WEIGHT - PERCENT LANDED

The proportion of U.S. Atlantic swordfish landed which were smaller than 41 lbs dressed weight has decreased since 1990 (Figure 7). In 1990 the highest number of fish landed were in the 21-41 lb category. In 1991 this peak shifted to the 41-60 lb category where it has since remained.

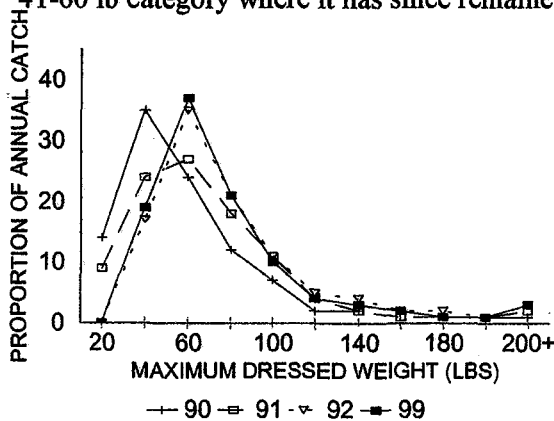


Figure 7. U.S. CATCH AT SIZE SWORDFISH SIZE FREQUENCY

The proportion of swordfish landed which were less than 41 lbs dressed weight in size frequency samples from U.S. longline vessels, decreased from 1989 through 1995, but has increased since 1996 (Figure 8a). The initial decrease resulted from the minimum size measure put in place in mid 1991. The increase since 1996 is probably the result of lowering the minimum size from 41lbs to approximately 33lbs in mid 1996. The proportion of swordfish landed which were less than 33 lbs dressed weight is shown in Figure

8b. The percentage of landed fish below 33 lbs dressed weight were equal to 0.0% in each area in 1998 and 1999.

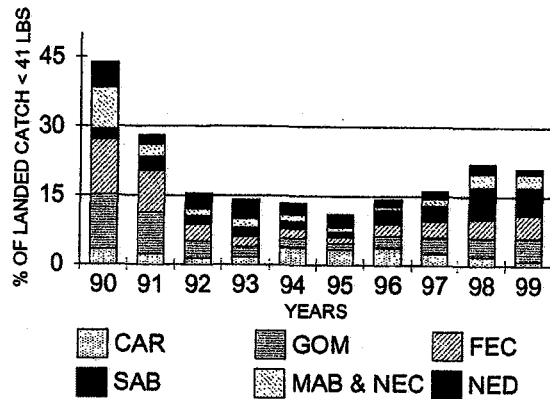


Figure 8a. SWORDFISH SIZE FREQUENCY

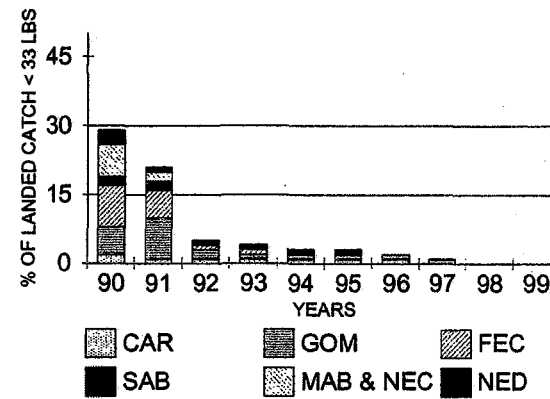


Figure 8b. SWORDFISH SIZE FREQUENCY

BYCATCH ESTIMATION

The 1998 observer and 1998 logbook records were used to estimate the number of discarded dead swordfish (36,604), blue marlin (1,464), white marlin (2,835), and sailfish (3,978), dusky sharks (141), silky sharks (5,648), hammerhead sharks (953), night sharks (1,586), coastal sharks (674), blue sharks (2,772) and pelagic sharks (692).

REGULATIONS

Regulations affecting pelagic longline fishing for highly migratory species include, prohibition of the use of live bait on longline gear in the Gulf of Mexico, the requirement to have on board and use a dipnet and a line clipper to reduce mortality of captured sea turtles, and time area closures in the five areas as defined below (Figure 9).

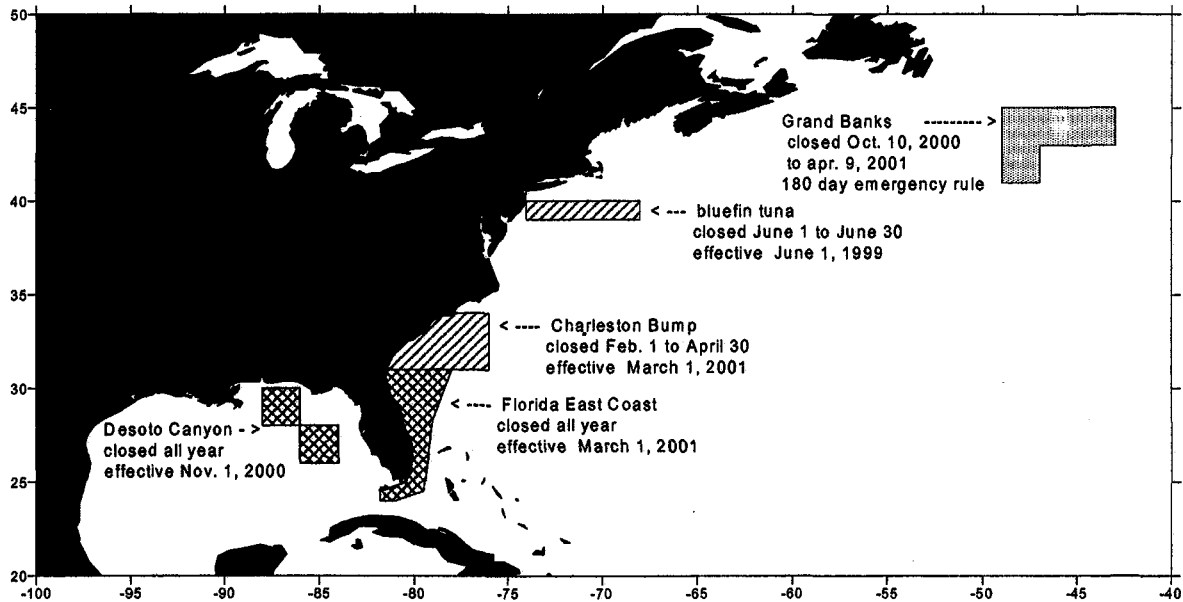


Figure 9. Atlantic pelagic longline fishery time area closures

The DeSoto Canyon area is closed year-round as of November 1, 2000. This area, composed of two squares offshore of the west coast of Florida, is defined as the area within the following coordinates: 30° 00' N. lat., 88° 00' W. long.; 30° 00' N. lat., 86° 00' W. long.; 28° 00' N. lat., 86° 00' W. long.; 28° 00' N. lat., 84° 00' W. long.; 26° 00' N. lat., 84° 00' W. long.; 26° 00' N. lat., 86° 00' W. long.; 28° 00' N. lat., 86° 00' W. long.; 28° 00' N. lat., 88° 00' W. long.; 30° 00' N. lat., 88° 00' W. long.

The East Florida Coast area is closed year-round effective March 1, 2001. This area includes the Atlantic Ocean area seaward of the inner boundary of the U.S. EEZ from a point intersecting the inner boundary of the U.S. EEZ at 31° 00' N. lat. near Jekyll Island, Georgia, and proceeding due east to connect by straight lines the following coordinates in the order stated: 31° 00' N. lat., 78° 00' W. long.; 28° 17' N. lat., 79° 12' W. long.; then proceeding along the outer boundary of the EEZ to the intersection of the EEZ with 24° 00' N. lat.; then proceeding due west to the following coordinates: 24° 00' N. lat., 81° 47' W. long.; then proceeding due north to intersect the inner boundary of the U.S. EEZ at 81° 47' W. long. near Key West, Florida. (The graphic representation of this area is approximate.)

The Charleston Bump area is closed March 1, 2001, through April 30, 2001 (closed February 1 to April 30 thereafter). This area includes the Atlantic Ocean area seaward of the inner boundary of the U.S. EEZ from a point intersecting the inner boundary of the U.S. EEZ at 34° 00' N. lat. near Wilmington Beach, North Carolina, and proceeding due east to connect by straight lines the following coordinates in the order stated: 34° 00' N. lat., 76° 00' W. long.; 31° 00' N. lat., 76° 00' W. long.; then proceeding due west to intersect the inner boundary of the U.S. EEZ at 31° 00' N. lat. near Jekyll Island, Georgia.

The bluefin tuna area is closed during the month of June as of June 1, 1999. This area is a rectangle bounded by the coordinates: 40° 00' N. lat., 68° 00' W. long.; 40° 00' N. lat., 74° 00' W. long.; 39° 00' N. lat., 74° 00' W. long., and 39° 00' N. lat., 68° 00' W. long.

The Grand Banks area is closed from October 10, 2000 to April 9, 2001. This closure is based on a 180 day emergency rule effective October 10, 2000. This area is bounded by the following coordinates: 45° 00' N. lat., 49° 00' W. long.; 45° 00' N. lat., 43° 00' W. long.; 43° 00' N. lat., 43° 00' W. long., 43° 00' N. lat., 47° 00' W. long., 41° 00' N. lat., 47° 00' W. long., and 41° 00' N. lat., 49° 00' W. long.

TAGGING HIGHLIGHTS

During 1999 a total of 157 swordfish were tagged and released and 13-tagged fish were recapture, 11 of the recaptured fish were caught by traditional commercial fishing gears (longlines). Of the recaptured fish, the longest time at large between tag and recapture was 7 years and 163 days, for a swordfish tagged on September 27, 1991 south of Long Island (NY) and recapture on March 14, 1999 in the same area.

The maximum straight distance traveled between the points of release and recapture for swordfish was 2,818 km, tagged northeast of Puerto Rico [59°E 22°N] and recapture 1 year and 135 days later east of the Grand Banks [40°E 42°N]. Figure 10 shows the points of release and recapture, and minimum straight line for swordfish recaptured in 1999 for fish with 300 or more km of traveling distance.

There were several noteworthy billfish recaptures during 1999. The longest reported sailfish movement (i.e. minimum straight distance traveled) was 2,469 km from a fish release north of Cancún Mexico [87°E 22°N] and recaptured off La Guaira Venezuela [66°E 11°N] after 1 year and 166 days at large. The longest distance traveled for a blue marlin recapture in 1999 was 3,147 km from a fish released off the Louisiana coast in the Gulf of Mexico [91°E 28°N], and recaptured off La Guaira Venezuela after 1 year and 223 days at large. The longest distance traveled for a white marlin recaptured in 1999 was 3,309 km from a fish released east of Trinidad and Tobago [50°E 15°N] and recaptured south of the Nova Scotia coast [65°E 42.5°N], after 8 years and 152 days at large.

For bluefin tuna, the longest movement during 1999 (7,866 Km) was from a fish released off Cape Hatteras, North Carolina [75.7°E 35°N] and recaptured south of Sicily in the Mediterranean [14°W 35°N] after 2 years and 126 days at large.

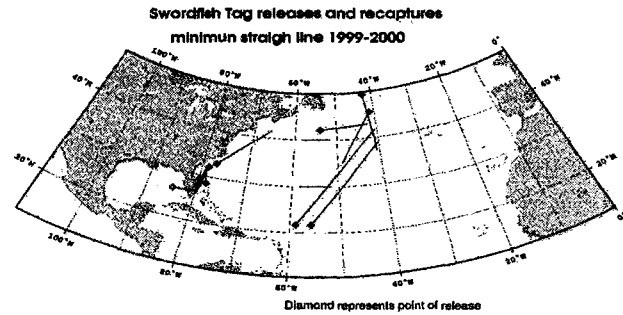


Figure 10 Swordfish tag releases and recaptures minimum straight line 1999-2000.

PELAGIC OBSERVER PROGRAM

The National Marine Fisheries Service (NMFS) continues its scientific observer sampling of the U.S. large pelagic fleet, as mandated by the U.S. Swordfish Fisheries Management Plan. Scientific observers are placed aboard vessels participating in the Atlantic large pelagic fisheries.

A scientific observer is placed on board the vessel to record detailed information on gear characteristics, the location and time of the gear set and retrieval, environmental conditions, the condition and status of the animals caught by the gear (alive or dead, kept or discarded), as well as morphometric measurements (length and weight) and sex identification when possible (Figure 9). Observers also record the occasional interaction of marine mammals and sea turtles. The collection of biological samples (anal finrays, heads, reproductive, heart tissue, etc.) from some animals are used to support research studies to learn more about fish biology and life history behavior.

Of the 155,186 fish and protected species recorded by POP observers from 1992-2000 and summarized in various species groups, (Figure 9), swordfish was the most frequently caught (26%).

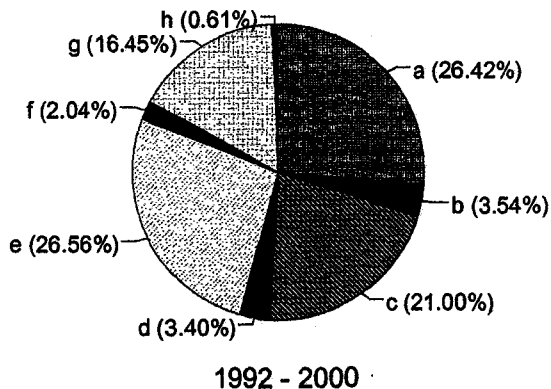


Figure 11. Catch reported by scientific observers on U.S. longline vessels: swordfish (a); billfish (b); yellowfin, bigeye and bluefin tuna (c); other tunas (d); sharks and rays (e); unknown species (f); finfish (g); marine turtles, marine mammals, and birds (h).

INSTRUCTIONS FOR USING THE PELAGIC LOGBOOKS FOR 2000

Samples of forms and directions for filling out forms are presented in Figures 12 - 17. There are 4 forms used for pelagic logbook reports in 2000: (1) a "trip summary" form, (2) a voluntary cost and earnings form, (3) a "set" form, and (4) a "no fishing" form. The trip summary form must be completed for every fishing trip when swordfish are caught and retained on board. A set form must be completed for every set made. A trip summary, set forms and a "tally" sheet must be submitted for every completed trip.

The voluntary cost and earnings form is used to provide information on the costs associated with the fishing trip. This information is voluntary.

The "no-fishing" form may be used to report no fishing in the swordfish/large pelagic, South Atlantic snapper-grouper, Gulf of Mexico reef fish, and shark fisheries. If the vessel did not fish in more than one of these fisheries, **ONLY SUBMIT ONE "NO-FISHING" FORM.** Check the space by each of the fisheries in which the vessel did not fish. Do NOT check fisheries for which your vessel does not have an active permit.

All forms are to be mailed in the pre-addressed, postage-paid envelopes that are included. If you mail the forms in another envelope, please use the following address:

NATIONAL MARINE FISHERIES SERVICE
ATTN: LOGBOOK PROGRAM
P.O. BOX 491500
KEY BISCAWAYNE, FLORIDA 33149-9916

If there are question regarding completion of this form, please contact the Logbook Program at (305) 361-4581.

Monthly reporting for individuals holding a Swordfish permit will be considered complete and in compliance with the regulations only if 1) the trip summaries for each trip completed during the month, individual set records for each set made during the trip(s), and tally records for all fish sold are provided or, 2) a no fishing report is provided.

Again, as noted on the new logbook forms, **use of the current year forms will be necessary for compliance.** Further, **all old forms should be destroyed** upon receipt of the 2000 forms.

WHOM TO CONTACT FOR WHAT

Any questions concerning Atlantic large pelagic resources swordfish projects at the Southeast Fisheries Science Center, NMFS, can be directed to Dr. Gerald Scott at (305) 361-4220 questions concerning processing and analyzing the logbook data can be directed to Dr. Jean Cramer at (305) 361-4493. Information concerning permits can be directed to (727) 570-5326. Those needing 2001 logbooks can contact the logbook program at (305) 361-4581. Questions about the observer program should be directed to Dennis Lee (305) 361-4247 or Cheryl Brown (305) 361-4275. If you have comments on this newsletter, or other comments, you can write them on your logbook reports or send them to Dr. Jean Cramer, SEFSC, NMFS, 75 Virginia Beach Drive, Miami, FL 33149.

FIGURE 12. INSTRUCTIONS FOR PELAGIC LOGBOOK TRIP SUMMARY FORMS

Record the following on the **BLUE** form

- Vessel Name
- Vessel No.: U.S. Coast Guard vessel identification number or state registration number as recorded on permit application
- Contact Telephone: telephone number of person responsible for the records
- Contact Name: Name of person responsible for the records (please print)
- Capt. Signature: signature of the captain for the trip
- Capt Name: Name of the captain for the trip (please print)
- Port & State of Departure: location of port from which the trip commenced
- Port & State of Landing: location of port that vessel arrived in
- Number of Crew Members: number of persons paid as crew (excluding captain)
- Dealer Name(s): list of names of dealers purchasing the harvest
- Date of Departure: calendar date (mm/dd/2000) on which the trip was started
- Date of First Set: calendar date (mm/dd/2000) of first set made on trip
- Date of Last Set: calendar date (mm/dd/2000) of last set made on trip
- Trip ticket number - Please include the trip ticket number from your state sales receipt (FL,GA,NC,LA).
- Number of Sets Placed: number of times the fishing gear was set during the trip
- Number of Days Fished: number of days that the fishing gear was used
- Date of Landing: the date the vessel arrived back at port. This date can be different from the offloading date
- First Day Offload: calendar date (mm/dd/2000) that vessel began offloading fish
- Federal Dealer Permit Number(s)

NOTE: All data provided are CONFIDENTIAL and will be used to determine the impact of existing and proposed management policies on fishery participants. Consistent and accurate reporting is critical to the success of future policies in achieving the stated objective of increasing net benefits. The trip expense and payment data are not mandatory.

Record the following on the **GREEN** sheet:

- Fuel: price per gallon paid for fuel used during trip. (*If did not refuel for trip, record price paid last time purchased fuel.*)
- Fuel: gallons of fuel used during trip. (*Note that this is not quantity purchased.*)
- Bait: price per box of bait
- Bait: number of boxes used during trip.
- Bait: size of box of bait purchased in pounds
- Light sticks: price per light stick
- Light sticks: number of light sticks used during trip (*If a light stick was re-used, only count it once.*)
- Ice: complete either price per pound or price per block of ice. (*If you purchase ice by the ton, please divide price paid per ton of ice by 2000 to get price per pound.*)
- Ice: Number of pounds or blocks purchased of ice. (*If you purchase ice by the ton, please multiply tons purchased by 2000 to get quantity purchased in pounds.*)
- Gear Expenses: record total cost of gear expenses on trip, including hooks replaced, line gangions, buoys, etc.
- Grocery expense
- Repair/Maintenance: Record all repair and maintenance expenses incurred prior to each trip, excluding dry dock.
- Total Shared Costs: Record the sum of all costs incurred for this trip that are subtracted from gross revenues prior to calculating crew share payments. If vessel does not use crew share system, record zero (0).
- Total Costs: All costs incurred for this trip excluding payments to owner, captain, crew and broker but including expenditures on items cited above and any other trip-related expenditures, e.g., docking/offloading fees (if separate from broker fee).
- Owner Share: Percentage of net revenue (gross revenue less total shared costs) paid to owner.
- Captain Share: Percentage of net revenue paid to captain.
- Crew Share: Average share (percentage of net revenue) paid to crew, excluding captain. If vessel does not use crew share system, then calculate payments as a percentage of (estimated) gross revenue.
- Broker/Selling Expense or Broker Percentage: Report either the (estimated) broker/selling fee or the percentage of gross revenue charged by the broker. (*If catch is sold to multiple brokers, please report for broker handling majority of catch or report the average charged across brokers.*)

Public reporting burden for this collection of information is estimated to average 10 minutes per response for fishing forms and 2 minutes to submit a no-fishing response including the time for reviewing the instructions, searching the existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspects of this burden to Robert Sadler, National Marine Fisheries Service, 9721 Executive Center Drive N., St. Petersburg, Florida 33702. This reporting is required under and is authorized under 50 CFR 622.5(a)(1)(v). Information submitted will be treated as confidential in accordance with NOAA Administrative Order 216-100. Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection displays a currently valid OMB Control Number. The NMFS requires this information for the conservation and management of marine fishery resources. This data will be used to monitor the quota for this fishery.

FIGURE 14. 2001 PELAGIC LOGBOOK – VOLUNTARY TRIP EXPENSE & PAYMENT SUMMARY

TRIP EXPENSE & PAYMENT SUMMARY

		UNIT COST		QUANTITIES USED				
Fuel	Price per gallon	\$	<input type="text"/> . <input type="text"/> <input type="text"/>	Gallons used	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>			
Bait	Price per box	\$	<input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	Boxes used	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Box size (LBS)	<input type="text"/> <input type="text"/>	
Light Sticks	Price per stick	\$	<input type="text"/> . <input type="text"/> <input type="text"/>	Light Sticks used	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>			
Ice	Price per pound	\$	<input type="text"/> . <input type="text"/> <input type="text"/>	Price per block	\$	<input type="text"/> . <input type="text"/> <input type="text"/>	Quantity Ice (lbs /blocks)	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

		TOTAL COSTS	
Gear Expenses (hooks, gangions, etc.)		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
Grocery Expense		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
Repair/Maintenance (expenses paid between trips)		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
Total Shared Costs (Includes only those costs subtracted from gross revenues to calculate payments to crew.)		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
Total Cost (All costs incurred for this trip excluding payments to owner, captain, crew and broker but including items above and any other trip expense.)		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>

Crew Share	Owner	<input type="text"/> <input type="text"/> <input type="text"/>	%			
	Captain	<input type="text"/> <input type="text"/> <input type="text"/>	%			
	Crew (average)	<input type="text"/> <input type="text"/> <input type="text"/>	%			
Broker/Selling Expense	\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	or	Broker Percentage	<input type="text"/> <input type="text"/>	%

FIGURE 15. INSTRUCTIONS FOR PELAGIC LOGBOOK SET FORM

Revised (10-00)

IMPORTANT INSTRUCTIONS

Please print all information clearly.

DESTROY OLD FORMS. USE ONLY CURRENT YEAR FORMS.

---->Please use a separate log sheet for each set. If using a gear that is not fished in sets, use one sheet for each day of fishing.

Signature, each set form must be signed by the captain or a person responsible for maintaining the records for the vessel.

Record the **Official Vessel Number**.

Designate primary **Target species**.

Record **Gear Used**.

Record **Set Date** (calendar day when set began) and **Haulback Date**.

Enter Times when using longlines or gillnets for:

- **Begin Set and Begin Haulback** (designate AM or PM)
- **End Set and End Haulback** (designate AM or PM)

At the start of each set, record the location to the nearest degree and minutes of **LAT** (Latitude) and **LON** (Longitude), and the **Surface Water Temperature**, in degrees Fahrenheit.

Enter the following data for each set if using **Longline gear**:

- **Number of hooks set**
- **Number of hooks between floats**
- **Number of light sticks**
- **Length of Mainline** (in miles)
- **Length of Gangions** (in fathoms)
- **Length of Floatline** (in fathoms)
- **Did you use a line thrower?**
- **Were you tending or rebaiting hooks before haulback? If yes, specify how many hooks were rebaited.**
- **Bait:** indicate **Live, Dead or Artificial**.

Enter the following data for each set if using **Gillnet**:

- **Mesh Size** (in inches)
- **Total drift gillnet net length** (in fathoms)
- **Fishing Depth Range** (Depth of top and of Bottom of net in fathoms)

Record **NUMBERS OF SWORDFISH, TUNAS, SHARKS AND OTHER SPECIES KEPT AND THROWN BACK**.

Specify the number of fish that were thrown back Alive and the number thrown back Dead. For the Est. Lbs Kept., write down the estimated dressed weight in pounds of fish kept for each species. For catches of species not listed on the form, print the species name in the blank spaces and record the appropriate catch information.

Record **NUMBERS OF SEA TURTLES INVOLVED**

- **Total Number Involved.** Write down the total number of each sea turtle species that were caught in, or interacted with, your fishing gear for the period of your report.
- **Number Injured.** Write down the number of each sea turtle species that were injured while in, or by, your fishing gear.
- **Number Dead.** Write down the number of each sea turtle species that were observed to be dead while in, or by, your fishing gear.

Mail original logs to NMFS at the end of the fishing trip in pre-addressed envelopes along with the Trip Summary Form and weighout slip.

Mailing should be postmarked not later than the 7th day after the sale of the catch.

Monthly reporting for individuals holding a Swordfish permit will be considered complete and in compliance with the regulations only if 1) the trip summaries for each trip completed during the month, individual set records for each set made during the trip(s), and tally records for all fish sold are provided or 2) a no fishing report is provided.

FIGURE 16. PELAGIC LOGBOOK SET FORM

2001 ATLANTIC HIGHLY MIGRATORY SPECIES LOGBOOK - Set Form

OMB 00846-0371 Exp 09/30/2002
Version Date 09/00
NOAA Form 88-191

Use Black Ink Only

Signature _____ 2001005602 NMFS Use Only:

Official Vessel Number: _____

TARGET: Swordfish Yellowfin Bigeye Mixed Tuna Sharks Dolphin Other (list) _____

GEAR: Pelagic Longline Bottom Longline Handline Harpoon Gillnet Bandit
 Rod & Reel Otter Trawl Squid Trawl Green Stick (tuna) Other (list) _____

Set Date: _____ 2001 Haulback Date: _____ 2001

Begin Set: _____ End Set: _____ Begin Haulback: _____ End Haulback: _____
: _____ am pm : _____ am pm : _____ am pm : _____ am pm

Latitude at beginning: _____ Longitude at beginning: _____ Surface Water Temp: _____
 North West F
Deg Min Deg Min

LONGLINE: GILLNET:
No of Hooks _____ Mainline Length (nm) _____ Use Line Thrower Yes No
No. of Hooks between Floats _____ Gangion Length (fm) _____ Were You Tending/Rebaiting hooks before haulback?
No. of Light Sticks _____ Floatline Length (fm) _____ Yes No If yes, then -
of hooks rebaited: _____ Mesh Size (in): _____
Bait Used: Live Dead Artificial Total Net Length (fm) _____
Fishing Depth Range (fm): _____ to _____

SWORDFISH and TUNA				SHARK			
No. Kept	No. Thrown Back		Est. Lbs. Kept	No. Kept	No. Thrown Back		Est. Lbs. Kept
	Alive	Dead			Alive	Dead	
Swordfish				PELAGIC SHARK			
Bonito Tuna				Blue			
Bluefin Tuna				Mako, Longfin			
Skipjack Tuna				Mako, Shortfin			
Yellowfin Tuna				Oceanic Whitetip			
Blackfin Tuna				Porbeagle			
Albacore Tuna				Thresher, Bigeye			
Bigeye Tuna				Thresher, Common			

OTHER SPECIES		COASTAL SHARK	
White Marlin		Bignose	
Blue Marlin		Blacktip	
Sailfish		Dusky	
Spearfish		Hammerhead, Great	
Escolar		Hammerhead, Scalloped	
Dolphin (Mahi)		Hammerhead, Smooth	
Wahoo		Night	
King Mackerel		Sandbar	
Greater Amberjack		Silky	
Banded Flounderfish		Spinner	
		Tiger	
		White	

SEA TURTLES							
	Involved	Injured	Dead		Involved	Injured	Dead
Leatherback				Kemp's Ridley			
Loggerhead				Hawksbill			
Green							

FIGURE 17. NO FISHING FORM

NMFS Use Only: Opened:	Schedule #
---------------------------	------------

NO FISHING REPORTING FORM

Vessel ID. NO. Vessel Name: _____

During the entire month of , year this vessel DID NOT FISH in the fisheries checked below:

- > more than one fishery may be checked
- > DO NOT check any fishery if your vessel does not have a permit for it
- > Use **Black Ink**

- Atlantic Highly Migratory Species (swordfish/tunas)
- South Atlantic Snapper-Grouper
- Gulf of Mexico Reef Fish
- Shark
- King Mackerel
- Spanish Mackerel

Signature _____ Phone () _____ - _____



MAIL THIS COPY TO NMFS LOGBOOK PROGRAM, MIAMI FL



Table 1. TOTAL NUMBER OF SWORDFISH, TUNA, AND BILLFISH REPORTED CAUGHT BY LONGLINE BOATS, BY AREA, AND EFFORT IN NUMBER OF HOOKS, FROM THE SWORDFISH MANDATORY LOGBOOKS, FOR (a) 1997, (b) 1998 and (c)1999 (PRELIMINARY). NUMBERS CAUGHT REPRESENT KEPT PLUS DISCARDED (DEAD OR ALIVE). SEE FIGURE 1 FOR DESIGNATION OF AREAS. (SWD=SWORDFISH; YFT=YELLOWFIN; BET=BIGEYE; BFT=BLUEFIN; ALB=ALBACORE; WHM=WHITE MARLIN; BUM=BLUE MARLIN; SAI=SAILFISH.)

1a. 1997

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	HOOKS	BOATS
CAR	8328	339	557	2	220	154	295	40	438725	45
GOM	15990	38249	430	115	300	392	511	623	3409386	118
FEC	13468	1952	2923	44	746	99	171	192	784355	73
SAB	11614	2769	198	18	263	142	156	121	946095	67
MAB	4518	11108	5556	174	1939	274	38	3	1201402	81
NEC	5399	15001	6118	465	2659	419	54	3	1225186	57
NED	14597	91	3190	50	1017	8	3	1	689644	22
SAR	430	25	65	1	43	17	1	0	23480	11
NCA	3356	181	230	2	184	105	70	7	214596	24
TUN	1567	1845	533	0	78	251	605	222	202696	21
TUS	9435	3766	3283	0	204	589	398	550	390951	21
TOTAL	88702	75326	23083	871	7653	2450	2302	1762	9526516	256

1b. 1998

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	HOOKS	BOATS
CAR	5269	319	386	1	205	118	156	38	293046	30
GOM	12131	37623	415	173	82	418	562	434	2939284	98
FEC	14206	996	2916	54	742	200	246	183	648972	69
SAB	19974	1656	92	16	93	126	130	108	708225	53
MAB	8275	8451	6592	934	3905	166	25	8	1221940	64
NEC	5921	4691	5415	312	1512	146	44	4	859309	40
NED	15677	96	1552	27	103	18	3	1	503579	15
SAR	159	29	219	24	278	10	0	0	22045	9
NCA	4495	150	278	3	332	112	46	3	246517	12
TUN	1117	722	784	0	97	138	58	30	104741	12
TUS	4431	956	656	0	31	42	29	26	174525	11
TOTAL	91655	55689	19305	1544	7380	1494	1299	835	7722183	210

1c. 1999

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	HOOKS	BOATS
CAR	3171	91	235	2	120	166	60	32	154890	18
GOM	12684	59050	507	319	104	668	698	879	3456492	89
FEC	16789	1589	2767	63	496	227	197	291	707153	53
SAB	19638	5658	118	14	47	148	143	166	762308	45
MAB	7745	13278	11255	202	5566	368	51	3	1248938	68
NEC	4199	3736	4666	202	1425	338	51	0	580935	39
NED	13877	13	1063	54	116	16	3	0	338719	10
SAR	208	162	45	4	49	10	1	4	17795	4
NCA	2253	76	172	0	151	15	3	1	116331	9
TUN	534	291	279	0	13	5	5	0	38991	9
TUS	4856	532	1614	0	42	13	38	32	171360	8
TOTAL	85954	84476	22721	860	8129	1974	1250	1408	7593912	193

Table 2. TOTAL NUMBER OF SWORDFISH, TUNA, AND BILLFISH REPORTED CAUGHT BY GILLNET BOATS, BY AREA, AND EFFORT IN NUMBER OF SETS AND NUMBER OF BOATS, FROM THE SWORDFISH MANDATORY LOGBOOKS, FOR (a) 1998. GILLNET FISHERY WAS CLOSED IN 1997 and 1999. NUMBERS CAUGHT REPRESENT KEPT PLUS DISCARDED (DEAD OR ALIVE). SEE FIGURE 1 FOR DESIGNATION OF AREAS. (SWD=SWORDFISH; YFT=YELLOWFIN; BET=BIGEYE; BFT=BLUEFIN; ALB=ALBACORE; WHM=WHITE MARLIN; BUM=BLUE MARLIN; SAI=SAILFISH.)

2a. 1998

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	SETS	BOATS
NEC	648	58	0	4	24	11	6	0	106	10
TOTAL	648	58	0	4	24	11	6	0	106	10

Table 3. YEARLY TABULATIONS FOR SWORDFISH AND YELLOWFIN TUNA FOR (a) 1997, (b) 1998 AND (c) 1999 (PRELIMINARY). THE AREAS ARE DEFINED IN FIGURE 1. INFORMATION INCLUDES NUMBER OF FISH KEPT PLUS DISCARDED (K&D); PERCENTAGE KEPT (%K), PERCENTAGE DISCARDED DEAD (%D DEAD), PERCENTAGE DISCARDED ALIVE (%D LIVE); EFFORT IN HOOKS (HOOKS); NUMBER OF SETS (N); AND AVERAGE OF THE INDIVIDUAL CATCH RATES [AVG(C/E)], EQUIVALENT TO CPUE IN # OF FISH/100 HOOKS.

3a. 1997			SWORDFISH					YELLOWFIN				
AREA	HOOKS	N	K&D	%K	%D DEAD	%D LIVE	AVG C/E	K&D	%K	%D DEAD	%D LIVE	AVG C/E
CAR	442025	896	8440	85	7	7	1.98358	346	89	2	8	0.07572
GOM	3769297	5232	16977	68	17	13	0.68863	40432	98	1	0	1.32620
FEC	799554	2375	13469	66	19	13	2.13071	1925	95	2	1	0.21759
SAB	999690	1783	11590	72	16	10	1.46181	2762	96	0	3	0.27593
MAB	1254796	1939	4508	55	23	20	0.41684	11086	97	2	0	1.70027
NEC	1225921	1507	5379	69	15	14	0.46647	14907	98	1	0	1.24868
NED	689644	763	14535	88	7	4	2.13971	91	89	8	2	0.01319
SAR	25480	37	430	88	6	5	1.86900	25	100	0	0	0.08592
NCA	216506	279	3367	94	2	3	1.56225	181	100	0	0	0.07574
TUN	202696	265	1566	85	7	7	0.79702	1836	91	7	0	0.90090
TUS	390951	474	9367	91	4	3	2.44793	3760	98	0	0	0.97783
TOTAL	10016560	15550	89628	76	13	10	1.16189	77351	97	1	0	0.89585

3b. 1998			SWORDFISH					YELLOWFIN				
AREA	HOOKS	N	K&D	%K	%D DEAD	%D LIVE	AVG C/E	K&D	%K	%D DEAD	%D LIVE	AVG C/E
CAR	292546	536	5259	81	10	7	1.90334	319	92	2	5	0.10154
GOM	2832322	3822	11517	74	13	11	0.58196	32798	97	1	1	1.47987
FEC	634453	1806	13850	65	19	14	2.88312	992	93	0	5	0.12625
SAB	738563	1420	19979	71	15	12	3.23228	1656	92	1	6	0.20128
MAB	1224741	1769	7933	62	17	19	0.67166	8563	94	1	3	2.78639
NEC	859309	1037	5894	69	16	14	0.67154	4658	97	0	1	0.54161
NED	503579	618	15657	85	7	7	3.20664	96	96	0	3	0.01872
SAR	22045	36	159	86	3	10	0.74031	29	100	0	0	0.09799
NCA	241017	316	4381	93	3	3	1.90676	137	97	0	1	0.06404
TUN	104741	126	1117	79	11	9	1.09164	722	97	1	1	0.69460
TUS	174525	221	4431	91	4	3	2.61829	956	96	0	3	0.53786
TOTAL	7627841	11707	90177	75	13	11	1.55914	50926	96	1	2	1.02134

3c. 1999			SWORDFISH					YELLOWFIN				
AREA	HOOKS	N	K&D	%K	%D DEAD	%D LIVE	AVG C/E	K&D	%K	%D DEAD	%D LIVE	AVG C/E
CAR	154890	270	3171	82	11	5	2.20246	91	71	20	7	0.05944
GOM	3371260	4458	11536	69	18	12	0.46106	47500	97	1	1	1.37735
FEC	708423	2032	16793	73	14	12	2.91520	1569	95	1	3	0.19279
SAB	815943	1448	19611	75	13	11	2.75327	5645	95	1	3	0.73085
MAB	1279105	1822	7719	61	19	19	0.67142	13294	96	0	2	1.27092
NEC	580935	724	4171	72	13	13	0.74601	3716	84	3	12	0.64684
NED	338719	408	13874	86	6	6	4.08161	13	100	0	0	0.00432
SAR	16795	22	208	82	11	6	1.25121	2	100	0	0	0.01264
NCA	116331	156	2218	89	5	4	1.99336	76	86	0	13	0.06834
TUN	38991	49	534	80	9	10	1.34509	291	100	0	0	0.70897
TUS	171360	216	4856	90	4	4	2.94958	532	98	0	0	0.31496
TOTAL	7592752	11605	84691	76	12	10	1.46753	72729	96	1	2	0.90527

Table 4. ATLANTIC SWORDFISH RESOURCE STATUS SUMMARY

	North Atlantic	South Atlantic
Maximum Sustainable Yield ¹	13,370(7,625-15,900MT) ⁴	13,650 MT (5,028-19,580MT)
Current (1999) Yield	11,914 MT	15,463 MT
Current (2000) Replacement Yield ²	11,720 MT (6,456-15,040 MT)	14,800 MT (5,328-16,240 MT)
Relative Biomass(B_{1999}/B_{msy}) ¹	0.65 (0.51-1.05 MT)	1.10 (0.84-1.40)
Relative Fishing Mortality:		
F_{1998}/F_{MSY} ¹	1.34 (0.84-2.05)	0.81 (0.47-2.54)
F_{1998}/F_{max} ³	1.60 (1.52-1.68)	not estimated ⁵
$F_{1998}/F_{0.1}$ ³	3.52 (3.44-3.70)	not estimated ⁵
Management Measures in Effect	125/119 cm LJFL minimum size; Country-specific quotas	125/119 cm LJFL minimum size; Limit catch to 1993 or 1994 levels

¹ Base case production model results based on catch data 1950-1998

² For next fishing year

³ Base case sex-specific SPA results based on catch data 1978-1998; Statistics computed based on females only.

⁴ 80% confidence intervals are shown

⁵ Production model results do not provide basis for these estimates

Table 5. ATLANTIC AND MEDITERRANEAN ALBACORE RESOURCE STATUS SUMMARY

	North Atlantic ¹	South Atlantic ²	Mediterranean
Maximum Sustainable Yield	32,000(30,400-33,100)	30,200 (50-31,400)	Unknown
Current (1999) Yield	34,557	30,046	Uncertain
Current (2000) Replacement Yield	Not Estimated	29,200 (12,200-31,400)	Not Estimated
Relative Biomass			
B_{1999}/B_{MSY}	0.68 (0.52-0.86)	1.60 (0.01-1.98)	Not Estimated
Relative Fishing Mortality ³			
F_{1999}/F_{MSY}	1.10 (0.99-1.30)	0.57 (0.34-556)	Not Estimated
F_{1999}/F_{max}	0.71 (0.66-0.78)	0.31 (0.28-0.33)	Not Estimated
$F_{1999}/F_{0.1}$	1.25 (1.14-1.39)	0.84 (0.74-0.89)	Not Estimated
Management Measures in Effect	Limit number of vessels to average number 1993-1995	Limit catches to 28,200 MT for 1999	None

¹ VPA results based on catch data (1975-1999). 89% confidence intervals from bootstrap.

² ASPM results based on catch data (1956-1999). 89% confidence intervals from bootstrap.

³ $F_{99} = (F_{current})$ North Atlantic Geometric Mean 1996-1998. South Atlantic, Geometric Mean 1994-1996

Table 6. BIGEYE TUNA RESOURCE STATUS SUMMARY

Maximum Sustainable Yield (likely range)	79,000-94,000 MT*
Current (1999) Yield	121,000MT
Current (1998) Replacement Yield**	72,000-85,000 MT***
Relative Biomass(B_{1998}/B_{msy}) **	0.57 - 0.63***
Relative Fishing Mortality: F_{1998}/F_{MSY} **	1.50-1.82***
$F_{0.1}$ ***	0.22
F_{max} ***	0.35
Management Measures in Effect	<ul style="list-style-type: none"> - 3.2 kg minimum size - 25% of FADs fishing vessels and 5% others to be covered with observers - Provide a list of vessels (>80 GRT) fishing Atlantic bigeye. - Limit on number (associated with GRT) of Atlantic BET fishing vessels (>24 m LOA) to average number in 1991-1999. Not applicable to countries catching less than 2,000 MT average over recent five years. - Provide a list of vessels (> 24 m LOA) fishing Atlantic BET by August 31. - Limit number of Chinese Taipei BET fishing vessels to 125. - Catch limit (16,500 MT) for Chinese Taipei. - Moratorium on FAD fishing, Nov. 1999 to Jan 2000 in eastern tropical area.

* This range is representative of MSY ranges predicted by ASPIC and PROFIT models.

** ASPIC estimate

*** These area ranges of point estimates obtained and no confidence limits are given.

**** Yield-per-recruit estimate based on the 1998 selectivity pattern

Table 7. YELLOWFIN TUNA RESOURCE STATUS SUMMARY

Maximum Sustainable Yield (MSY) ¹	144.6-152.2
Current (1999) Yield	140
Current (1999) Replacement Yield	may be close to current yield
Relative Biomass(B_{1999}/B_{msy}) ^{2,3}	103%
Relative Fishing Mortality (F_{1999}/F_{MSY}) ³	88-116%
Management Measures in Effect	3.2 kg minimum size Effective effort not to exceed 1992 level

¹ 1475-155.8 for the PROFIT model and 151.7 for the ASPIC model.

² Result from ASPIC model

³ Result from 1998 SCRS

Table 8. NUMBERS OF ACTIVE VESSELS

YEAR	FISHED	CAUGHT SWORDFISH	CAUGHT SWORDFISH IN 5 MONTHS	HOOKS REPORTED
1987	297	273	180	6,557,776
1988	387	337	210	7,010,008
1989	455	415	250	7,929,927
1990	416	362	209	7,495,419
1991	333	303	175	7,746,837
1992	337	302	183	9,056,908
1993	434	306	175	9,721,036
1994	501	306	176	11,270,632
1995	489	314	198	10,976,048
1996	367	276	189	10,213,223
1997	350	264	167	10,212,823
1998	286	231	134	7,886,088
1999	224	199	140	7,768,790

Table 9. MONTHLY NORTH ATLANTIC SWORDFISH LANDINGS AS REPORTED FROM TALLY SHEETS AND DEALER REPORTS IN LBS DRESSED WEIGHT FROM 1990 TO 1999.

YEAR	MONTH					
	JAN	FEB	MAR	APR	MAY	JUN
1990	839,178	794,926	760,177	631,254	493,183	449,220
1991	613,177	619,188	554,422	465,789	416,747	432,630
1992	514,101	575,942	520,299	374,432	358,252	317,612
1993	561,698	648,585	470,918	341,690	365,752	337,134
1994	484,972	472,599	458,475	327,608	299,262	383,626
1995	889,512	811,460	630,410	488,293	554,793	467,913

1996	596,262	738,304	509,953	388,765	363,694	351,284
1997	578,730	502,856	435,735	213,070	72,897	325,980
1998	445,171	417,488	531,255	134,234	157,908	266,512
1999	301,356	388,283	449,311	325,093	318,318	343,281

YEAR	MONTH						ANNUAL
	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
1990	895,303	888,258	851,158	1,053,476	806,843	644,159	9,107,135
1991	709,718	773,515	816,558	766,909	527,175	446,311	7,142,139
1992	561,906	731,830	727,037	891,336	423,457	387,010	6,383,214
1993	582,835	585,084	647,994	755,021	589,865	387,627	6,274,203
1994	290,811	539,202	560,993	672,465	592,585	495,542	5,578,140
1995	493,062	651,421	654,380	850,667	145,897	126,307	6,764,115
1996	370,895	568,722	635,336	525,918	455,680	384,352	5,889,165
1997	496,323	649,695	630,832	499,048	125,042	403,040	4,933,248
1998	349,726	661,549	440,544	495,460	488,716	365,696	4,754,259
1999	391,089	510,202	419,746	349,253	531,591	345,423	4,672,946

Table 10. PERCENTAGE OF ANNUAL U.S. SWORDFISH LANDED CATCH BY AREAS (TOTAL ANNUAL CATCH OF SWORDFISH IN AREA/ TOTAL ANNUAL CATCH OF SWORDFISH IN ALL AREAS).

YEAR	CAR ¹	GOM	FEC	SAB	MAB	NEC	NED
1989	20	13	21	6	7	8	24
1990	15	11	22	4	12	11	25
1991	15	19	23	4	10	4	24
1992	14	15	18	8	6	8	31
1993	18	14	15	10	7	7	30
1994	28	10	14	10	10	4	25
1995	34	17	10	8	5	5	21
1996	31	21	11	15	2	3	16
1997	30	19	13	11	4	5	18
1998	18	14	14	20	7	7	19
1999	13	16	19	22	8	4	18

1. CAR includes SAR, NCA, TUN, and TUS

Table 11.

PERCENTAGE OF ANNUAL US SWORDFISH LANDED CATCH < 41 LBS BY AREAS (ANNUAL OF CATCH OF SWORDFISH < 41 LBS IN AREA / TOTAL ANNUAL CATCH OF SWORDFISH IN ALL AREAS):

YEAR	CAR ¹	GOM	FEC	SAB	MAB	NEC	NED	SUM
1989	5	6	11	3	3	2	7	37
1990	3	7	12	2	6	3	5	38
1991	2	10	9	3	2	0	2	28
1992	1	4	4	2	1	1	3	16
1993	2	3	2	1	1	1	3	13
1994	4	2	2	2	1	0	2	13
1995	3	3	1	1	0	1	3	12
1996	4	4	3	3	0	0	2	16
1997	3	4	3	3	1	1	1	16
1998	2	3	4	7	2	2	2	21
1999	1	3	5	6	2	1	1	19

1. CAR includes SAR, NCA, T3UN, and TUS

Table 12.

PERCENTAGE OF SWORDFISH LANDED CATCH < 41 LBS WITHIN AREAS (ANNUAL CATCH OF SWORDFISH < 41 LBS IN AREA / ANNUAL CATCH OF SWORDFISH IN AREA).

YEAR	CAR ¹	GOM	FEC	SAB	MAB	NEC	NED
1989	27	43	49	41	51	24	29
1990	22	60	54	60	52	31	21
1991	15	54	39	56	24	10	8
1992	10	26	21	23	11	11	11
1993	9	20	15	16	14	8	12
1994	13	21	15	16	13	11	10
1995	10	19	13	15	10	11	13
1996	12	21	24	21	19	11	9
1997	9	23	26	30	22	13	8
1998	8	21	29	35	25	22	13
1999	7	18	25	28	28	18	6

1. CAR includes SAR, NCA, TUN, and TUS