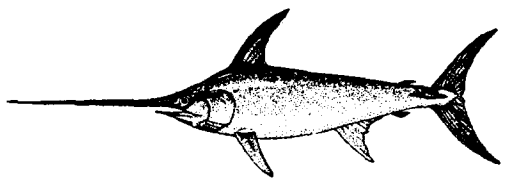
NOAA Technical Memorandum
NMFS-SEFSC-394

LARGE PELAGIC LOGBOOK NEWSLETTER - 1995

by

Jean Cramer



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November 1996

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This is the sixth 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 1997, this year's newsletter includes sections pertaining to swordfish stock status, bycatch, 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 1993 - 1995 LOGBOOK CATCH AND EFFORT DATA

Nine summary tables are included in this newsletter. The numbers of swordfish, tunas, and billfish reported caught, by area, for 1993, 1994 and 1995 (preliminary) are given for longline (Tables 1a-1c), gillnet (Tables 2a-2c) and pairtrawl boats (Tables 3a-3c). Longline effort is reported in hooks and numbers of boats, gillnet and pairtrawl 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.

The gillnet and pairtrawl boat statistics represent all sets that reported fishing those gear types. Some changes in the tabulated data for earlier years and reported previously were due to additional revisions in the database.

Locations of areas are shown in Figure 1. Definitions are as follows: area 1 - Caribbean[1] (CAR), area 2 - Gulf of Mexico (GOM), area 3 - Florida East Coast[1] (FEC), area 4 - South Atlantic Bight[1] (SAB), area 5 - Mid Atlantic Bight[1] (MAB), area 6 - Northeast Coastal[1] (NEC), area 7 - Northeast Distant[1] (NED), area 8 - Sargasso[1] (SAR), area 9 - North Central Atlantic[1] (NCA), area 10 - Tuna North[1] - (TUN), and area 11 - Tuna South[1] (TUS).

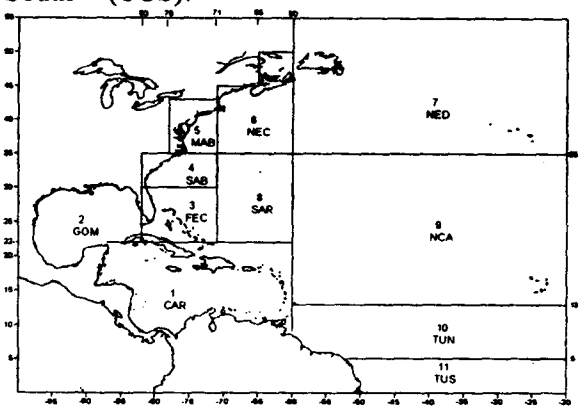

Figure 1. Map designating the eleven areas used in analysis of the swordfish logbook data.

Between 1994 and 1995 reported longline effort (hooks) decreased (6%, 9% and 6%) in the CAR, FEC, and NED respectively while reported effort increased slightly (7%, 3% and 7%) in the GOM, SAB and MAB respectively. A larger (37%) increase was reported in the NEC and a very large decrease (800%) was reported in the SAR. In the southern off shore areas, NCA and TUN, reported effort increased by 300%. (Tables 1a-1c). It should be noted, though, that reported effort in these regions has been relatively lower in other areas.

Preliminary reported longline effort for 1995 was higher than reported for 1994. The total number of longline boats increased in 1995 to the same level as reported for 1993.

The reported yellowfin tuna catch for the three-year period was approximately 63,000, 70,000 and 83,000 fish, respectively. This represents a 11% increase in numbers of reported yellowfin catch from 1994 to 1995.

In the GOM, the reported catch of yellowfin in numbers increased annually from 1990 through 1992; this trend has reversed from 1992 to 1995. In the MAB, the reported yellowfin catch in

[1]These are arbitrary areas and do not constitute official geographic areas

numbers increased annually from 1992 through 1995.

In 1993 there were approximately 97,000 swordfish tabulated from longline records (caught = kept + discarded). There were approximately 104,000 swordfish reported in 1994; and 103,000 reported in 1995(preliminary). The corresponding reported fishing effort for the three years was roughly 8.5, 8.9, and 10 million hooks, respectively (Tables 1a-1c). Reported swordfish catch was similar in 1994 and 1995 while the number of reported hooks fished increased by 12%.

With the exception of the GOM, near shore areas (Figure 1), reported decreases in annual swordfish catch by longline boats while offshore areas reported increases.

The number of yellowfin tuna reported caught by gillnet boats increased from 1993 to 1994 and then decreased in 1995 while the number of swordfish reported caught by gillnet boats decreased from 1993 (1,154 swordfish and 29 yellowfin) to 1994 (1,042 swordfish and 292 yellowfin) to 1995 (1,007 swordfish and 141 yellowfin) (Tables 2a-2c).

Pairtrawl vessels reporting large pelagic fishing effort dropped from 13 boats in 1993 to 11 boats in 1994 and 1995 (Tables 3a-3c). Tables 3a through 3c do not contain information from all pair trawl boats since all boats did not submit individual set records. Reported pairtrawl effort occurred in SAB, MAB and NEC. Reported catches by pairtrawl vessels of bigeye tuna increased while catch of swordfish, yellowfin tuna and albacore were stable from 1994 (1,996 bigeye, 463 swordfish, 1,828 yellowfin, and 8,269 albacore) to 1995 (3,132 bigeye, 437 swordfish, 1,420 yellowfin, and 7,280 albacore).

REPORTED FISHING LOCATIONS IN 1993, 1994, AND 1995

The location of reported commercial pelagic fishing effort by year for 1993-1995 is shown in Figures 2-4. The general pattern for reported sets is similar across the three years along the U.S. coastline. Fishing effort increased and expanded geographically in the southern offshore areas (NCA, TUN, and TUS).

CPUE DATA

Tables 4a-4c represent 1993, 1994, and 1995 (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.

The totals reported in tables 1a through 1c are different from the totals in tables 4a through 4c 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 4a through 4c 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 1993 for the CAR, FEC, SAB, NED and the NCA were, respectively, approximately 2.5 fish/100 hooks, 3.0 fish/100 hooks, 2.3 fish/100 hooks, 2.9 fish/100 hooks, and 1.7 fish/100 hooks (Table 4a); in 1994 approximately 2.7 fish/100 hooks, 2.8 fish/100 hooks, 2.0 fish/100 hooks, 2.6 fish/100 hooks and 1.9 fish/100 hooks (Table 4b); and in 1995 (preliminary) approximately 2.3 fish/100 hooks, 2.4

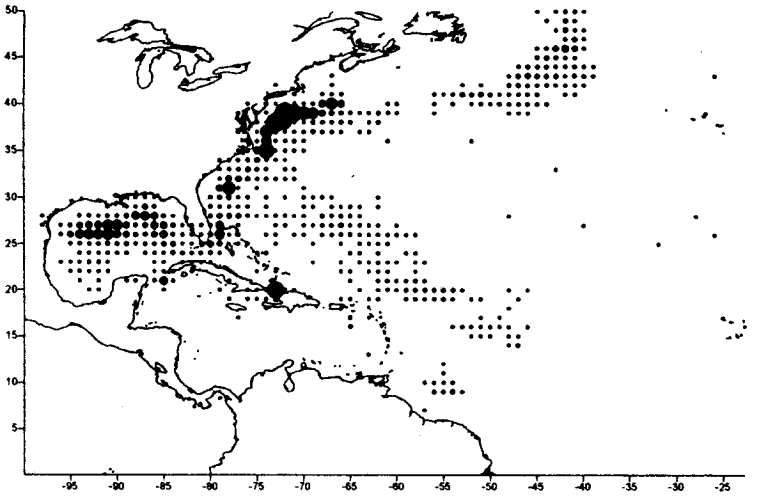

Figure 2. Location and density of reported longline effort in 1993.

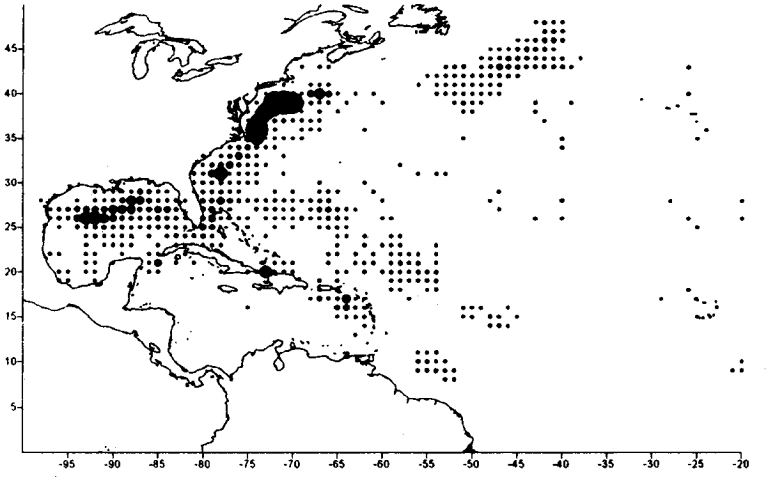

Figure 3. Location and density of reported longline effort in 1994.

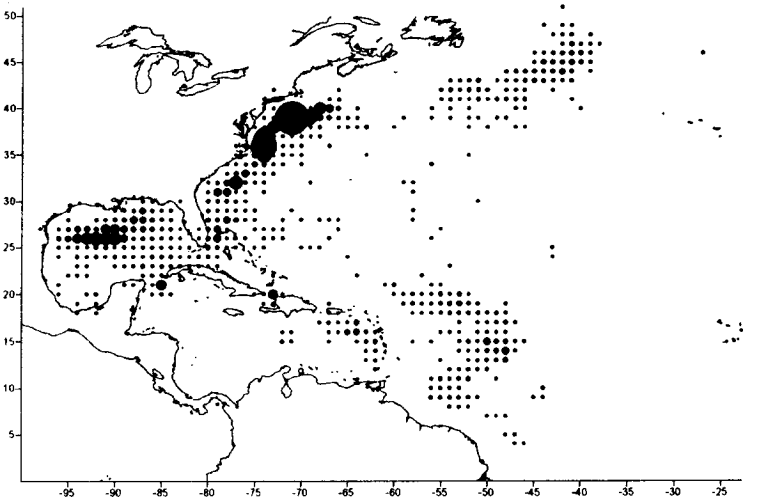

Figure 4. Location and density of reported longline effort in 1995.

fish/100 hooks, 1.3 fish/100 hooks, 2.8 fish/100 hooks and 1.9 fish/100 hooks (Table 4c).

Average reported CPUEs for yellowfin, on an annual basis, were consistently high from the GOM fishery. The reported catch rates in the GOM in 1993 were approximately 1.3 fish/100 hooks (Table 4a); in 1994 approximately 2.7 fish/100 hooks (Table 4b); and in 1995 approximately 2.7 fish/100 hooks (Table 4c). The highest CPUE reported for 1993 was 2.4 fish/100 hooks in NCA. The CPUE in NCA in 1994 and 1995 was 0.4 fish/100 hooks and 2.4 fish/100 hooks.

Monthly reported CPUEs for swordfish, yellowfin, bigeye, and albacore from 1987 to 1995 are shown in Figures 5a -5d. The error bars represent $\pm$ 2 standard deviations from the mean.

NUMBERS OF PERMITTED VESSELS

A compilation of activity related to the vessels permitted during the period 1987 through 1995 is presented in Table 5. "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.

SWORDFISH STOCK STATUS

In 1996, the status of the North Atlantic swordfish resource was assessed by ICCAT using both non-equilibrium stock production models and virtual population analyses (VPA) based on catch and CPUE data through 1995. The current base case assessments indicate that the North Atlantic swordfish resource has continued to decline despite reductions in total reported North Atlantic landings from peak values in 1987. Although some fleets have reduced catch levels and partial fishing mortality rates, the status of the resource continued to decline because recent landings have exceeded surplus production. The decline in stock size is reflected in declining CPUE's for several fisheries. An updated estimate of maximum sustainable yield from production model analyses is 28.6 million lbs (13,000 MT) whole wt (with an 80% confidence range from 11.7 to 36.3 million lbs. whole wt). Since 1982, only in one year (1984) have north Atlantic swordfish catches been less than 28.6 million lbs; preliminary estimates of catches in 1995 were about 37.2 million lbs. (16,900 MT).

A summary of the resource status as estimated by the 1996 ICCAT is shown in the Table 6. In the North Atlantic, ICCAT estimated that at the beginning of 1996, the exploitable swordfish biomass was about 58% of the level needed to produce MSY (80% confidence intervals ranged from 41-104%). Furthermore, the estimates of fishing mortality rates for the most recent year (1995) were 2.05 times the fishing mortality rate at MSY. ICCAT estimated that catches in 1995 and anticipated landings in 1996, were too high to prevent further declines in the North Atlantic swordfish resource status.

The South Atlantic reported catch was relatively low, generally less than 11 million lbs. (About 5,000 MT) until the early 1980s. Since then, landings have increased continuously to 38 million lbs. (17,308 MT) in 1994 and 43.8 million lbs (19,900 MT) in 1995, levels that match peak North Atlantic harvests. Since 1988, reported South Atlantic landings have exceeded 26 million lbs. (12,000 MT). The historic peak in reported landings for 1995 (43.8 million lbs) is 15% higher than reported landings in 1994 (38 million lbs.) And 17% higher than reported landings in 1990 (37.5 million lbs.). ICCAT expressed concern about the rapid increase in catch and declining CPUE in some South Atlantic fisheries and advised that strict harvest measures may be necessary in the near future if fishing mortality is not reduced.

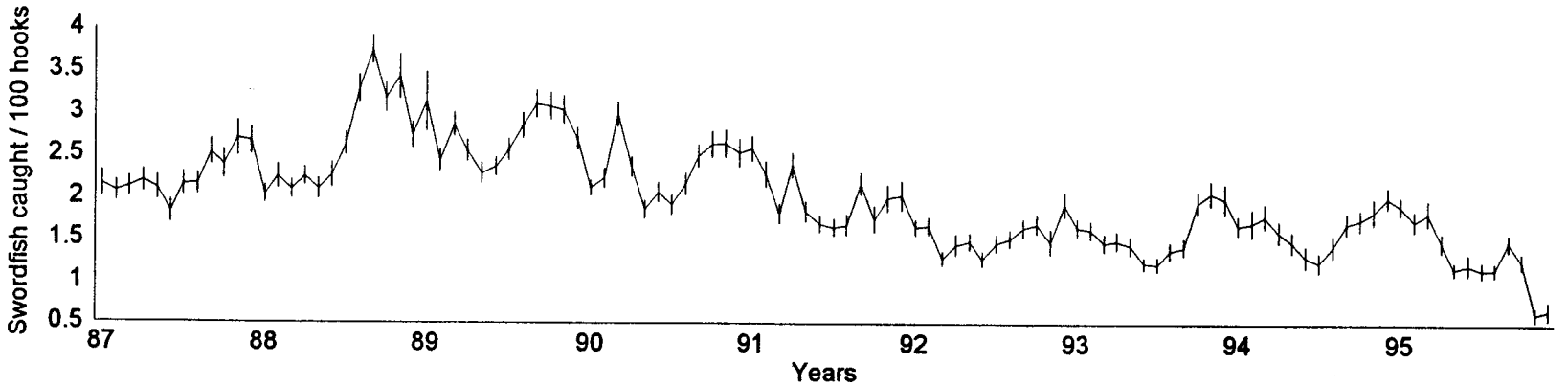

Figure 5a. Monthly Swordfish CPUE's
1987 -1995

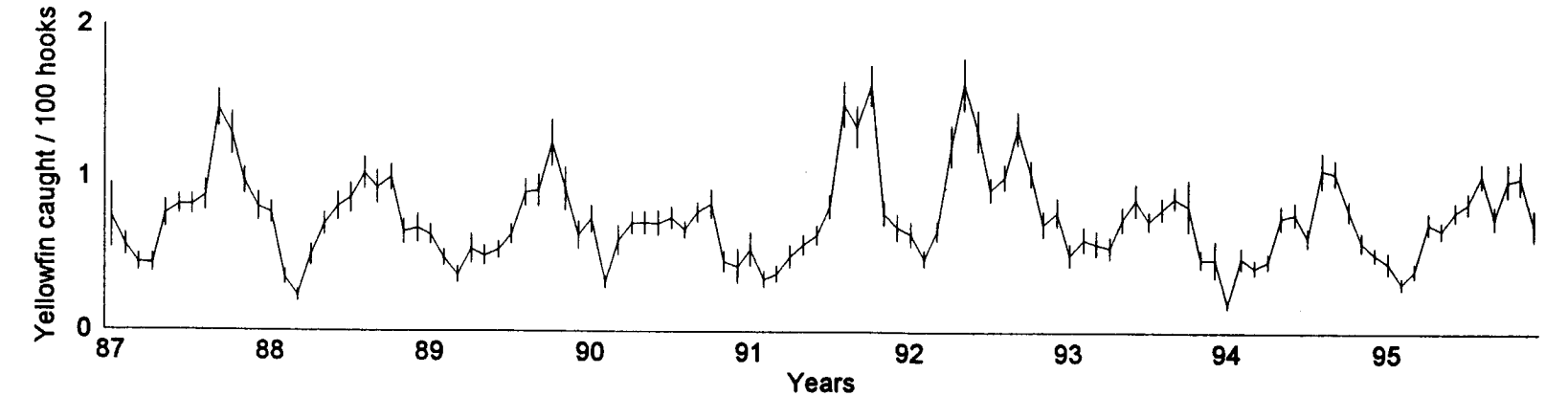

Figure 5b. Monthly Yellowfin CPUE's
1987 -1995

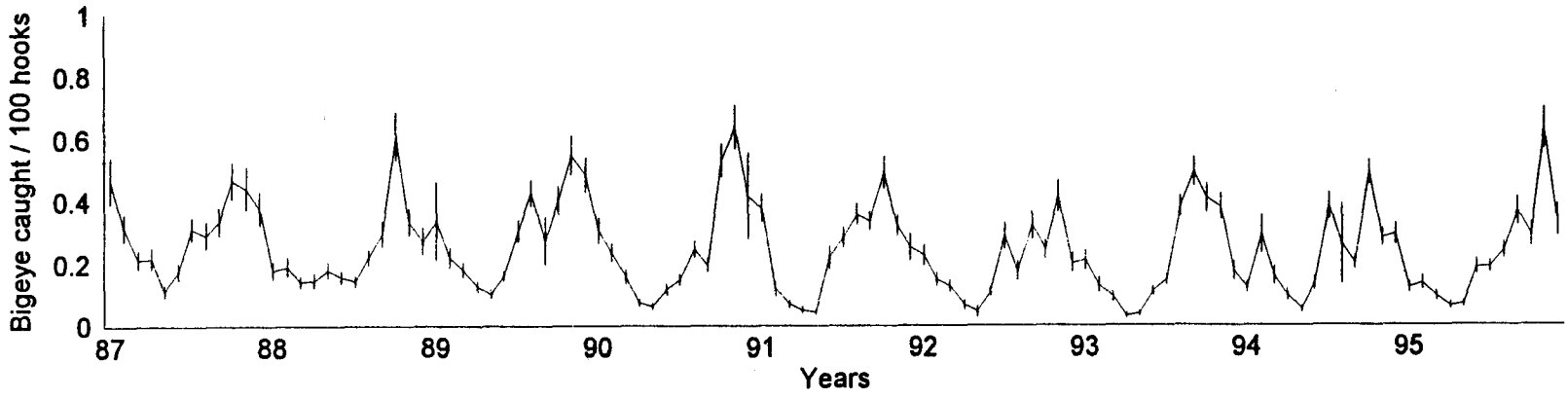

Figure 5c. Monthly Bigeye CPUE's
1987 -1995

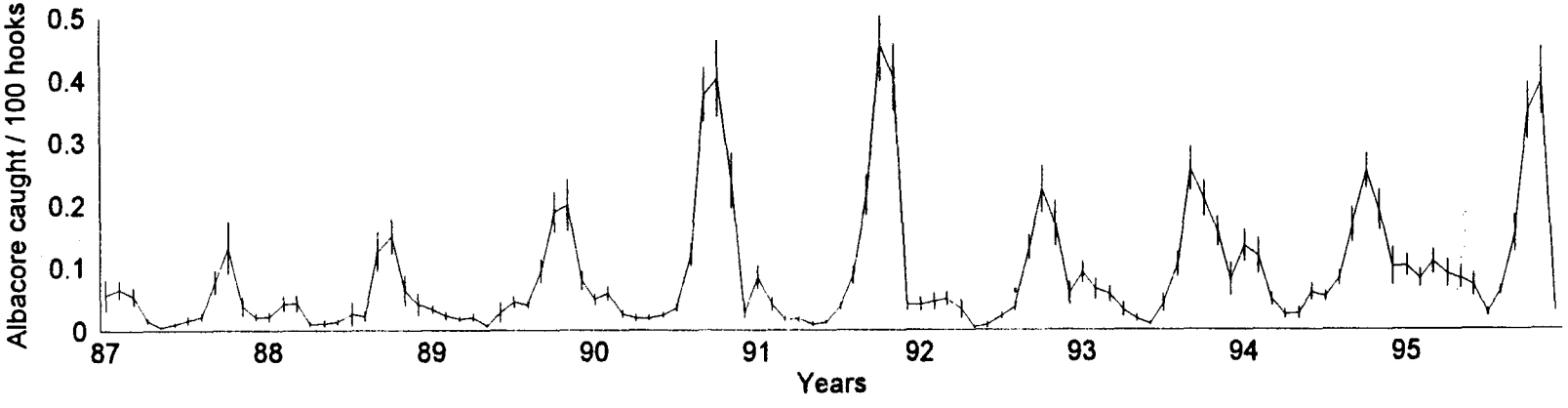

Figure 5d. Monthly Albacore CPUE's
1987 -1995

ALBACORE STOCK STATUS

The state of the northern albacore stock was analyzed using an age structured production model and a VPA based on catch and CPUE data through 1995. Equilibrium yield per recruit and spawning potential ratio analysis indicated that the northern stock is at or near full exploitation (Table 7). Assuming the fishing mortality rate as estimated by the VPA for 1995, the analysis reflects the current $F_{1995}(0.702)$ close to $F_{max}(0.880)$ and greater than $F_{0.1}(0.375)$. Assuming current F for older ages is closer to the level estimated for 1990-1992, then current F would be closer to $F_{0.1}$. The current level of spawning biomass for these analyses is estimated as 16.5% and 20% of the unexploited level respectively. ICCAT recommended that attention be given to implementing effective controls to limit fishing effort to current levels.

An age structured production model was used for assessment of South Atlantic albacore abundance. The assesment indicated that MSY is about 58.5 million lbs (26,600 MT) and the current (1995) replacement yield is 58.3 million lbs (26,500 MT). The estimate of the ratio of current biomass to that at which MSY is achieved is 0.82. The fishing mortality rate is 119% of that needed to achieve MSY (Table 7). ICCAT has recommended limiting catches of South Atlantic albacore to 90% of the 1989-1993 levels.

BIGEYE STOCK STATUS

Since 1993, total Atlantic bigeye catch has been near or greater than 220 million lbs (100,000 MT), an increase from the 1989-1990 level of more than 66 million lbs (30,000 MT). This increase was due primarily to increases in catch by purse seine of small fish and longline fisheries of large fish. The MSYs estimated by the production models and the VPA were much smaller than the current catch (60-70,0000 MT). Although MSY levels were not well determined, it is highly likely that the current catch level cannot be sustained in the long term and current catches may lead to a large reduction in recruitment. Reduction of the total catch by 66-88 million lbs, to below the most likely MSY level (132- 154 million lbs, 60,000-70,000 MT) was recommended by ICCAT (Table 8).

YELLOWFIN STOCK STATUS

In 1994, the status of the total Atlantic yellowfin stock was assessed by ICCAT using equilibrium and non-equilibrium production models. In 1996, ICCAT applied only an equilibrium model to updated data through 1995 and the 1994 VPA was projected forward using recent catch data. The 1994, 1995, and 1996 analyses all indicate that the stock of Atlantic yellowfin is at a level close to full exploitation (Table 9). ICCAT concluded these analyses imply that any increase in effort is likely to result in a fishing mortality rate that exceeds the level corresponding to MSY and a stock biomass below the mimmum level that can support MSY.

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 or (305) 361-4463.

During 1995, an active permit for the large pelagic fishery was issued to 1,178 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. During this year, the National Marine Fisheries Service intensified efforts to assure that 100% of the active permit holders complied with the logbook reporting required. 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.

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

At sometime during calendar year 1995, a Federal dealer permit was held by 154 dealers. Of this total, 55 dealers had their primary location in the Northeast Region and the remaining 99 dealers had their primary location in the Southeast Region, which includes the Caribbean. 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 -1995 may be found in Table 10. U.S. Atlantic swordfish landings decreased each year from 1990 to 1994, but increased somewhat in 1995 compared to 1994.

Monthly cumulative annual landings of U.S. Atlantic swordfish are compared in Figure 6 for years 1990-1995. Yearly U.S. Atlantic swordfish landings from 1991 to 1995 were lower than 1990 landings. These lower levels are, in part, the result of the 1991, 41 pound minimum size regulation.

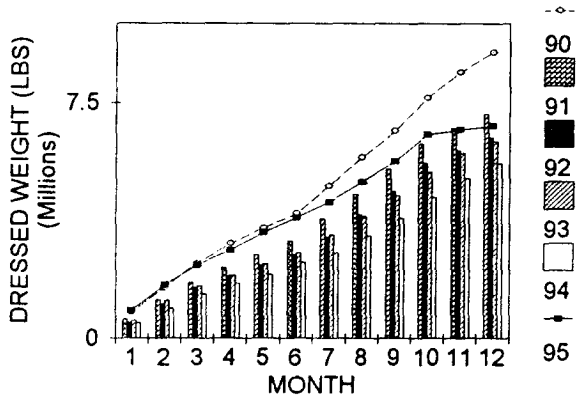

Figure 6. SWORDFISH LANDINGS

SWORDFISH LANDED IN THE U.S.

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

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.

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 41% in 1990 to 13% in 1993 and to 12% in 1995 (Table 12). The within area percentage landed catch of fish less than 41 lbs decreased in most areas between 1991 and 1995 (Table 12). The highest numbers of undersize fish landed in 1995 were from the GOM and CAR regions (Tables 11, 12 & 13).

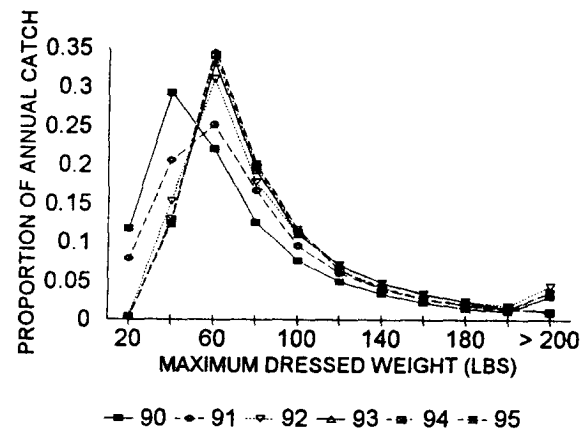

Figure 7. U.S. CATCH AT SIZE

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 (Figure 8). This decrease resulted from the minimum size measure put in place in mid 1991.

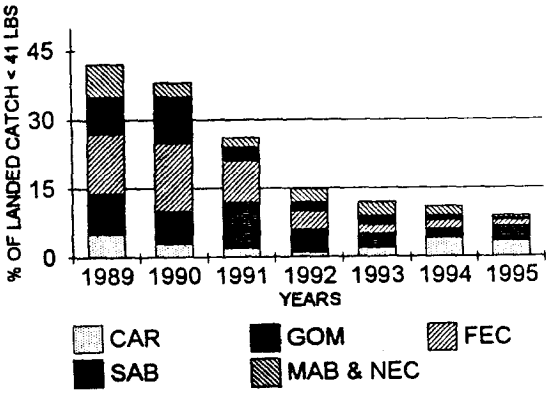

Figure 8. SWORDFISH SIZE FREQUENCY

BYCATCH ESTIMATION

Several methods were investigated and documented in a manuscript provided to the ICCAT swordfish species group for estimating the number of swordfish which were discarded dead by the U.S. fleet after implementation of minimum size regulations mid-way through 1991 (Cramer et al, 1995). All methods made use of the observer sampling data. The method recommended by the ICCAT in 1994 was applied to the 1995 observer and logbook records to estimate the magnitude of dead discarded swordfish by the U.S. fleet in 1995.

DATA COLLECTION AND ANALYSES

Biological material for swordfish reproduction analysis, as well as other forms of biological analyses (*i.e.* age and growth, stock identification, *etc.*) have been collected with the assistance of the Louisiana State University and the National Marine Fisheries Service observer programs, and cooperative vessel captains and crews.

About 4,200 paired ovaries were collected for use in analysis of ovarian development, maturity stages, and fecundity estimates for female swordfish. Fecundity estimates were was based on microscopic examination of whole oocytes (Arocha and Lee, 1995).

Morphometric (length and weight) and biological data have been collected since 1990 within the range of U.S. vessels operating in the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. And since 1991, by a Venezuelan observer program aboard Venezuelan longline vessels fishing the lower Caribbean Sea.

Sex ratio information has been collected from over 14,500 Atlantic swordfish specimens sampled from 1990 through June 1995. The available sex-ratio at size information was used to estimate the catch at age separately for female and male swordfish in the U.S. catch (Turner et al, in press). This methodology was applied to catch at size data from 1985 through 1995 in support of assessment analyses designed to accommodate sexually dimorphic growth patterns. This approach may provide a basis for improved stock status evaluations, especially for evaluations of the female spawning biomass component of the stock.

Research into the genetic diversity of swordfish is continuing through cooperative work undertaken by FISHTEC, a research consortium involving the Southeast Fisheries Science Center, Charleston Laboratory, and several university research laboratories. A progress report on this research indicating possible stock differences between northern and southern Atlantic swordfish was provided to the 1996 ICCAT swordfish working group (Alvarado et al, in press).

Average annual releases of tagged swordfish averaged about 350 fish for 1988-1990. Since the U.S. implemented minimum size regulations in 1991, the number of tagged swordfish, released by U.S. longline vessels has averaged about 1,200 fish per year. Most of these fish were smaller than the minimum size at time of release.

Reported recoveries of tagged swordfish have also increased since implementation of the minimum size. Since 1991, the annual number of swordfish tag recoveries reported has averaged more than 22 fish (in 1994 a total of 54 tagged swordfish were reported recaptured), while the annual average number reported from the period 1988-1990 was about 10 (Jones, in press).

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 by the Southeast Fisheries Science Center (SEFSC) and the Northeast Fisheries Science Center NEFSC) since 1992. Over this time period, coverage by the SEFSC Pelagic Observer Program (POP) took place, but is not limited, to vessels fishing in the Atlantic south of Virginia. The scientific observer program contracted and monitored by the NEFSC was responsible for large pelagic fleet fishing the waters of the Mid-Atlantic Bight[1] to the Grand Banks. Beginning in 1996, the SEFSC assumed the responsibility of covering all of the geographical areas of the northwest Atlantic.

Figure 9. NMFS observer.

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.

Catch data collected between May of 1992 and December of 1994 by the POP has been summarized in two published newsletter (NOAA Technical Memorandum, NMFS-SEFSC-347 and 377) which are available upon request. The POP continued its coverage through 1996 and data through mid 1996 are now computerized for analysis. Of the fish recorded by observers from 1992-1995 and summarized in various species groups, (Figure 10), swordfish was the highest percent occurrence of all species.

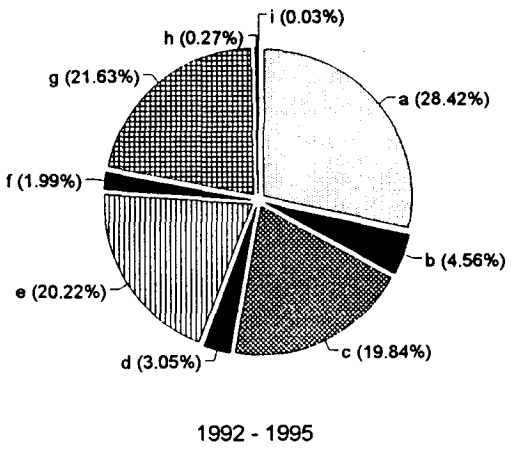

Figure 10. Catch reported by scientific observers on U.S. longline vessels: swordfish (a), billfish (b), yellowfin, bigeye and bluefin tuna (c), other tunas (d), sharks and rays (e), unknown species (f), finfish (g), marine turtles (h), and marine mammals (i).

REVISIONS TO LOGBOOK REPORTING FOR 1997

Four forms will be used for pelagic logbook reports in 1997: (1) a "Trip Summary" Form, (2) a voluntary cost and earnings form, (3) a "Set" Form, and (4) "No Fishing" Form. The "Trip Summary" Form is designed to collect information pertaining to

an entire trip such as port of landing and the dealers to which the fish were sold. Following each "Trip Summary" Form is a carbon copy of the "Trip Summary" Form with an additional section for collecting voluntary cost and earnings information. This form is not mandatory. The "Set " Form is the same as the 1996 "Set" Form except that additional spaces have been added to allow reporting catch of sharks and other species in pounds as well as numbers. The "No Fishing" Form is the same as in 1996 and may be used to report no fishing activity for a month under the following permits: swordfish, shark, gulf reef fish and South Atlantic snapper-grouper (Figures 11-17).

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 1997 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) 361-4596. 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 Ed Burgess at (813) 893-3722. Those needing 1993 logbooks can contact Ernie Snell at (305) 361-4462. 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.

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Figure 11. 1996 Pelagic Logbook - Trip Summary Form (The Blue Book)

MAIL THIS COPY TO: NATIONAL MARINE FISHERIES SERVICE

OMB# 0648-0016
Expires 9/30/97

1997 Pelagic Logbook - Trip Summary Form

NMFS Use Only

Vessel Name: _____

Official No.: _____

Date of Departure: _____

Date of First Set: _____

Date of Last Set: _____

Date of Landing: _____

Capt. Signature: _____

Contact Telephone: _____

Port and State of Departure:

_____

Number of sets made: _____

Port and State of Landing:

_____

Dealer(s) Name:

_____

_____

_____

Federal Dealer Permit Number:

_____

_____

_____

Do not write on this section of the form. Please complete the cost and earnings information on the second page of the 3-page set. Although this information is voluntary, it will assist the National Marine Fisheries Service to determine the effect of future regulations on the swordfish and other large pelagic fisheries.

Attach tally sheet and set forms to the Trip Summary form and mail in the pre-addressed envelop to National Marine Fisheries Service. Forms are to be post marked not later than 7th day after off loading (landing) date.

Figure 12. INSTRUCTIONS FOR PELAGIC LOGBOOK TRIP SUMMARY FORMS

DATA PROVIDED ARE
CONFIDENTIAL

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. This booklet includes pelagic logbook summary forms and no-fishing forms.

IMPORTANT INSTRUCTIONS
FOR PELAGIC LOGBOOK TRIP SUMMARY FORMS

A single trip report consists of a completed summary form, individual set forms for each set made during the trip, and tally records for all fish sold.

Please print all information clearly.

Record the following:

Vessel Name, Captain's Signature

Official Number (U.S. Coast Guard documentation or state registration number as recorded on permit application)

Contact telephone (telephone number of person responsible for vessel's records)

vessel's **Port** and **State** of departure

date of departure (calender date on which the trip started)

date of first set (first calendar day that fishing gear was used on this trip)

date of last set (last calendar day that fishing gear was set on this trip)

number of days fished (number of days that fishing gear was used during this trip)

number of sets made (number of time fishing gear was set during this trip)

date of landing (calender date that vessel returned to port)

vessel's **Port** and **State** of landing

Attach tally sheet and set forms. Mail should be postmarked not later than 7th day after off loading of fish

IMPORTANT INSTRUCTIONS
FOR NO-FISHING FORMS

If you did no fishing for which a Swordfish permit was required during an entire month, a No-fishing form must be completed for that month and mailed to the Southeast Fisheries Service. One 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. Please check the space in front of each fishery in which you hold an active permit and in which you did not fish.

Figure 13. 1996 Pelagic Logbook - Voluntary Cost and Earnings Form

MAIL THIS COPY TO: NATIONAL MARINE FISHERIES SERVICE

OMB# 0648-0016
Expires 9/30/97

NMFS Use Only

1997 Pelagic Logbook - Trip Summary Form

Vessel Name: _____

Official No.: _____

Date of Departure: _____

Date of First Set: _____

Date of Last Set: _____

Date of Landing: _____

Capt. Signature: _____

Contact Telephone: _____

Port and State of Departure:

_____

Number of sets made: _____

Port and State of Landing:

_____

Dealer(s) Name:

_____

_____

_____

Federal Dealer Permit Number:

_____

_____

_____

Cost and Earnings Information (Voluntary)

Total Cost of Trip: $_____ Fuel: _____ Gals _____ $/Gal

Owner's Share: $_____ Bait: _____ Lbs _____ $/Lbs

Capt's Share: $_____ Ice: _____ Lbs _____ $/Lbs

Number of Crew: _____ Groceries: _____ Total $

Average Crew Share: _____ $/crew

Light Sticks: _____ Number Used _____ $/light stick

Freight/Handling Expenses: _____ Total cost

Figure 14. INSTRUCTIONS FOR Voluntary Cost and Earnings Form

The cost and earnings form immediately follows the rips summary form and should be used to record information on the costs related to the trip that is reported on the Trip Summary form. The trip summary information on the form is transferred directly to the top portion of the cost and earnings form, and this information is does not need to be recorded twice. Please use a ball point pen to ensure that the information is copied to the cost and earnings form as it is entered on the trip summary form.

To ensure the accuracy of the cost and earnings information, please enter the information on the form as the costs are incurred or the quantities are purchased. As other information becomes available (at trip settlement time, for example) please enter it for the appropriate trip on the cost and earnings form. This information should be submitted as soon as the form has been completed, but mail should be postmarked not later than 45 days after the sale of fish.

The cost and earnings information is voluntary, but it is of great importance to the management process in this fishery to ensure that the objective of increasing net benefits to this fishery as stated in the relevant fishery management plans is met.

Enter the amounts and unit price in U.S. dollars of the following items:

Fuel - gallons purchased for trip and price per gallon
Bait - pounds purchased for trip and price per pound
Ice - pounds purchased for trip and price per pound
Light Sticks - number purchased for trip and price per light stick

Enter the cost in U.S. dollars of the following:

Freight and Handling Expenses - total cost of freight and handling expenses for trip
Groceries - total cost of groceries purchased for trip
Owner's share - total payment made to owner of fishing vessel (if not owner operated) for this trip
Captain's share - total payment made to captain for this fishing trip
Average crew share - total payment made to the entire crew (excluding captain) divided by the number of crew
Total cost of trip - total of all costs incurred for this fishing trip including but not limited to all items listed on this form plus expenditures for gear and vessel maintenance.

Figure 15. PELAGIC LOGBOOK SET FORM (The White Book)

1997 PELAGIC LOGBOOK – Set Form

Official Vessel Number:

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

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

SET DATE: _____/_____/1997		HAULBACK DATE: _____/_____/1997	
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:**	
_____N	_____W	_____.____F	

LONGLINE:		GILLNET:	PAIR TRAWL:
No. of Hooks:_____	Use Line Thrower? __Y __N	Mesh size (in): _____	Fishing Circle Mesh Size(cm):____
No. Hooks between Floats:_____	Were You Tending/Rebaiting	Total Net Length (fm):_____	No. Meshes at Fish Circle: _____
No. of Light Sticks: _____	hooks before haulback?	Fishing Depth Range (fm):	Smallest Mesh Size (cm): _____
Mainline Length (nm):_____	___Y ___N If Yes,	_____ to _____	Cod End Mesh Size (cm): _____
Gangion Length (fm): _____	Number of hooks rebated:___		Official Number of Pair Vessel:
Floatline Length (fm): _____	Bait Used: ___Live ___Dead ___Artificial		_____

SWORDFISH and TUNA:	No. Kept	No. Thrown Back: Alive	No. Thrown Back: Dead	Est. Lbs. Kept
SWORDFISH				
Bonito Tuna				
Bluefin Tuna				
Skipjack Tuna				
Yellowfin Tuna				
Blackfin Tuna				
Albacore Tune				
Bigeye Tuna				
OTHER TUNA				

OTHER SPECIES (Total Number):
White Marlin
Blue Marlin
Sailfish
Spearfish
Escolar
Dolphin (Mahi)
Wahoo
King Mackerel
Greater Amberjack
Banded Rudderfish
OTHER

SHARK (Total Number):	No. Kept	No. Thrown Back: Alive	No. Thrown Back: Dead	Est. Lbs. Kept
PELAGIC SHARK:				
Blue				
Mako, Longfin				
Mako, Shortfin				
Oceanic Whitetip				
Porbeagle				
Thresher, Bigeye				
Thresher, Common				
OTHER				
COASTAL SHARK:				
Bignose				
Blacktip				
Dusky				
Hammerhead, Great				
Hammerhead, Scalloped				
Hammerhead, Smooth				
Night				
Sandbar				
Silky				
Spinner				
Tiger				
White				
OTHER				

SEA TURTLES (Total Number):	Involved	Injured	Dead		Involved	Injured	Dead
Leatherback				Kemp's Ridley			
Loggerhead				Hawksbill			
Green				Unknown			

COMMENTS:

Figure 16. INSTRUCTIONS FOR PELAGIC LOGBOOK SET FORM
Revised (9-96)

DATA PROVIDED ARE CONFIDENTIAL.

IMPORTANT INSTRUCTIONS

Please print all information clearly.

DESTROY OLD FORMS. USE ONLY CURRENT YEAR FORMS.

→→→Please use a separate log sheet for each set.

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 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)

Enter the following data for each set if using Pair Trawl

Pair trawl vessels should fill out a daily form for each set made. Species information should be filled out only by the vessel that hauls back the net.

- Fishing Circle Mesh Size (in centimeters)
- Number of Meshes Around Fishing Circle (do not include gores)
- Smallest Mesh Size (in centimeters)
- Cod End Mesh Size (in centimeters)
- Official number of other vessel in pair

Record Estimated total dressed weight (in pounds) of fish kept.

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.

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 17. NO FISHING FORM.

OMB # 0648-0016 Expires 9/30/97

NO-FISHING REPORTING FORM
SOUTHEAST REGION LOGBOOK PROGRAM

VESSEL NUMBER: _____ VESSEL NAME: _____

During the MONTH of _____, 199____, the above vessel did not fish in the following fisheries (more than one can be checked):

_____ Swordfish/large pelagic

_____ South Atlantic snapper-grouper

_____ Gulf of Mexico reef fish

_____ Shark

Captain/Owner Signature: _____

Telephone No. (__) _____

MAIL THIS COPY TO NATIONAL MARINE FISHERIES SERVICE

OMB # 0648-0016 Expires 9/30/97

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) 1993, (b) 1994 and (c)1995 (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. 1993

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	HOOKS	BOATS
CAR	11004	737	608	4	236	286	713	94	451345	47
GOM	12741	39665	650	151	190	839	825	955	2670010	141
FEC	17093	900	985	16	371	244	379	751	629786	94
SAB	14452	3563	184	48	68	114	443	370	662624	93
MAB	8538	12896	10287	206	5650	784	275	32	1840869	103
NEC	4197	3486	4093	966	1742	645	260	12	921213	70
NED	23641	270	4113	249	471	40	16	1	811551	32
SAR	2309	303	671	22	928	95	24	1	198693	37
NCA	3293	718	284	5	197	73	81	5	211380	30
TUN	163	853	86	0	13	104	151	56	61912	7
TUS	0	0	0	0	0	0	0	0	0	0
TOTAL	97431	63391	21961	1667	9866	3224	3167	2277	8459383	298

1b. 1994

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	HOOKS	BOATS
CAR	16479	1554	894	10	189	202	881	56	629690	42
GOM	12642	31963	316	135	128	545	622	995	2459872	115
FEC	17696	805	1849	43	423	205	333	478	696754	85
SAB	15072	4418	139	133	115	199	429	308	826025	83
MAB	8847	22480	10817	219	4896	831	106	30	2189715	105
NEC	4043	5595	5154	904	2739	235	63	4	768585	59
NED	20967	462	2190	52	930	14	15	0	810118	35
SAR	2289	280	801	78	1070	109	45	3	206554	37
NCA	5367	1309	521	2	653	51	119	23	286300	34
TUN	201	1213	147	1	26	159	316	62	70523	7
TUS	0	0	0	0	0	0	0	0	0	0
TOTAL	103603	70079	22828	1577	11169	2550	2929	1959	8944136	282

1c. 1995

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	HOOKS	BOATS
CAR	13411	1837	1308	0	179	272	681	89	591604	42
GOM	16576	25676	879	116	128	644	552	666	2634073	139
FEC	13328	1017	1355	44	494	120	134	159	636791	67
SAB	10219	7362	125	41	116	191	262	164	852535	77
MAB	7035	34245	8164	1764	5130	834	166	18	2342639	107
NEC	4026	7132	6345	1163	4184	363	63	1	1052033	55
NED	21615	526	3731	22	323	22	16	0	766685	24
SAR	206	40	88	18	142	3	4	1	25480	12
NCA	14987	1599	954	13	3534	338	385	42	854809	38
TUN	1154	3215	351	0	173	378	594	97	224784	15
TUS	8	75	7	0	0	0	21	1	3000	1
TOTAL	102565	82724	23307	3181	14403	3165	2878	1238	9984433	298

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) 1993, (b) 1994 and 1995 (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.)

2a. 1993

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	SETS	BOATS
MAB	13	0	1	0	0	0	0	0	1	1
NEC	180	1	0	0	0	0	0	0	29	1
NED	946	28	13	0	144	1	0	0	119	11
SAR	15	0	0	0	0	0	0	0	4	1
TOTAL	1154	29	14	0	144	1	0	0	153	12

2b. 1994

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	SETS	BOATS
MAB	0	0	1	0	0	0	0	0	1	1
NEC	203	216	0	1	6	0	0	0	57	5
NED	839	76	43	14	143	0	1	0	131	11
TOTAL	1042	292	44	15	149	0	1	0	189	12

2c. 1995

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	SETS	BOATS
NEC	1007	141	61	108	129	4	0	0	149	12
TOTAL	1007	141	61	108	129	4	0	0	149	12

Table 3. TOTAL NUMBER OF SWORDFISH, TUNA, AND BILLFISH CAUGHT BY PAIR TRAWLS, BY AREA, AND EFFORT IN NUMBER OF SETS AND NUMBER OF BOATS, FROM THE SWORDFISH MANDATORY LOGBOOKS, FOR (a) 1993, (b) 1994 and © 1995 (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.)

3a. 1993

AREA	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	SETS	BOATS
MAB	184	631	636	0	3134	3	1	0	239	13
NEC	79	300	320	4	1017	0	0	0	147	11
TOTAL	263	931	956	4	4151	3	1	0	386	13

3b. 1994

AREA	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	SETS	BOATS
SAB	3	8	36	0	66	0	0	0	4	1
MAB	453	1814	1952	5	8140	10	0	0	354	11
NEC	7	6	8	0	63	0	0	0	13	7
TOTAL	463	1828	1996	5	8269	10	0	0	371	11

3c. 1995

AREA	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	SETS	BOATS
MAB	2	0	2	0	6	0	0	0	1	1
NEC	435	1420	3130	0	7274	14	0	0	409	11
TOTAL	437	1420	3132	0	7280	14	0	0	410	11

Table 4. YEARLY TABULATIONS FOR SWORDFISH AND YELLOWFIN TUNA FOR (a) 1993, (b) 1994 AND (c) 1995 (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.

4a. 1993			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	452045	1149	10994	79	12	7	2.530	732	81	6	11	0.168
GOM	3038888	4120	12556	51	34	13	0.762	38725	94	2	3	1.298
FEC	673490	2223	17064	45	38	15	3.04	897	91	1	7	0.113
SAB	844438	1838	14455	53	32	14	2.333	3602	94	1	3	0.445
MAB	1950594	2964	8570	45	31	22	0.491	12884	87	4	7	0.787
NEC	921213	1288	4185	68	17	13	0.503	3478	93	2	4	0.390
NED	810801	1102	23637	86	7	6	2.893	226	89	0	0	0.411
SAR	200443	341	2290	86	7	6	1.181	306	95	0	3	0.155
NCA	213780	335	3298	96	0	3	1.706	733	99	0	0	2.376
TUN	61912	102	163	60	10	28	1.264	853	95	4	0	1.365
TUS	0	0	0					0				
TOTAL	9167604	15462	97212	64	22	12	1.510	62436	92	2	4	0.704

4b. 1994			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	632318	1423	16534	80	11	8	2.703	1558	94	2	3	0.246
GOM	2999968	4041	13922	39	38	22	0.959	33719	96	2	1	2.705
FEC	777558	2393	17675	40	41	17	2.861	815	94	0	5	0.095
SAB	1058246	2157	15507	46	38	14	2.021	4428	92	1	5	0.407
MAB	2425091	3531	8903	47	27	25	0.399	22807	91	3	4	1.047
NEC	792255	1086	4050	46	26	26	0.554	5758	91	1	7	1.057
NED	818797	1065	21174	82	10	7	2.629	1084	73	25	0	0.195
SAR	207054	367	2289	86	5	8	1.148	280	94	2	3	0.132
NCA	290984	440	5409	93	2	3	1.90	1198	96	2	1	0.382
TUN	71123	107	201	70	8	20	0.289	1220	94	4	0	1.698
TUS	0	0	0									
TOTAL	10073394	16610	105664	60	25	14	1.507	72867	94	2	3	1.074

4c. 1995			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	591124	1330	13267	81	10	8	2.305	1832	89	1	8	02936
GOM	3169494	4264	17262	60	25	14	1.138	26757	97	1	0	2.669
FEC	669105	2084	13247	53	30	15	2.353	1016	93	2	3	0.129
SAB	1043701	1939	10180	63	23	13	1.275	7354	97	1	1	1.277
MAB	2507016	3545	6990	50	28	20	0.293	34215	96	2	1	1.426
NEC	1058938	1284	4020	53	24	22	0.398	7124	95	2	1	0.711
NED	775395	986	21548	78	12	8	2.830	769	96	0	3	0.097
SAR	25480	41	206	80	7	11	0.904	40	97	0	2	0.162
NCA	858020	1210	14926	92	4	3	1.931	1625	97	0	1	2.385
TUN	224784	319	1154	69	11	19	0.510	3215	97	1	0	1.465
TUS	3000	5	8	25	25	50	0.263	75	100	0	0	2.531
TOTAL	10926057	17007	102808	70	18	11	1.304	84022	96	1	1	1.408

Table 5. NUMBERS OF PERMITTED VESSELS

YEAR	FISHED	CAUGHT SWORDFISH	CAUGHT SWORDFISH IN 5 MONTHS	HOOKS REPORTED
1987	296	273	180	6,556,416
1988	387	337	210	7,009,508
1989	455	415	250	7,941,675
1990	416	362	209	7,500,450
1991	342	308	175	7,744,997
1992	337	303	183	9,075,451
1993	432	305	175	9,724,645
1994	498	304	176	10,323,542
1995	480	309	194	11,120,474

Table 6. ATLANTIC SWORDFISH RESOURCE STATUS SUMMARY

	North Atlantic	South Atlantic
Maximum Sustainable Yield[1]	13,000(5,300-16,500MT)[3]	14,200 MT (5,200-16,900MT)
Current (1995) Yield	16,934 MT	19,900 MT
Current (1996) Replacement Yield[1]	11,300 MT (7,120-16,710 MT)	14,620 MT (8,400-17,140 MT)
Relative Biomass(B_{1996}/B_{msy})[1]	0.58 (0.41-1.04 MT)	0.99 (0.82-1.18)
Relative Fishing Mortality:		
F_{1995}/F_{MSY}[1]	2.05 (1.07-3.82)[1]	1.24 (0.94-1.93)
F_{1995}/F_{max}[2]	2.4	not estimated[4]
$F_{1995}/F_{0.1}$[2]	3.5	not estimated[4]
Management Measures in Effect	25 kg minimum size; Country-specific quotas	Limit catch to 1993 or 1994 levels

[1] Base case producion model results based on catch data 1950-1995
[2] Base case VPA results based on catch data through 1995
[3] 80% confidence intervals are shown
[4] Production model results do not provide basis for these estimates

Table 7. ATLANTIC AND MEDITERRANEAN ALBACORE RESOURCE STATUS SUMMARY

	North Atlantic	South Atlantic	Mediterranean
Maximum Sustainable Yield	poorly estimated[1]	26,600 (19,700-28,100)	-
Current (1995) Yield	38,825	26,018	unknown
Current (1995) Replacement Yield	poorly estimated[1]	26,500 (18,600-27,900)	-
Relative Biomass			
B_{1995}/B_{MSY}	poorly estimated[1]	0.82 (0.42-1.19)	-
SPR[3]	0.165	-	-
R_{89-93}/R_{75-80}[4]	0.782	-	-
Relative Fishing Mortality:			
F_{1995}/F_{MSY}	poorly estimated[1]	1.19 (0.78-2.86)	-
F_{1995}/F_{max}	0.798	-	
Management Measures in Effect	none	Limit catches to 90% of the average 1989-1993 levels	none

[1] Results of the ASPM were very sensitive for the north. Therefore, estimaaates are not included in the table.
[2] 95% Confidence interval range in parenthesis
[3] Spawning PItential Ratio.
[4] Recrutment level during 1989-1993 compared to 1975-1980

- = not estimated

Table 8. BIGEYE TUNA RESOURCE STATUS SUMMARY

Maximum Sustainable Yield	60,000-70,000 MT*
Current (1995) Yield	105,275 MT
Current (1995) Replacement Yield (Non-equilibrium model)	51,000-74,000 MT
Relative Biomass(B_{1995}/B_{msy}) (Non-equilibrium model)	0.7 - 1.2
Relative Fishing Mortality:F_{1995}/F_{MSY} (Non-equilibrium model)	1.2 - 2.9
Management Measures in Effect	3.2 kg minimum size

* Since MSY could not be precisely estimated by the production model, a most likely range of MSY is given instead of the actual estimates by the model.

Table 9. YELLOWFIN TUNA RESOURCE STATUS SUMMARY

	Results of the 1994 Assessment	Results of the 1996 Assessment
Maximum Sustainable Yield		
Equilibrium model	153.7[1]	150.0[2]
Non-equlibrium model	149.0 (123.0-164.0)[3]	not estimated
Current (1995) Yield		123.5
Current (1994) Replacement Yield	(123.0-164.0)[4]	not available
Relative Biomass(B_{1994}/B_{msy})	1.05 (0.81-1.30)	not estimated
Relative Fishing Mortality (F_{1994}/F_{MSY})	0.92 (0.67-1.34)	not estimated
Management Measures in Effect	3.2 kg minimum size Effective effort not to exceed 1992 level	3.2 kg minimum size Effective effort not to exceed 1992 level

1. Equilibrium model assuming shape parameter for production function (m=1) calculated at 1994 SCRS using data from 1969-93.
2. Equilibrium model assuming shape parameter (m=1) calculated at 1996 SCRS using data from 1969-95.
3. Non-equilibrium production model fit to data 1969-93 at the 1994 SCRS. Assumes production function shape parameter m=2.80% confidence bounds.
4. Replacement yield in 1994 estimated within the 80% confidence interval estimated MSY from the non-equilibrium production model since B_{1994}/B_{msy} was estimated at 1.05.

Table 10. MONTHLY SWORDFISH LANDINGS IN LBS DRESSED WEIGHT FROM 1990 TO 1994.

	MONTH						
YEAR	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	
	MONTH						
	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

Table 11. PERCENTAGE OF ANNUAL U.S. SWORDFISH LANDED CATCH < 41 LBS BY AREAS (TOTAL ANNUAL CATCH OF SWORDFISH IN AREA/ TOTAL ANNUAL CATCH OF SWORDFISH IN ALL AREAS).

	AREA							
YEAR	CAR	GOM	FEC	SAB	MAB	NEC	NED	SUM
1989	13	18	24	5	8	9	23	100
1990	15	12	30	5	14	11	14	101
1991	16	21	23	4	9	7	21	101
1992	15	18	20	5	9	8	25	100
1993	18	14	15	9	7	7	30	100
1994	28	9	14	10	9	4	25	99
1995	26	25	10	9	3	4	22	99

Table 12. 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).

	AREA							
YEAR	CAR	GOM	FEC	SAB	MAB	NEC	NED	SUM
1989	5	9	13	3	5	3	7	45
1990	3	7	15	3	7	3	3	41
1991	2	10	9	2	2	1	2	28
1992	1	5	4	1	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

Table 13. PERCENTAGE OF SWORDFISH LANDED CATCH < 41 LBS WITHIN AREAS (ANNUAL CATCH OF SWORDFISH < 41 LBS IN AREA / ANNUAL CATCH OF SWORDFISH IN AREA).

	AREA						
YEAR	CAR	GOM	FEC	SAB	MAB	NEC	NED
1989	36	53	55	66	61	33	32
1990	23	60	52	60	50	24	22
1991	15	51	39	53	22	10	8
1992	9	26	21	24	10	11	10
1993	9	20	15	16	14	8	11
1994	13	21	15	15	13	11	9
1995	11	23	15	17	12	16	15