

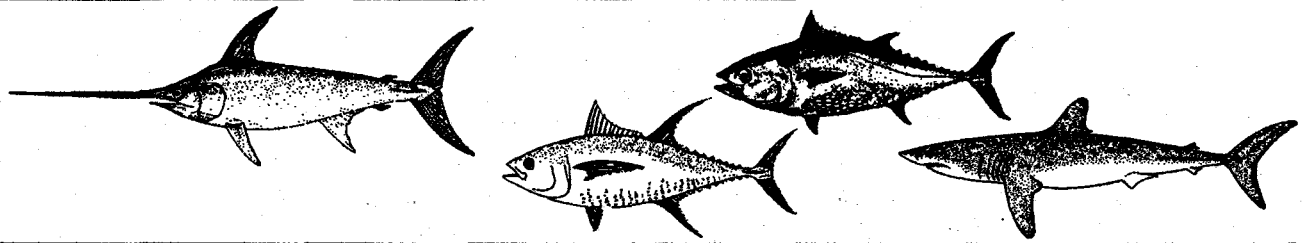


NOAA Technical Memorandum
NMFS-SEFSC-352

LARGE PELAGIC LOGBOOK NEWSLETTER - 1993

by

Jean Cramer



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National Marine Fisheries Service
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This is the fourth 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 the 1994 daily logbook forms, this year's newsletter includes sections pertaining to swordfish stock status, mandatory dealer reporting, the longline observer program, preliminary monthly landings for 1993, and other related studies.

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

COMPARISON OF 1991 - 1993 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 1991, 1992 and 1993 (preliminary) are given for longline (Tables 1-3), gillnet (Tables 4-6) and pairtrawl boats (Tables 7-9). 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 (CAR), area 2 - Gulf of Mexico (GOM), area 3 - Florida East Coast (FEC), area 4 - South Atlantic Bight (SAB), area 5 - Mid Atlantic Bight (MAB), area 6 - Northeast Coastal (NEC), area 7 - Northeast Distant (NED), area 8 - North Equatorial (NOREQ), and area 9 - OTHER.

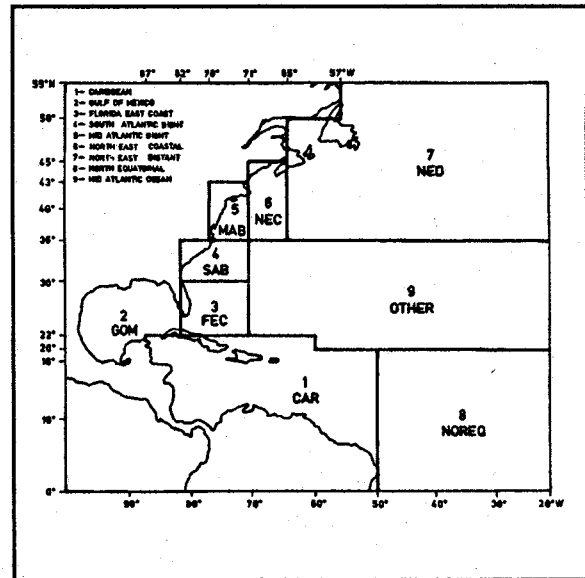


Figure 1. Map designating the nine areas used in analysis of the swordfish logbook data.

Between 1991 and 1992 reported longline effort decreased (13% to 17%) in the FEC, SAB, and NEC, while effort increased slightly (13% to 15%) in the CAR, GOM, MAB, and NED. Larger (29% to 44%) increases were reported in the NOREQ and OTHER (Tables 1-3).

Preliminary reported longline effort for 1993 was lower than reported for 1992. Since the 1993 data is preliminary reported effort for 1993 is likely to increase. The total number of longline boats was the same in 1991 and 1992 but increased in 1993. This increase may be due at least in part to mislabeling of gear type since 1993 has not been thoroughly edited.

The reported yellowfin tuna catch for the three-year period was approximately 72,000, 82,000 and 39,000 fish, respectively. This represents a 14% increase in numbers of reported yellowfin catch from 1991 to 1992.

In the GOM, the reported catch of yellowfin in numbers decreased annually from 1987 through 1990; this trend has reversed from 1990 to 1992. In the MAB, the reported yellowfin catch in numbers decreased annually from 1991 through 1993.

In 1991 there were approximately 110,000 swordfish tabulated from single set longline records

(caught = kept + discarded). There were approximately 91,000 swordfish in 1992; and 58,000 swordfish in 1993 (preliminary). The corresponding reported fishing effort for the three years was roughly 7.1, 7.4, and 5.3 million hooks, respectively (Tables 1-3). The 1993 reported catch and effort is likely to increase as additional data are incorporated into the data base. Reported swordfish catch decreased 22% from 1991 to 1992 with an increase in the number of reported hooks fished of 3%.

This decrease in reported annual swordfish catch by longline boats over the period 1991-1992, is found in all areas except NED and NOREQ.

The number of swordfish and yellowfin tuna reported caught by gillnet boats decreased from 1991 (1697 swordfish and 599 yellowfin) to 1992 (1211 swordfish and 140 yellowfin) to 1993 (1055 swordfish and 130 yellowfin) (Tables 4-6).

1991 was the first year during which pairtrawl gear was reported to the pelagic logbook reporting system. Use of pairtrawls for Atlantic large pelagic fishes expanded from 6 boats (3 pair) in 1991 to 11 boats (4 pair and one trio) in 1992 and 12 boats in 1993 (Tables 7-9). Table 8 contains information from only eight of the eleven 1992 boats since three of the boats did not submit set records in 1992. Reported pairtrawl effort occurred in areas 5 and 6 only. Reported catches by pairtrawl vessels of swordfish and yellowfin tuna decreased from 1991 (545 swordfish and 1962 yellowfin) to 1992 (321 swordfish and 1275 yellowfin) and to 1993 (208 swordfish and 890 yellowfin). Reported catches of bigeye tuna and albacore increased from 1991 (124 bigeye and 869 albacore) to 1992 (838 bigeye and 6,327 albacore) and remained above 1991 levels in 1993 (986 bigeye and 4,085 albacore).

REPORTED FISHING LOCATIONS IN 1991, 1992, AND 1993

The location of reported fishing effort by year for 1991-1993 is shown in Figures 2-4. The general pattern for reported sets is similar across the three years.

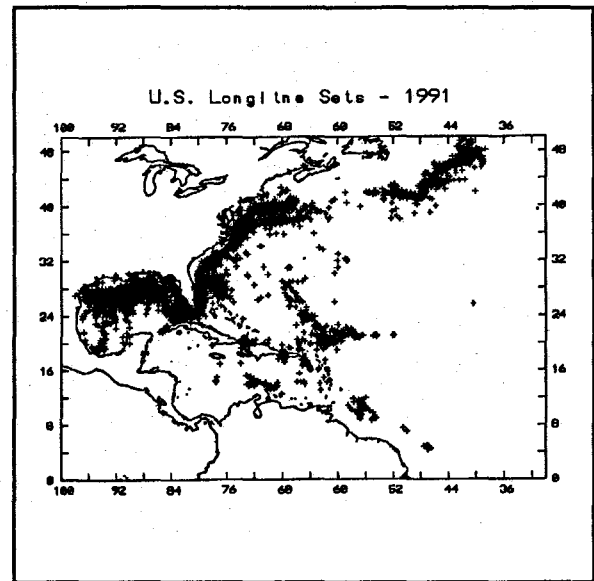


Figure 2. Map showing the location of reported fishing effort in 1991.

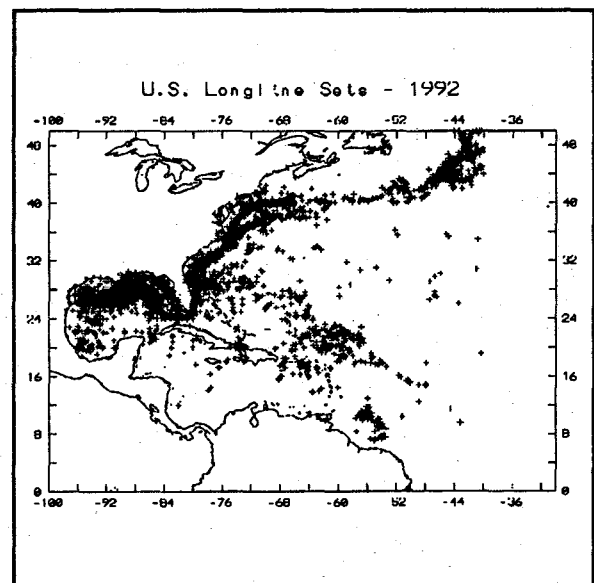


Figure 3. Map showing the location of reported fishing effort in 1992.

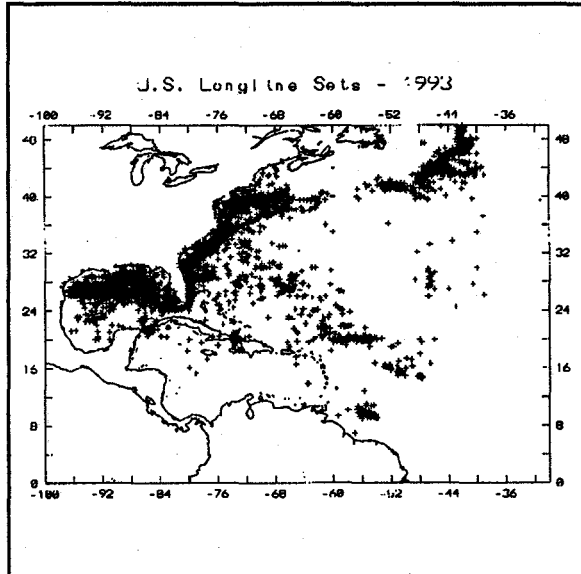


Figure 4. Map showing the location of reported fishing effort in 1993.

CPUE DATA

Table 14(a-c) represents 1991, 1992, and 1993 (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+Discarded; effort in HOOKS; the Number of sets; and the average of the individual catch rates, AV(C/E) (equivalent to average catch of fish in numbers per 100 hooks). In 1992 and 1993 the percentage of fish discarded are reported in two categories: DISCcarded dead and DISCcarded alive. This summary includes all gears that reported fishing with hooks that were not thought to be summary records (records reporting catch from more than one set).

The totals reported in tables 1 through 3 are different from the totals in tables 14a through 14c because different criteria were used in selecting the records to be used. Tables 1 through 3 represent data from longline boats only including summary reports filed by longline boats. Tables 14a through 14c represent all records that reported hooks except summary records. Gears represented include but are not limited to longline, bottom longline boats rod and reel boats.

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.

These analyses are carried out for the purpose of stock assessments, and are reported elsewhere. Thus the data summarized here are considered to represent nominal CPUE.

The highest average reported nominal CPUEs for swordfish, on an annual basis, were from the CAR FEC, SAB and the NED. The reported catch rates in 1991 for the CAR FEC, SAB and the NED were, respectively, approximately 2.8 fish/100 hooks, 3.1 fish/100 hooks, 3.5 fish/100 hooks and 3.7 fish/100 hooks (Table 14a); in 1992 approximately 2.2 fish/100 hooks, 2.5 fish/100 hooks, 2.5 fish/100 hooks and 3.2 fish/100 hooks (Table 14b); and in 1993 (preliminary) approximately 2.5 fish/100 hooks, 2.6 fish/100 hooks, 2.1 fish/100 hooks and 2.7 fish/100 hooks (Table 14c).

Average reported CPUEs for yellowfin, on an annual basis, were consistently high from the GOM fishery. The reported catch rates in the GOM in 1991 were approximately 1.2 fish/100 hooks; in 1992 approximately 3.6 fish/100 hooks (Table 14b); and in 1993 approximately 3.4 fish/100 hooks (Table 14c). The highest CPUE reported for 1992 was 3.7 fish/100 hooks in OTHER. However, this trend did not continue. The CPUE in OTHER in 1993 was 0.9 fish/100 hooks. Average numbers of swordfish, yellowfin, bigeye, and albacore caught/100 hooks in all areas combined from January 1990 to December 1992 are presented in Figures 9a - 9d.

NUMBERS OF PERMITTED VESSELS

A compilation of activity related to the vessels permitted during the period 1987 through 1993 is presented below. "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. Exclusions of logbook records were made when records were duplicate etc..., and the "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. For this reason, these numbers are somewhat higher than the numbers in Tables 1- 3.

NUMBERS OF PERMITTED VESSELS WHICH

<u>YEAR</u>	<u>FISHED</u>	<u>CAUGHT SWORDFISH</u>	<u>CAUGHT SWORDFISH IN 5 MONTHS</u>	<u>HOOKS REPORTED</u>
1987	290	273	173	6,540,874
1988	390	339	197	7,015,808
1989	457	416	227	7,941,675
1990	419	363	195	7,500,450
1991	342	309	164	7,735,397
1992	339	303	182	9,040,117
1993	418	298	147	7,552,407

SWORDFISH STOCK STATUS

Fishing mortality rates of swordfish were excessive in recent years, prompting the development of international agreements to substantially reduce catches beginning in 1991. Recent harvests since July 1991 are consistent with ICCAT recommendations designed to reduce the risk of further declines. The ICCAT swordfish assessment scheduled for the fall of 1994 will provide information on how effective reduced landings have been in lowering fishing mortality rates.

***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 clarifications can be directed to Ernie Snell at the Southeast Fisheries Science Center, telephone number (305) 361-4463.

During 1993, active permits for the large pelagic fishery were issued to 922 vessels. The National Marine Fisheries Service intends to intensify their efforts to assure that 100% of the active permit holders comply with these reporting compliance.

Dealer Reporting. Permitted dealers are required to provide reports twice a month to the Center 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 who 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:

Science and Research Director
Northeast Fisheries Center
National Marine Fisheries Service
166 Water Street
Woods Hole, MA 02543-1097

Attention: Dr. Fred Serchuk

During calendar year 1993, Federal permits were issued to 157 dealers. Of this total, 78 dealers had their primary location in the Northeast Region and the remaining 79 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

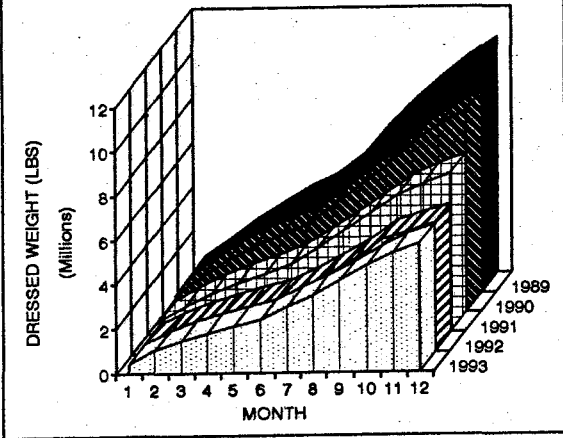
The Southeast Fisheries Science Center (SEFSC), Miami Laboratory, is responsible for compiling the landings of swordfish from mandatory reporting data. The total reported swordfish landings for 1991 by all gear types was 7.0 million pounds, dressed weight. The 1991 landings were 2.2% over the 1991 TAC. A total of 3 million pounds was reported landed from January 1 - June 30, 1991, and 4 million pounds for the period July 1 - December 31, 1991. For 1992 and 1993 reported landings of swordfish were about 5.8 million pounds, dressed weight. Total (preliminary) 1993 landings were 23% below the 1993 TAC of 7.5 million pounds. 42% of the 1993 preliminary total was reported landed from January 1 - June 30, 1993. The monthly reported landings for 1990 -1993 (preliminary as reported by March 1994) may be found in Table 10.

Monthly cumulative annual landings of swordfish are compared in Figure 5 for years 1989-1993 (preliminary as reported by March 1994). Yearly U.S. swordfish landings declined from 1989 to 1992. 1993 landings were similar the 1992 landings. At least part of the decline since 1990 resulted from imposition of the 41 pound minimum size regulation.

SWORDFISH < 41 LBS DRESSED WEIGHT - PERCENT LANDED

The percentage of fish landed less than dressed 41 lbs dressed weight has decreased since 1989 (Figure 6). From 1989 to 1991 the highest number of fish landed were in the 21-41 lb category. In 1991 and 1992 this peak shifted to the 41-60 lb category.

FIG. 5. SWORDFISH LANDINGS
U.S. - ALL AREAS

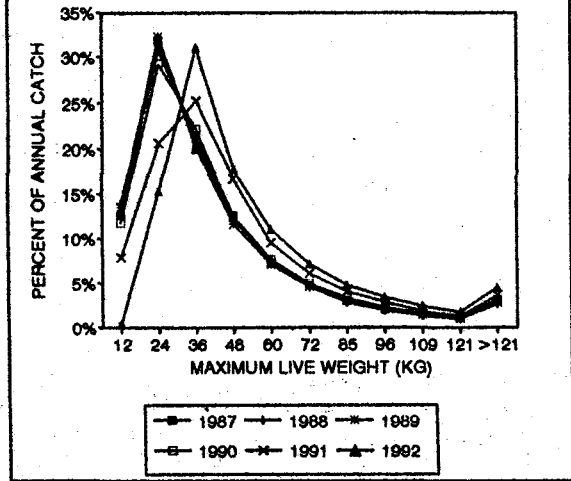


SWORDFISH LANDED IN THE U.S.

YEAR DRESSED WT (LBS)

1989	10,582,930
1990	9,107,135
1991	7,142,139
1992	5,794,843
1993	5,737,209

FIG. 6. US CATCH AT SIZE



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

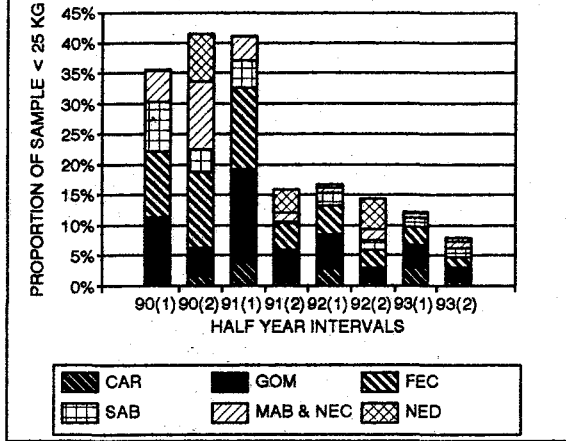
The percentage of annual landed catch of fish less than 41 lbs dressed weight is reported by month and area for 1990, 1991, and 1992 (Figures 7a-7c).

The cumulative percent of fish landed less than 41 lbs dressed weight from all areas and all months fell from 41% in 1990 to 28% in 1991 and to 16% in 1992. The within area percentage landed catch of fish less than 41 lbs decreased in all areas between 1991 and 1992 (Table 13). The percentage of undersized fish landed was above 15% in the SAB, however this area represents a small proportion of the annual U.S. landed catch. The highest numbers of undersize fish landed were from in the GOM and FEC (Figure 7a-7c & Tables 11, 12 & 13).

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, consistently decreased from the second half of 1990 through 1993 (Figure 8).

FIG. 8. SIZE FREQUENCY
FROM U.S. LONGLINE VESSELS



BYCATCH ESTIMATION

Comparison of scientific observer data with the daily reported catch and effort data indicated that the daily reports may under represent the actual number of fish that were discarded dead. In the 1992 logbooks, approximately 19,000 swordfish were reportedly thrown back dead. The observer sampling

FIG. 7a. PERCENT LANDED CATCH < 25 KG
IN 1990 (U.S)

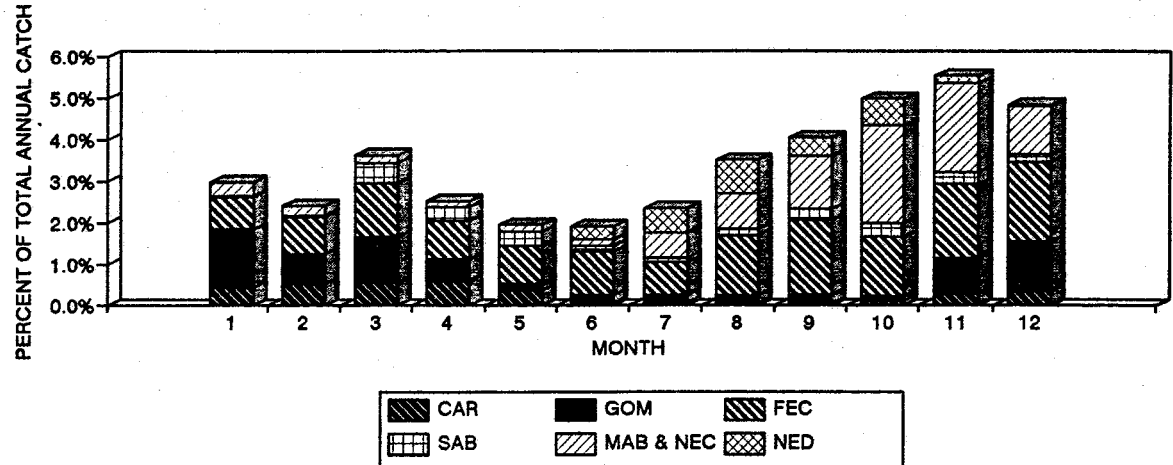


FIG. 7b. PERCENT LANDED CATCH < 25 KG
IN 1991 (U.S)

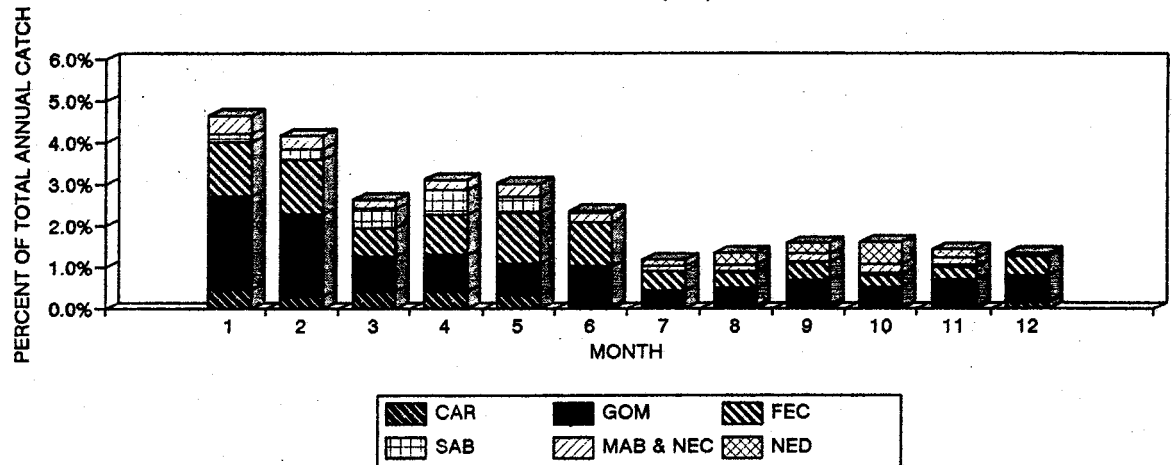
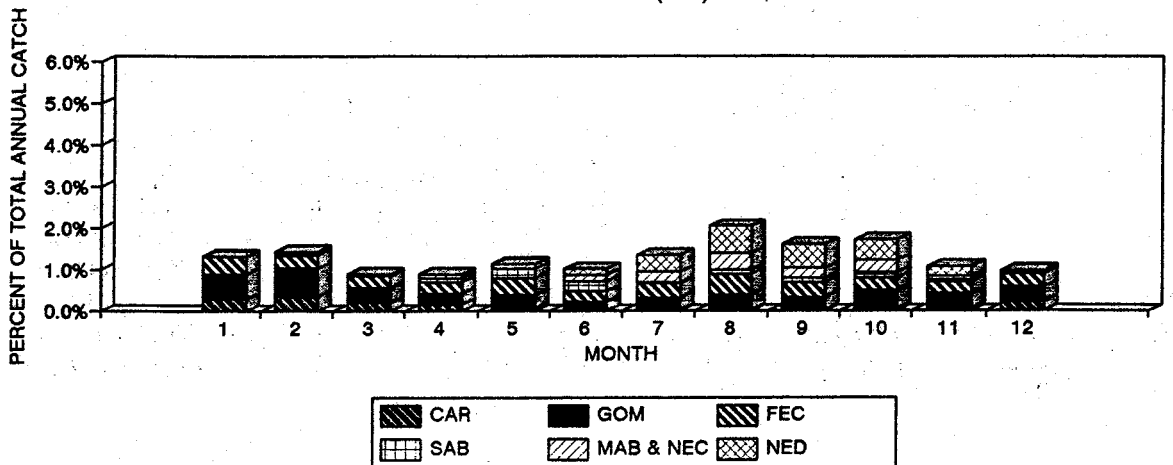


FIG 7c. PERCENT LANDED CATCH < 25 KG
IN 1992 (U.S)



data supports estimates of from 37,000 to 42,000 fish discarded dead in 1992, representing an estimated 1.3 to 1.5 million lbs of swordfish which are not included in the U.S. landings estimates. This difference is probably due to fishermen maintaining less accurate records than observers of fish not kept. The reported number of swordfish caught, but released alive by U.S. fishermen was about 12,700 for 1992. Comparison of scientific observer data with the daily reported catch and effort data indicated that the daily reports may over represent the actual number of fish that were thrown back alive by the U.S. fleet. The observer sampling data supports estimates of from 7,900 to 9,750 fish caught, but thrown back alive in 1992. These estimates, combined with the estimate of swordfish <41 lbs landed by U. S. vessels in 1992 (about 12,000 fish) is at the lower end of the range of U.S. annual landings of swordfish <41 lbs during 1986-1990 (50,000 - 80,000 fish), before the ICCAT minimum size was put into effect.

NEW ANALYSES BASED ON SWORDFISH LOGBOOK DATA

Swordfish Reproduction

Research on the reproductive biology of the Atlantic swordfish which was initiated by the NMFS Miami Laboratory in 1990 is continuing to be investigated. Because most of the previous studies were limited to portions of the stock represented by small sample sizes and confined to isolated geographical areas of the Northwest Atlantic, this study has been more comprehensive. From April, 1990 to March, 1993, a total of 6,137 swordfish were sampled aboard commercial fishing vessels in the Northwest Atlantic Ocean between 5° N and 55° N. The method of collection of the reproductive material was provided through observer programs active in the Atlantic and cooperative captains and crews of commercial fishing vessels. Sex ratio at size was estimated from 4,038 female (65-290 cm LJFL) and 2,099 male (65-278 cm LJFL) specimen. A total of 2,398 paired ovaries from female swordfish were used for the assessment of sexual maturity.

Recent reports on the swordfish reproduction biology have been provided to the International Commission for the Conservation of Atlantic Tunas

(Arocha and Lee, 1993; and Arocha, F., D. W. Lee, and J. R. Grubich, In press) and are available upon request. These reports provide information on seasonal sex ratio and sex ratio at size for three areas in the Northwest Atlantic, in addition to stages of maturity and batch fecundity estimates (production of ova). Potential spawning areas in the subtropical waters of the Yucatan Channel, the Windward Pass, offshore of Puerto Rico, and the Florida Straits are proposed.

STOCK AND SPECIES IDENTIFICATION

Researchers from the Cooperative Institute for Fisheries Molecular Biology (FISHTEC) and the NMFS SEFSC Charleston and Miami Laboratories are involved in identifying informative genetic markers in a number of marine animals. Stock and species level identification of commercially important tunas are among the issues being investigated. These identifications will be achieved with the aid of nuclear and mitochondrial DNA markers, currently being isolated. Those markers which are found to be informative at the stock structure level will be used to test the "two stock working hypothesis" put forth in 1981, for eastern and western stocks of Atlantic bluefin tuna, *Thunnus thynnus*.

Researchers are also interested in identifying DNA markers that will discriminate between the major tuna species, yellowfin (*T. albacares*), blackfin (*T. atlanticus*), bigeye (*T. obesus*), albacore (*T. alalunga*) and bluefin (*T. thynnus*). Enforcement of catch quotas and embargo policies have been problematic because all the species are similar in appearance and the features used to identify the species are removed once the fish has been landed and gutted. Biochemical studies have revealed close genetic relationships among the tunas, but cannot unequivocally differentiate the species. DNA species level markers have the potential to discriminate these species and will provide definitive identification for forensic applications supporting enforcement of fishery regulations. Thus far, several regions of the mitochondrial DNA have been tested for their ability to discriminate among species by a procedure which first amplifies target regions of the DNA with PCR (polymerase chain reaction) followed by RFLP (restriction fragment length polymorphism) analyses. Of the regions tested, one region appears particularly

Figure 9a. Swordfish catch rates
1990-1992

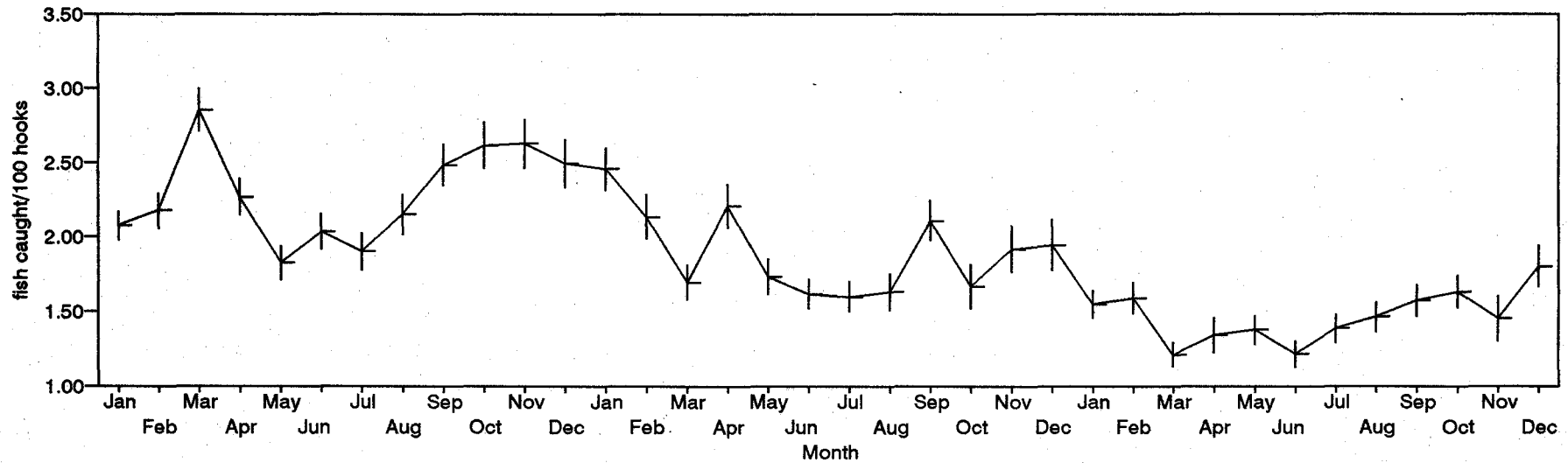


Figure 9b. Yellowfin Tuna Catch Rates
1990-1992

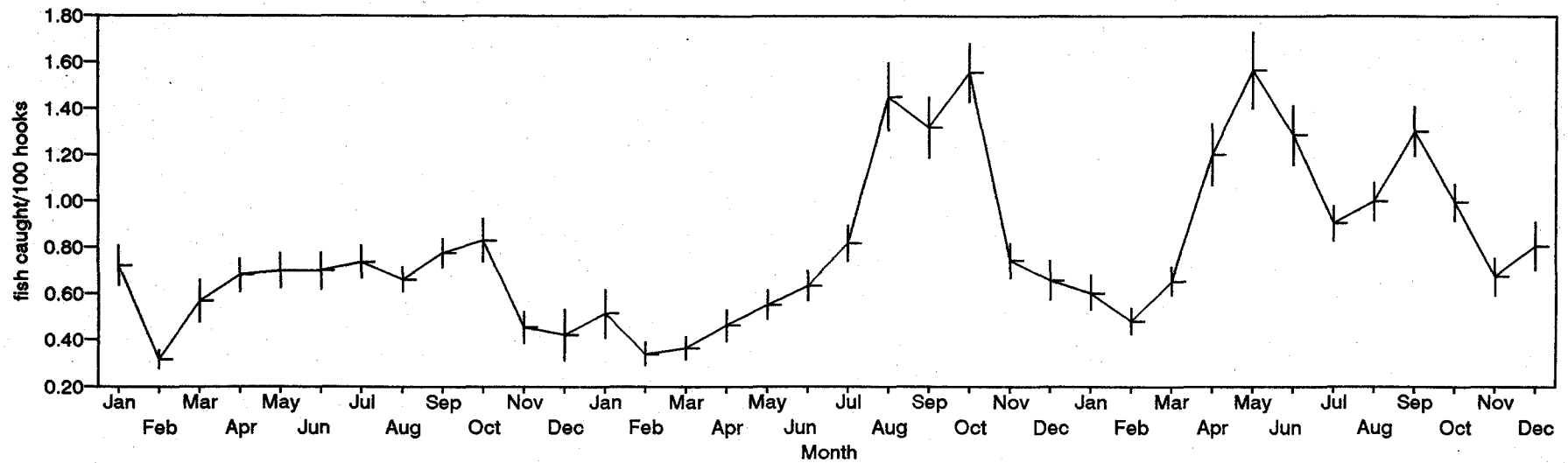


Figure 9c. Bigeye Tuna Catch Rates
1990-1992

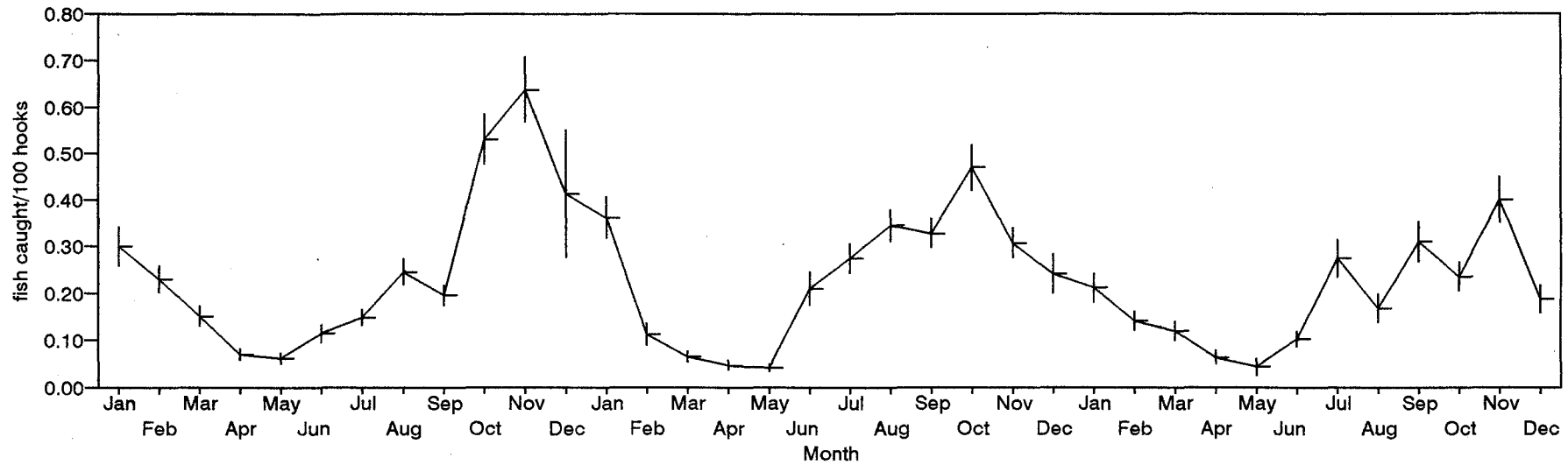
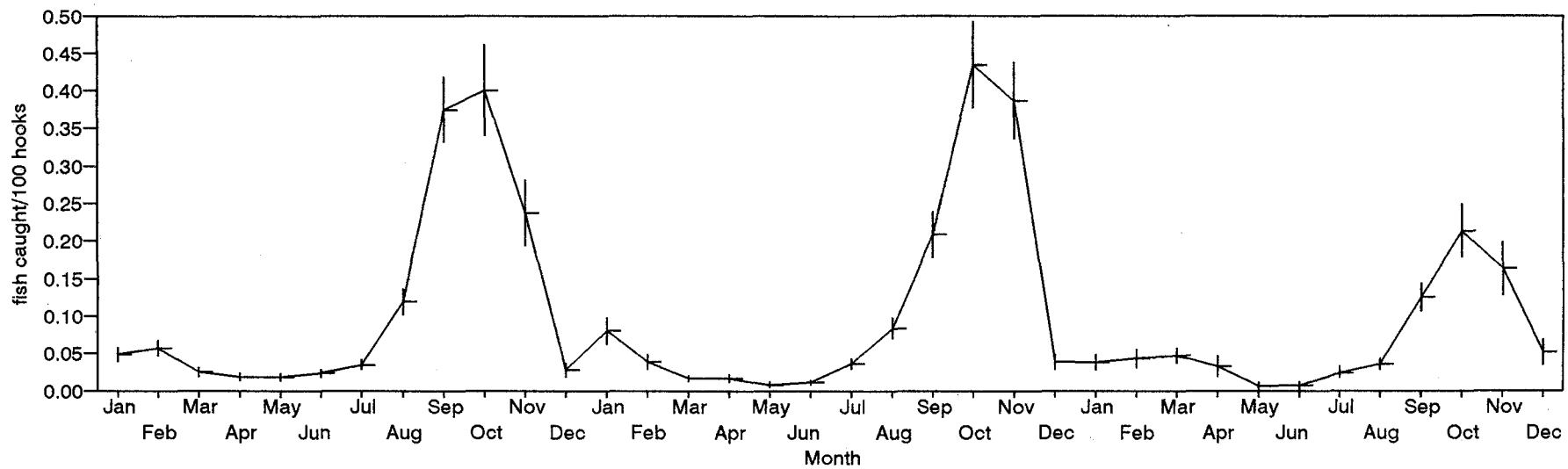


Figure 9d. Albacore Catch Rates
1990-1992



useful for tuna species identification. The power of PCR-RFLP analysis lies in the fact that only small amounts of tissue are required to achieve results, in contrast to other types of genetic analyses which require larger tissue samples. This technique is therefore ideal for the identification of forensic samples and can be extended to the identification of egg, larval and juvenile stages where exact species identification is traditionally more difficult.

PELAGIC LONGLINE 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). The Pelagic Longline Observer Program (PLOP) coverage generally occurs on, but is not limited, to vessels fishing in the Atlantic south of Virginia. The scientific observer program contracted and monitored by the NEFSC provides coverage of the large pelagic fleet fishing the waters of the Mid-Atlantic Bight to the Grand Banks.

Operating in association with the PLOP, the Russell Research Association (RRA) observer program funded through a NMFS Marine Fisheries Initiative grant (MARFIN) has been vital in helping to describe the longline fishery in the Gulf of Mexico. RRA observers, who received training at the SEFSC Miami facility and collect similar data, have made a major contribution in the collection of data from the Gulf of Mexico. Observers from RRA concentrate primarily on the Louisiana Mississippi River Delta ports because of their familiarity with vessel operations within that area. In addition to the RRA, four field observers, hired through independent contracts and trained at the SEFSC Miami facility, are also available on an individual trip by trip basis.

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. 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.

Longline catch data collected between May of 1992 and December of 1993 by the PLOP has been summarized in a recently published newsletter (NOAA Technical Memorandum, NMFS-SEFSC-347) and is available upon request. The program will continue its coverage during 1994 and 1995.

REVISIONS TO THE LOGBOOK FORMS FOR 1994

In the interest of improving our logbook data collection, several changes have been made to the daily logbook forms and accompanying instructions for 1994, both included in this newsletter as Figures 8 and 9. These changes include:

- (1) oilfish has been changed to escolar;
- (2) additional species of sandbar shark and other species have been added; and
- (5) permit number was removed.

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 1994 forms.

WHOM TO CONTACT FOR WHAT

Any questions concerning Atlantic large pelagic resources swordfish projects at NMFS, Southeast Fisheries Science Center, 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 Herb Prytherch at (305) 361-4469. 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, NMFS, SEFSC, 75 Virginia Beach Drive, Miami, FL 33149.

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1994 PELAGIC LOGBOOK -- Daily Form				
Captain's Signature: _____				
Vessel Name: _____		Official Number: _____		No fishing was done for entire month of: _____, 1994
TARGET: <input type="checkbox"/> Swordfish <input type="checkbox"/> Yellowfin <input type="checkbox"/> Bigeye <input type="checkbox"/> Mixed Tuna <input type="checkbox"/> Sharks <input type="checkbox"/> Other (list) _____				
GEAR: <input type="checkbox"/> Pelagic Longline <input type="checkbox"/> Bottom Longline <input type="checkbox"/> Handline <input type="checkbox"/> Harpoon <input type="checkbox"/> Gillnet <input type="checkbox"/> Rod & Reel <input type="checkbox"/> Pair Trawl <input type="checkbox"/> Other (list) _____				
SET DATE: _____/_____/1994		HAULBACK DATE: _____/_____/1994		
Begin Set: _____ : _____ am pm	End Set: _____ : _____ am pm	Begin Haulback: _____ : _____ am pm	End Haulback: _____ : _____ am pm	
Latitude at beginning: _____ N	Longitude at beginning: _____ W	OFF-LOADING DATE: _____/_____/1994		
Surface Water Temp: _____ F	First Set of Trip? <input type="checkbox"/> Yes <input type="checkbox"/> No	Port/State: _____		
		Dealer Permit #'s: _____		
Check Here If Tally Sheet Is Attached: _____				
LONGLINE:		GILLNET:	PAIR TRAWL:	
No of Hooks: _____	Use Line Thrower? <input type="checkbox"/> Y <input type="checkbox"/> N	Mesh size (in): _____	Fishing Circle Mesh Size(in): _____	
No Hooks between Floats: _____	Were You Tending/Rebaiting hooks before haulback? <input type="checkbox"/> Y <input type="checkbox"/> N	Net Length (ft): _____	Ending Mesh Size(in): _____	
No of Light Sticks: _____		Depth of Net (ft): _____	Cod End Mesh Size(in): _____	
Mainline Length (nm): _____		Net Material: _____	Number of meshes at Fishing Circle (ft): _____	
Gangion Length (ft): _____	If Yes, how many times? _____	Number of Nets: _____		
Floatline Length (ft): _____	Bait Used: <input type="checkbox"/> Live <input type="checkbox"/> Dead	Depth Fished Below Surface (ft): _____		
SWORDFISH AND TUNAS (Total Number):			SHARKS (Total Number):	
	Kept	Thrown Back:		
		Alive	Dead	
SWORDFISH				PELAGIC SHARK:
Bigeye Tuna				Blue
Bluefin Tuna				Mako, Longfin
Yellowfin Tuna				Mako, Shortfin
Albacore Tuna				Oceanic Whitetip
Blackfin Tuna				Porbeagle
Skipjack Tuna				Thresher, Bigeye
Bonito Tuna				Thresher, Common
OTHER TUNA				COASTAL SHARK:
BILLFISH (Total Number):			Bignose	
White Marlin				Blacktip
Blue Marlin				Dusky
Sailfish				Hammerhead, Great
Spearfish				Hammerhead, Scalloped
OTHER SPECIES (Total Number):			Hammerhead, Smooth	
Escolar				Night
Dolphin (Mahi)				Sandbar
Wahoo				Silky
King Mackerel				Spinner
Greater Amberjack				Tiger
Banded Rudderfish				White
OTHER				OTHER
SEA TURTLES (Total Number):				
	Involved	Injured	Killed	
				Involved
				Injured
				Killed
Leatherback				Kemp's Ridley
Loggerhead				Hawksbill
Green				Unknown

COMMENTS:

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 Vessel Name, Official Number, Captain's Signature.

NOTE: If the vessel did not fish during a calendar month (for example: January 1-31), please mail original form with above information and state on the form __ month __ year. Mail to NMFS on the last day of month.

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.

Specify if this set was First set of trip.

For Last Set of Trip record: Off-loading date, Port, Dealer(s) Swordfish Permit No(s), and check if Tally Sheet is attached.

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 feet)
- Length of Floatline (in feet)
- Did you use a line thrower?
- Were you tending or rebaiting hooks before haulback? If yes, specify how many times you did rebait hooks before haulback.
- Bait: indicate Live or Dead

Enter the following data for each set if using Gillnet:

- Mesh Size (in inches)
- Length of net (in feet)
- Depth of net (in feet)
- Net material
- Number of nets
- Depth fished below surface (in feet)

Enter the following data for each set if using Pair Trawl

- Fishing Circle Mesh Size (in inches)
- Ending Mesh Size (in inches)
- Cod End Mesh Size (in inches)
- Number of Meshes Around Fishing Circle (do not include gores)

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 Killed. Write down the number of each sea turtle species that were killed while in, or by, your fishing gear.

Mail original logs to NMFS at the end of the fishing trip in pre-addressed envelopes.

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 1991. NUMBERS CAUGHT REPRESENT KEPT PLUS DISCARDED. 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.)

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	Hooks	Boats
1-CAR	12,277	999	567	13	198	179	365	64	473,611	38
2-GOM	15,005	31,279	606	527	145	751	548	485	2,326,948	149
3-FEC	25,198	1,076	1,867	28	360	313	736	906	843,097	79
4-SAB	13,067	1,779	123	8	112	137	184	124	436,103	68
5-MAB	8,413	22,901	7,539	514	6,356	426	110	12	1,228,967	80
6-NEC	7,901	13,390	4,967	755	2,504	389	113	1	1,003,353	69
7-NED	26,325	380	3,621	273	167	22	3	0	738,719	34
8-NOREQ	38	38	21	0	1	9	27	3	4,422	2
9-OTHER	2,214	82	156	6	124	81	31	5	121,456	15
TOTALS	110,438	71,924	19,467	2,124	9,969	2,307	2,117	1,591	7,177,376	265

Table 2. 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 1992. 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.)

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	Hooks	Boats
1-CAR	10,291	2,122	760	23	284	595	880	317	525,596	50
2-GOM	11,649	48,548	434	703	311	794	846	546	2,567,168	138
3-FEC	17,063	1,081	2,295	41	239	202	426	539	730,998	95
4-SAB	10,709	2,172	198	4	106	143	252	142	363,084	69
5-MAB	7,168	19,377	4,608	439	3501	496	151	27	1,397,696	92
6-NEC	5,285	7,581	2,146	416	1309	405	158	4	839,013	67
7-NED	26,508	736	3,683	94	509	221	21	2	839,629	38
8-NOREQ	104	117	52	1	4	4	12	0	6,357	3
9-OTHER	1,195	389	440	18	353	105	30	8	152,453	35
TOTALS	90,692	82,132	14,616	1,739	6,616	2,965	2,776	1,585	7,421,994	265

Table 3. 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 1993 (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.)

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	Hooks	Boats
1-CAR	9,948	921	450	4	282	334	715	130	473,251	54
2-GOM	7,811	26,702	384	268	142	646	676	704	1,814,975	130
3-FEC	11,316	602	867	14	295	204	310	643	451,239	96
4-SAB	9,686	2,760	130	44	66	96	334	292	510,705	91
5-MAB	2,764	4,655	4,132	130	2,160	379	115	12	864,244	84
6-NEC	2,709	2,157	2,788	651	1,212	457	124	11	609,170	60
7-NED	12,155	406	1,611	134	192	41	21	1	428,388	38
8-NOREQ	281	24	106	1	40	12	22	0	21,500	6
9-OTHER	1,338	624	335	20	487	70	24	1	146,372	43
TOTALS	58,008	38,869	10,803	1,266	4,876	2,239	2,341	1,794	5,319,844	281

Table 4. 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 1991. NUMBERS CAUGHT REPRESENT KEPT PLUS DISCARDED. 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.)

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	SETS	BOATS
3-FEC	8	4	2		2				2	2
4-SAB	6	1	1						1	1
5-MAB	429	6	5	6	46				56	5
6-NEC	1254	588	23	2	149		2		143	17
TOTALS	1697	599	31	8	197	0	2	0	206	23

Table 5. 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 1992 (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.)

Area	SWD	YFT	BET	BFT	ALB	WHM	BUM	SAI	SETS	BOATS
5-MAB	207	17	1		12				65	3
6-NEC	976	123	22	24	13	1		6	125	15
9-NED	3								1	1
9-OTHER	25								2	1
TOTALS	1211	140	23	24	25	1	0	6	193	18

Table 6. 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 1993 (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.)

<u>Area</u>	<u>SWD</u>	<u>YFT</u>	<u>BET</u>	<u>BFT</u>	<u>ALB</u>	<u>WHM</u>	<u>BUM</u>	<u>SAI</u>	<u>SETS</u>	<u>BOATS</u>
5-MAB	189	1	1						27	2
6-NEC	948	28	13	0	144	1			155	13
9-OTHER	15								4	1
TOTALS	1055	130	13	22	23	1	0	6	186	14

Table 7. 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 1991. NUMBERS CAUGHT REPRESENT KEPT PLUS DISCARDED. 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.)

<u>Area</u>	<u>SWD</u>	<u>YFT</u>	<u>BET</u>	<u>BFT</u>	<u>ALB</u>	<u>WHM</u>	<u>BUM</u>	<u>SAI</u>	<u>SETS</u>	<u>BOATS</u>
5-MAB	9	67	6		175				18	4
6-NEC	536	1895	118		694				116	6
TOTALS	545	1962	124		869				134	6

Table 8. 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 1992. 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.)

<u>Area</u>	<u>SWD</u>	<u>YFT</u>	<u>BET</u>	<u>BFT</u>	<u>ALB</u>	<u>WHM</u>	<u>BUM</u>	<u>SAI</u>	<u>SETS</u>	<u>BOATS</u>
5-MAB	283	1081	742	1	5756				269	7
6-NEC	38	194	96		571			0	70	6
TOTALS	321	1275	838	1	6327	0	0	0	339	8

Table 9. 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 1993 (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.)

<u>Area</u>	<u>SWD</u>	<u>YFT</u>	<u>BET</u>	<u>BFT</u>	<u>ALB</u>	<u>WHM</u>	<u>BUM</u>	<u>SAI</u>	<u>SETS</u>	<u>BOATS</u>
5-MAB	130	574	613		2927	3			212	11
6-NEC	78	316	373	2	1158	9	1	0	164	11
TOTALS	208	890	986	2	4085	12	1	0	376	12

Table 10. MONTHLY SWORDFISH LANDINGS IN LBS DRESSED WEIGHT FROM 1990 TO 1993.

<u>YEAR</u>	<u>MONTH</u>					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
1990	839,178	794,926	760,177	631,254	493,183	451,831
1991	617,797	658,640	464,402	480,626	416,658	425,501
1992	514,101	575,942	520,099	374,432	358,252	317,612
1993	561,515	680,889	471,336	343,012	361,632	337,253
	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>
1990	918,765	894,303	855,591	1,059,118	807,246	644,159
1991	695,980	777,169	818,661	773,683	534,704	460,927
1992	561,906	731,830	727,037	891,336	423,457	387,010
1993	582,747	583,744	619,621	752,273	583,784	384,549

Table 11. 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).

<u>YEAR</u>	<u>AREA</u>							<u>SUM</u>
	<u>CAR</u>	<u>GOM</u>	<u>FEC</u>	<u>SAB</u>	<u>MAB</u>	<u>NEC</u>	<u>NED</u>	
1989	13%	18%	24%	5%	8%	9%	23%	100%
1990	15%	12%	30%	5%	14%	11%	14%	100%
1991	16%	21%	23%	4%	9%	7%	21%	100%
1992	15%	18%	20%	5%	9%	8%	25%	100%

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).

<u>YEAR</u>	<u>AREA</u>							<u>SUM</u>
	<u>CAR</u>	<u>GOM</u>	<u>FEC</u>	<u>SAB</u>	<u>MAB</u>	<u>NEC</u>	<u>NED</u>	
1989	5%	9%	13%	3%	5%	3%	7%	46%
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%

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).

<u>YEAR</u>	<u>AREA</u>						
	<u>CAR</u>	<u>GOM</u>	<u>FEC</u>	<u>SAB</u>	<u>MAB</u>	<u>NEC</u>	<u>NED</u>
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%

Table 14. YEARLY TABULATIONS FOR SWORDFISH AND YELLOWFIN TUNA FOR (a) 1991, (b) 1992 AND (c) 1993 (PRELIMINARY). THE AREAS ARE DEFINED IN FIGURE 1. INFORMATION INCLUDES EFFORT IN HOOKS (HOOKS); NUMBER OF SETS (N); NUMBER OF FISH KEPT PLUS NUMBER OF FISH DISCARDED (K+D); PERCENTAGE OF FISH KEPT (%KEPT); PERCENTAGE OF FISH DISCARDED (%DISC)(IN 1992 AND 1993 DISCARDED DEAD AND DISCARDED ALIVE ARE REPORTED SEPARATELY); AND AVERAGE OF THE INDIVIDUAL CATCH RATES, EQUIVALENT TO CATCH RATES IN # OF FISH/100 HOOKS [AVG(C/E)], .

a. SWORDFISH TOTALS FOR 1991											YELLOWFIN TOTALS FOR 1991			
AREA	HOOKS	N	K+D	%KEPT	%DISC	AVG(C/E)	K+D	%KEPT	%DISC	AVG(C/E)				
1-CAR	473371	1156	12204	92	8	2.772	999	95	5	0.188				
2-GOM	2604851	4400	15134	80	20	1.039	27950	98	2	1.168				
3-FEC	882484	3253	25183	72	28	2.939	1056	95	5	0.111				
4-SAB	436253	1226	13065	68	32	3.511	1714	90	10	0.315				
5-MAB	1232367	2438	8394	61	39	0.722	22882	88	12	2.003				
6-NEC	1003353	1810	7901	67	33	0.801	13388	97	3	1.393				
7-NED	738719	1166	26325	86	14	3.657	380	90	10	0.055				
8-NOREQ	4422	7	38	95	5	0.939	38	89	11	0.839				
9-OTHER	118156	223	2214	96	4	2.038	82	94	6	0.066				
TOTAL	7493976	15679	110458	78	22	1.886	68489	94	6	0.867				

b. SWORDFISH TOTALS FOR 1992											YELLOWFIN TOTALS FOR 1992			
AREA	HOOKS	N	K&D	%KEPT	%DISC (dead)	%DISC (alive)	AVG(C/E)	K+D	%KEPT	%DISC (dead)	%DISC (alive)	AVG(C/E)		
1-CAR	561139	1205	10724	79	12	9	2.195	2365	94	1	5	0.359		
2-GOM	3205298	4850	13205	54	29	17	0.817	53477	90	3	7	3.647		
3-FEC	794146	2753	17947	58	28	15	2.509	1138	94	2	4	0.123		
4-SAB	401054	1125	11431	56	33	11	3.355	2305	96	2	2	0.494		
5-MAB	1478001	2575	7410	59	22	19	0.552	19818	95	2	3	1.433		
6-NEC	887175	1383	5570	68	16	16	0.714	7881	97	1	2	0.927		
7-NED	852129	1254	26566	82	8	9	3.164	807	95	1	4	0.099		
8-NOREQ	8057	13	105	95	1	4	1.288	118	73	0	27	1.418		
9-OTHER	174700	297	2186	94	3	3	1.287	628	98	1	1	3.670		
TOTAL	8361699	15455	95144	67	19	12	1.557	88537	92	2	5	1.632		

c. SWORDFISH TOTALS FOR 1993											YELLOWFIN TOTALS FOR 1993			
AREA	HOOKS	N	K&D	%KEPT	%DISC (dead)	%DISC (alive)	AVG(C/E)	K+D	%KEPT	%DISC (dead)	%DISC (alive)	AVG(C/E)		
1-CAR	544970	1205	11258	84	9	7	2.463	1215	87	7	6	0.208		
2-GOM	2417150	3260	9167	54	32	15	0.725	32609	93	3	4	3.417		
3-FEC	557547	1812	12932	48	36	16	2.652	759	91	1	8	0.116		
4-SAB	755796	1587	11431	54	29	16	2.092	3440	94	2	4	0.489		
5-MAB	1195855	1774	3402	54	25	21	0.338	6615	91	5	4	0.697		
6-NEC	820209	1126	3630	69	18	13	0.521	2844	93	2	4	0.360		
7-NED	567371	784	15626	87	7	6	2.712	482	96	0	4	0.629		
8-NOREQ	31906	51	425	93	1	6	1.358	70	100	0	0	0.212		
9-OTHER	165932	265	1482	90	3	7	1.050	789	99	0	1	0.918		
TOTAL	7056736	11864	69353	66	20	12	1.443	48823	93	3	3	1.245		