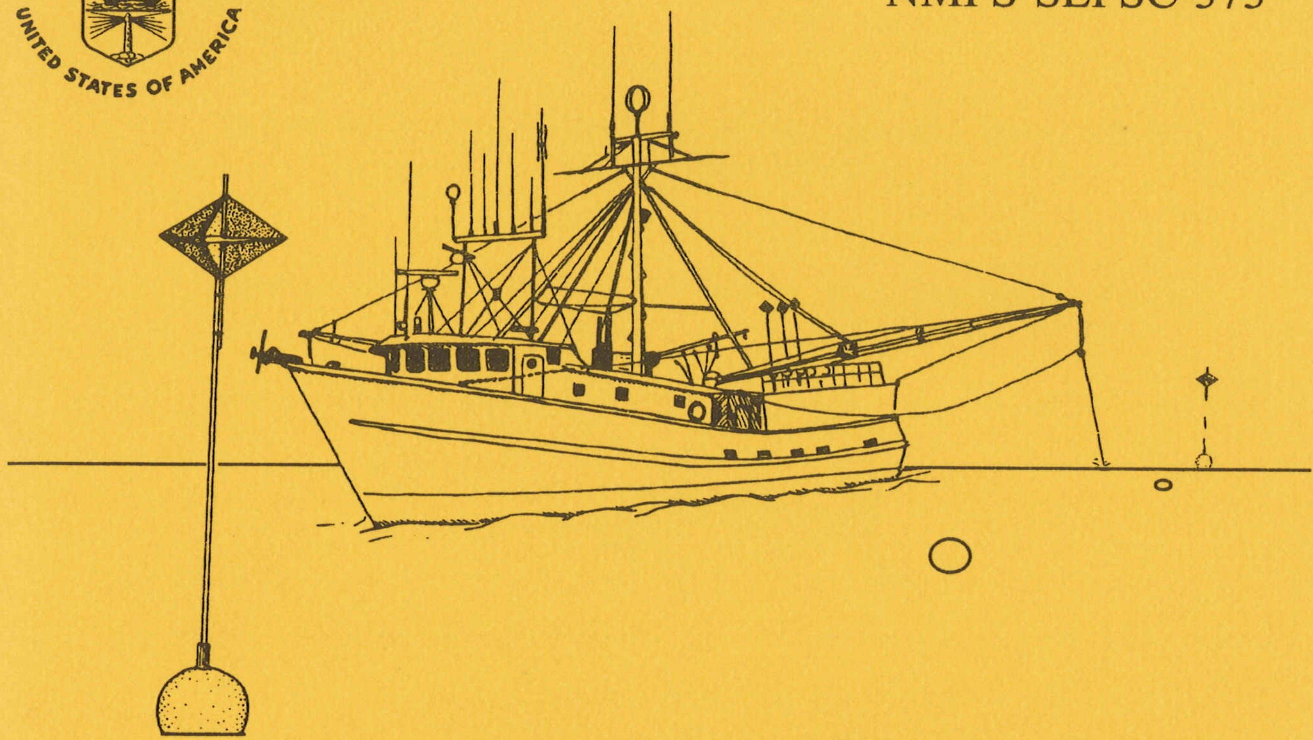
NOAA Technical Memorandum
NMFS-SEFSC-373



SEFSC PELAGIC LONGLINE OBSERVER PROGRAM DATA SUMMARY FOR 1992-1994

Dennis W. Lee, Cheryl J. Brown,
and Tracey L. Jordan

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
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September 1995

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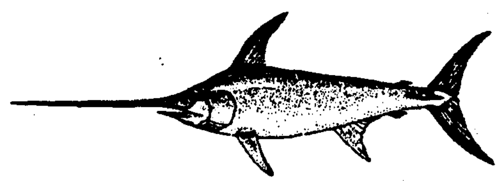

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INTRODUCTION

In 1992, the National Marine Fisheries Service (NMFS) initiated scientific sampling of the U.S. large pelagic fisheries fleet, as mandated by the U.S. Swordfish Fisheries Management Plan. Scientific observers were placed aboard vessels participating in the Atlantic large pelagic fishery by the Southeast Fisheries Science Center (SEFSC) and the Northeast Fisheries Science Center (NEFSC). The SEFSC coverage generally occurs on, but is not limited to, vessels fishing for large pelagic species in the northwest 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. Although both regional programs sample the pelagic longline fishery, the NEFSC data were not available for examination. Therefore, this document describes only the activities of the SEFSC Pelagic Observer Program (POP) through 1994.

As previously described in last years document (Lee et al. 1994), observer coverage by the POP during 1992 and 1993 was based on NMFS employed observers, as well as independent contractors. During 1994, the POP transitioned to one that primarily uses private contractors for field observation.

Also operating in association with the POP, are observers employed by Russell Research Associates, Inc. (RRA) with funds provided through a NMFS Marine Fisheries Initiative grant (MARFIN). This program has been vital in helping the SEFSC describe the longline fishery of the Gulf of Mexico. RRA observers, who received training at the SEFSC Miami facility, have made a major contribution in the collection of statistical and biological data from the Gulf of Mexico. Observers from RRA concentrate primarily on the Mississippi River Delta (Louisiana) ports because of their familiarity with vessel operations within that area.

Under the SEFSC program, a scientific observer is placed on board a vessel to record detailed information concerning gear characteristics, location and time the gear is set and retrieved, environmental conditions, condition and status of the marine life caught by the gear (alive or dead, kept or discarded), as well as morphometric measurements (length and weight) and sex identification of the animal. Observers also record incidental interactions of marine mammals and sea turtles. Collections of biological samples (anal finrays, heads, reproductive tissue, heart tissue, etc.) from some species are used to support research studies directed at critical questions about fish biology and life history.

The data collected by both NMFS regional programs are used by scientists in a variety of ways. Observer catch and effort data help confirm and augment the information provided through the mandatory submission of Pelagic Logbook forms by vessel owners and operators. This information is also important in evaluating the effectiveness of management measures, as well as providing information for evaluating the status of harvested populations.

The purpose of this document is to provide a general overview of the POP and summary of data collected in the southeast region through 1994.

VESSEL SELECTION

In order to obtain a representative, scientific sample of the fleet fishing effort, a list of randomly selected pelagic longline vessels is generated for each geographical area (Figure 1) and quarter for the current year, based upon reports of their effort (number of sets) from the Pelagic Logbook forms and landing records from the previous year. The objective of the selection is to achieve a representative, 5% cross-section of the fishing effort in each fishing area and during each calendar quarter of the year. The chance of selecting an individual vessel depends on fishing effort that particular vessel reported by area and quarter in the previous year. Due to the need of a 5% coverage for each quarter and area that the fleet fishes, an individual vessel could be selected for observation as many as four times in a year. Using the same procedure, a vessel might not be selected at all for the year.

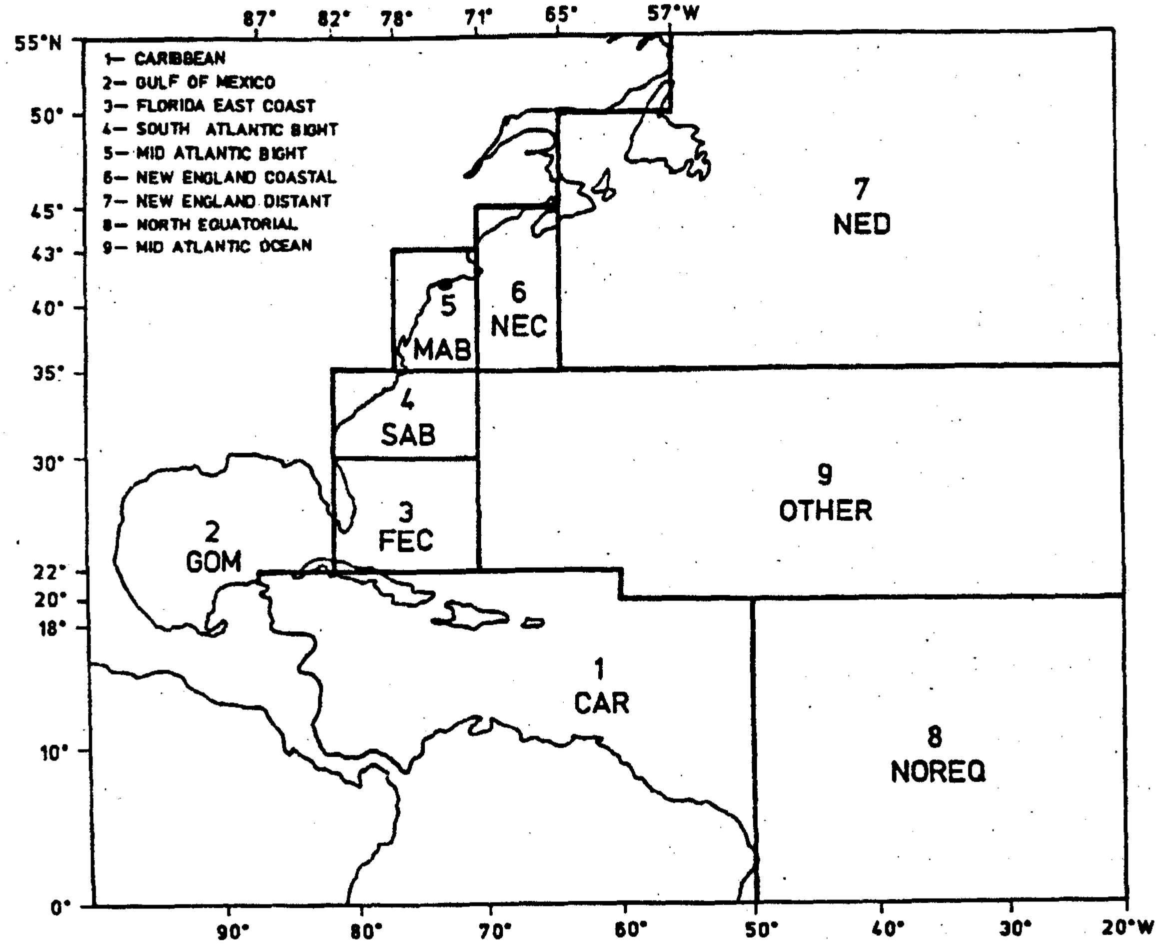


Figure 1: The fishing area difinitions used in classifying the U.S. pelagic longline effort.

Observer coverage on a vessel becomes mandatory under U.S. fishery regulations when vessel owners and operators, permitted for the fishery, are selected and notified. In the southeast region, a letter of selection signed by the SESFC Center Director is mailed to the selected fishery permit holder. The NEFSC observer program handles notification of the selected vessels differently.

SELECTION LETTER

The SEFSC selection letter states that the POP coordinator must be notified by the vessel owners/operators, in writing, of each fishing trip directed at swordfish or tuna during the time period stated in the letter. Planning and coordination of observer coverage prior to each trip departure is very important. For convenience, each selection letter is mailed with a trip notification form that, when returned prior to a trip, provides the POP coordinator with written information concerning the vessel's name, captain, contact persons and phone numbers, communications and safety equipment available aboard the vessel, and information about the vessel's location and times of departure and return. The form can also be used to inform the POP coordinator when a vessel is active in another fishery, under repair, or no longer fishing. The written notification is also necessary to document the owner's or operator's efforts to comply with mandatory coverage. Telephone calls are helpful, after written notification, to determine other specific details prior to the deployment of the observer to meet the vessel. It is important to keep in mind that observer coverage by the SEFSC is usually for a single trip during the specified calendar quarter. However, additional coverage may be requested if the trip is shorter than expected.

VESSEL NON-COMPLIANCE

The Swordfish Fisheries Management Plan specifies that once notified in writing, the owner and/or the operator must accommodate an observer. Vessel owners/operators must understand an observer assigned to monitor a fishing trip can be a male or female due to federal regulations prohibiting discrimination in hiring and/or contracting practices. In general, the lack of bathroom facilities, privacy, or spartan living conditions aboard a vessel are not sufficient grounds to prohibit observer coverage by either a male or a female observer. However, once arrangements have been made by this office to assign an observer to a vessel, the vessel operator must wait until the observer has arrived. Advance notification of departure times and locations can prevent any unnecessary delays. If the vessel departs once observer coverage has been arranged or if the operator rejects an observer present for boarding, this will be documented and the vessel name submitted for non-compliance to the SEFSC Regional Office which is responsible for issuing annual permits for participation in the fishery.

Observers receive training in sampling techniques, first aid and marine safety, as well as how to conduct themselves professionally in the field. They are also made aware that living conditions aboard ocean-going vessels can be variable (e.g. lack of personal bunk, shower or toilet facilities). Once an observer is aboard your vessel, the operator and crew must allow the observer time to collect statistical and biological data. In general, the crew's normal routine of processing the fish may be delayed slightly due to measurement requirements and placement of a carcass identification tag, but this delay will be minimal. However, the vessel operator and/or crew must understand that the observer cannot be hindered from observing discarded fish, collecting of data (both during the trip and unloading), or communicating with the SEFSC Miami Laboratory, when necessary. If an observer is hindered from performing any of these duties, the observer will document the situation and the permit holder submitted for non-compliance to the SEFSC Regional Office.

Finally, it is the responsibility of the owner and/or operator who is issued the selection letter, to communicate with the POP coordinator of your fishing intentions prior to departure of **each** fishing trip during the quarter. The coordinator initially waits to see if the trip notification form provided with the selection letter is returned so that contact can be made by the POP office. However, if notification is not returned, telephone calls by the program coordinator are attempted at various times during the quarter. When no written or verbal communication occurs during the quarter selected, the observer coordinator, again, has no alternative but to submit the name of the permit holder to the SEFSC Regional Office for investigation of observer non-compliance.

Submission of a vessel owner's or operator's name for observer non-compliance is not taken lightly and is only initiated when various efforts leave no alternative. The permit holder who receives written notification of the actions (or lack thereof) are considered in non-compliance with permit requirements for carrying an observer. It is the intent of this program to seek a good working relationship between the scientific personnel involved in the data collection and the daily routine of the vessel crew.

DATA COLLECTION FORMS

In order to record data needed to describe the catch and effort of the longline fishery, the POP observer must complete three data forms (Appendix 1). The first is called the "Longline Gear Characteristic Log", which is used to record the type of mainline used, length of drop line, number and length of gangions, make and model of hooks used, as well as number of floats, high fliers, and radio beacons used. The second data form is the "Longline Haul Log", which is used to describe the fishing effort. This form allows the observer to record the length, location and time duration for each set and haulback, as well as environmental information, the speed at which the vessel sets the gear, and type of bait used. The last of the data forms is called the "Large Pelagic Individual Animal Log". This data sheet allows the observer to record the species of fish caught, condition of the catch (alive, dead, damaged, or unknown) of the fish when brought to the vessel, and the final disposition of the catch (kept, thrown-back, finned, etc.). When an animal is brought onboard the vessel, the observer will verify the species and record the length measurements. A final weight of the carcass is recorded during unloading at the dock. This weight is matched to the length measurements on the data sheets using a specially numbered tag to identify the carcass of primary interest. Similar information is collected by the NEFSC observers aboard longline vessels, as well as for many other gear types and fisheries.

DATA SUMMARY
1992 - 1994

Vessel Coverage

From May, 1992 through December, 1994 (11 calendar quarters), scientific observers associated with the SEFSC observed a total of 174 fishing trips (172 pelagic longline and 2 bottom longline) in waters of the northwest Atlantic Ocean (Table 1). In total, observers spent 1,918 days at-sea during which 1,066 sets were observed (Table 1; Figures 2, 3, and 4). Of the vessels monitored, some were observed more than once over this time, although not more than once during any given calendar quarter. In general, data collected through 1994 continues to substantiate the belief that fishing methods in the Gulf of Mexico are more variable than in other regions. Observed vessels fishing in the Gulf of Mexico continued to spend 40-50% of their days-at-sea setting longline gear, while observed vessels in areas along the southeast Atlantic Coast and in the Caribbean spent 60-80% of their days at-sea setting gear. Non-fishing time involves transit of the vessel to fishing grounds or time spent seeking live baitfish (a common fishing method that is used by many vessels fishing in the Gulf).

Species Observed

The presence of a scientific observer onboard a commercial fishing vessel provides an opportunity for collecting valuable information for monitoring both the fishery and the stocks being harvested. The data forms, as previously mentioned, provide scientists with basic information concerning gear configuration, baits used, number of hooks set, and the environmental parameters associated with a particular set. Equally important, observers record data concerning the species of fish encountered, their size, sex and condition.

Data collected during a fishing trip are entered into a computer usually within 7 days upon the observer's return to port. Data are screened for accuracy during the debriefing meeting with the observer followed by data entry. Quality control programs are used by the POP that help to catch data entry errors (eg. dead fish entered as released alive, etc.). Because of the continuous refinement of the quality control programs, the accuracy of the observer database has been improved (Figures 2-4).

Summarizing the 1992-1994 catch data, POP and RRA observer personnel identified a total of 30,289 fish, marine mammals, and sea turtles to species level (Tables 2 and 3). Animals released or lost at the ocean surface (N=656) that could not be identified to the species level (Table 3; Figures 2-5) were marked as an "UNKNOWN" group category (ie. unknown tuna, unknown shark, etc).

Although a wide variety of fish were caught by the observed longline vessels, only about six species were routinely valued as a marketable product. These primary species (swordfish, yellowfin tuna, bigeye tuna, bluefin tuna, dolphin (*mahi mahi*), and shortfin mako) comprise about 55% (N=17,123) of the total observed catch. Of

Figure 2: Observer data compiled for 1992 showing (A) number of vessels covered, days at sea, number of sets; (B) location of sets observed; and (C) number and percent of fish observed.

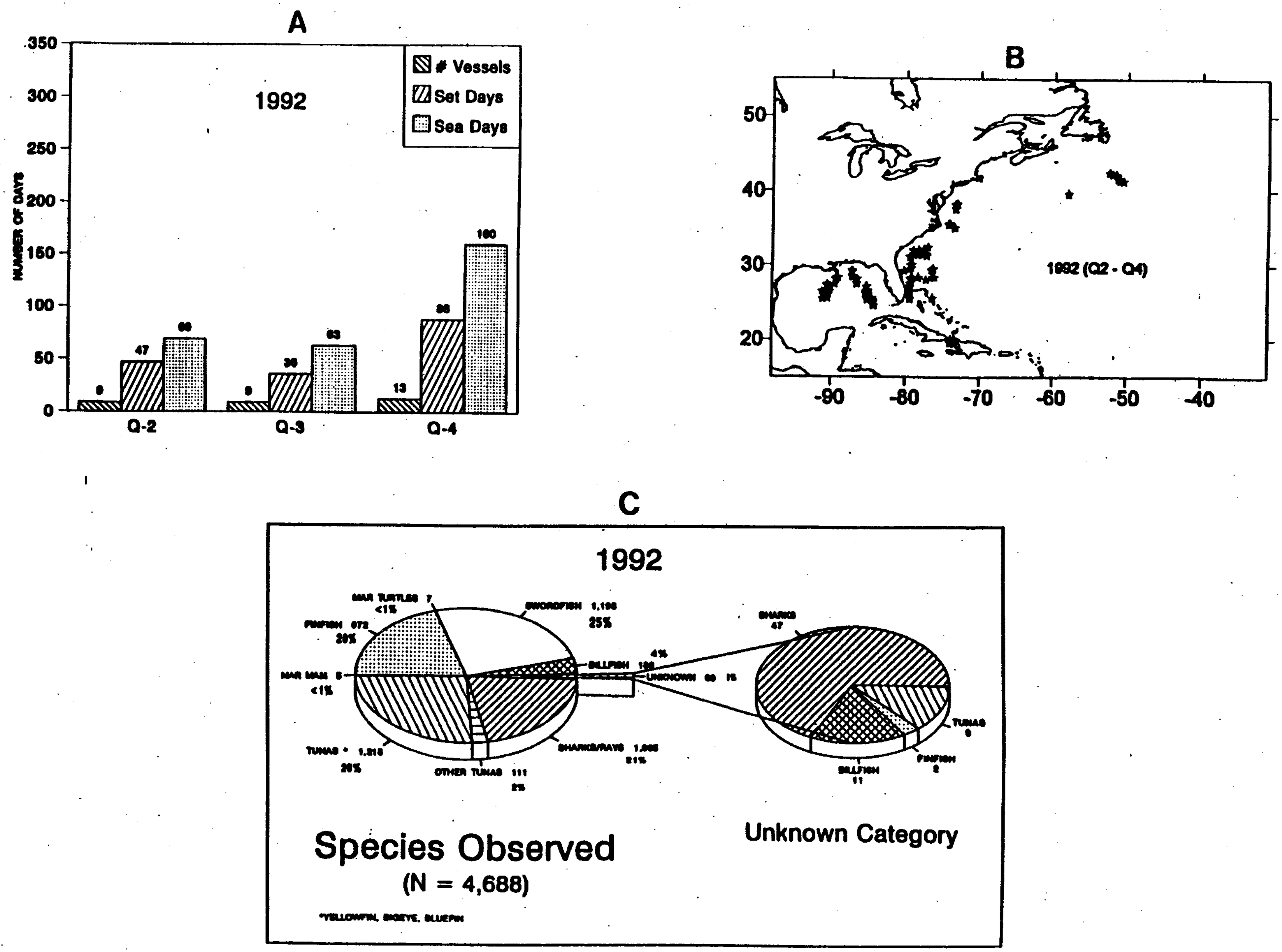


Figure 3: Observer data compiled for 1993 showing (A) number of vessels covered, days at sea, number of sets; (B) location of sets observed; and (C) number and percent of fish observed.

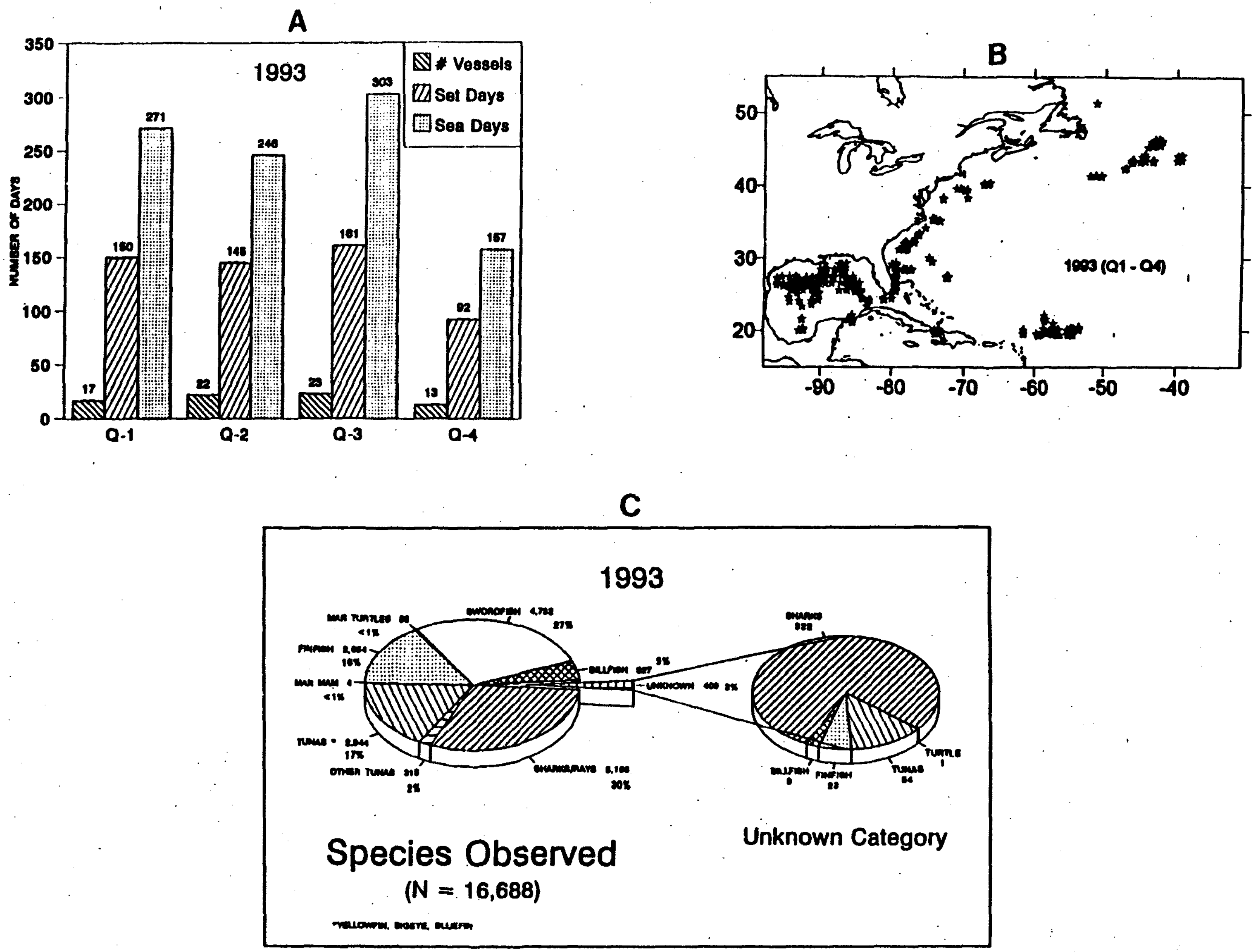
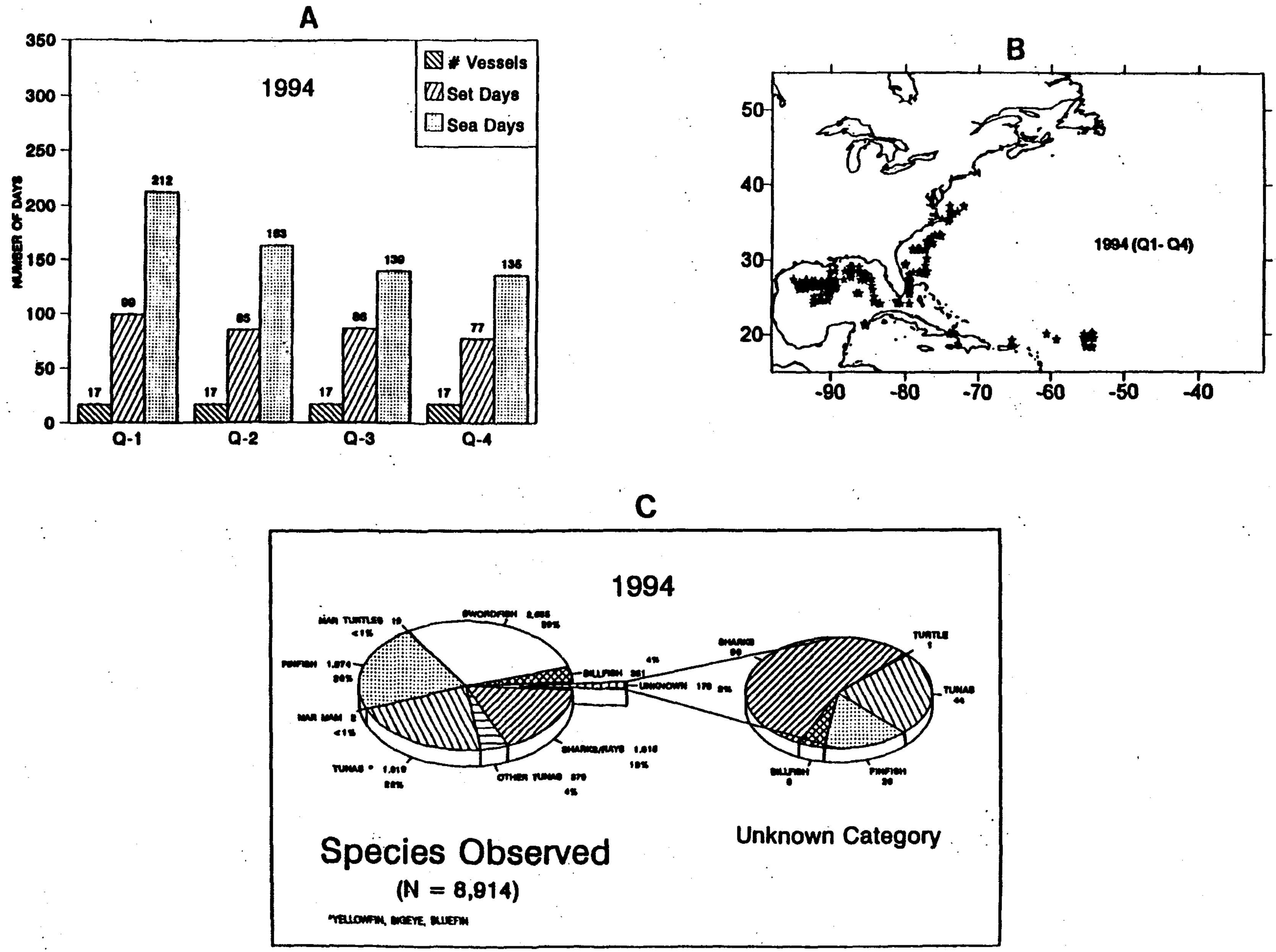


Figure 4: Observer data compiled for 1994 showing (A) number of vessels covered, days at sea, number of sets; (B) location of sets observed; and (C) number and percent of fish observed.



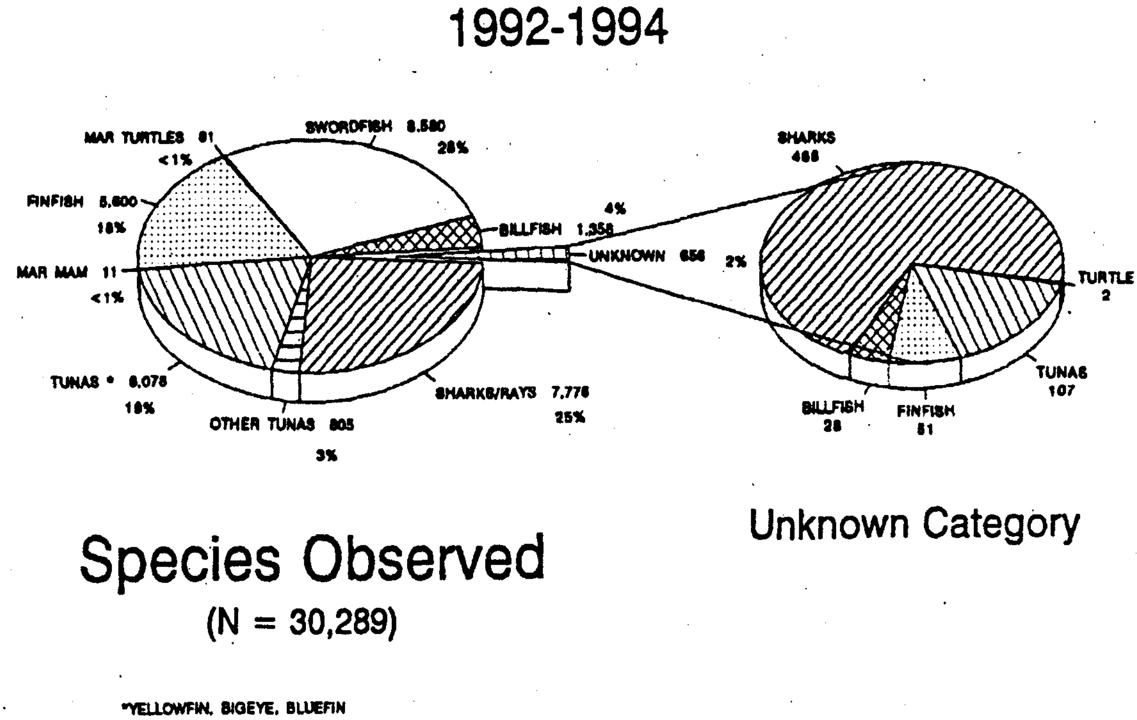


Figure 5: Observer data compiled for 1992-1994 showing number and percent of animals observed

the total observed fish (Figure 5), swordfish made up 28% of the catch; while yellowfin, bigeye, and bluefin tunas, combined, made up 19% of the observed catch. Sharks, a by-catch of the tuna and swordfish fishery, made up the other major portion of the pelagic longline catch, about 25%.

Observations of the status (alive/dead) of fish caught is an important component needed for assessing the effectiveness of some fishery management tools, like minimum sizes. The observer records the status (alive, dead, damaged) of the fish as it is brought alongside the vessel (Tables 2 and 3), whether it is kept or thrown back. From these data, mortality of discards can be estimated. As an example, the percent of swordfish observed brought to the side of the vessel that were dead (Table 2) is 76%, which is slightly (and not statistically) different from the observed percent of swordfish discards which are thrown back dead (78%) as indicated in Table 4. The latter of the values expressed from these tables is meaningful in understanding the mortality of that part of the population that is not represented in the landed catch. In general, these proportions are similar to the alive/dead proportions for various pelagic species reported in the literature (Farber and Lee, 1991; Hoey, 1992; Lee et al., 1994).

Overview of Gear and Fishing Technique

As mentioned previously, coverage of the selected vessels using POP observers was not limited only to the Atlantic waters of the southeast U.S., rather, observed coverage took place in all nine of the geographical areas used in analysis of these data (Figure 1). As an overview of the gears deployed, the shortest average length of mainline set on an observed trip was 4.3 nautical miles (NM) while the longest average set during a trip was 40.0 NM. Additionally, of the 1,066 sets observed, a total of 629,904 hooks were recorded during this period (Table 1).

General trends in fishing techniques were also examined. Hook fishing depth (ie. length of floatline plus length of gangion) is a fishing technique which is quite variable among vessel operators. Although POP coverage occurred in all nine areas (Figure 1), as a preliminary look, four larger geographical regions were examined (to increase sample size): (1) subtropical Atlantic (combining CAR, OTH, and NOREQ), (2) the Gulf of Mexico, (3) the off shore waters of the southeast U.S. (combining SAB and FEC), and (4) the off shore waters of the northeast U.S. (combining MAB, NEC, and NED; see Figure 1).

The average minimum and maximum depths of the baited hooks are similar for the GOM and the southeast Atlantic regions (Table 5), with a range from 26 and 38 fathoms (48-71 m, respectively). Vessels observed fishing in the waters off the southeast U.S. target mostly swordfish or *mahi-mahi*, with yellowfin found as a by-catch, whereas, observed vessels in the Gulf of Mexico primarily target yellowfin tuna with a by-catch of swordfish. In examining such trends, it appears yellowfin tuna and swordfish overlap in their habitat and depth availability.

In the northeast Atlantic region, data indicated that baited hooks on observed trips were fished shallower (Table 5), ranging from 13 to 22 fathoms (23-40 m, respectively). Generally speaking, observed vessels fishing in these waters target mostly yellowfin and bigeye tuna rather than swordfish. A comparison of our data with the data collected by the NEFSC (not yet available) should be examined to confirm this observation.

Baited hooks were observed being fished the deepest in the subtropical Atlantic region (Table 5), with depth ranging from 36 to 46 fathoms (66-84 m, respectively). Observed vessels fishing in this region often fished in areas of deep submarine trenches, the open waters of the mid-Atlantic ridge, and at convergence zones of various oceanic currents. Observed catches in this region tended towards swordfish, although our data indicates relative large numbers of yellowfin, bigeye, and albacore tunas were also found in the catches.

Observers also recorded various bait types (species) used during fishing activities. The "Dead bait" species recorded aboard the observed vessels for all nine geographical areas (Figure 1), included: Atlantic mackerel (*Scomber scombrus*), herring (*Clupea* sp), and squid (*Illex* sp). These baits are usually brought aboard the vessel frozen and thawed just prior to use. Although the technique of placing "dead bait" on hooks is used in the Gulf of Mexico, another baiting technique commonly observed on many of the vessels in that region was the use of "live bait". These "live bait" species, caught at sea and kept alive onboard the vessel in holding tanks, included: bigeye scad (*Selar crumenophthamus*), chub mackerel (*Scomber japonicus*), and Spanish sardines (*Sardinella aurita*). Of the 4 geographical regions described previously (Table 5), mackerel and squid were by far the most preferred dead baits used by the longline fishery for all areas. However, in the Gulf of Mexico, 53% of the sets observed used the live bait technique (bigeye scad, chub mackerel, or Spanish sardines), while the remaining portion of the observed sets in this region (47%) used dead bait (mackerel (6%), herring (10%), and squid (31%)).

Analysis of hook depth, baits methods, as well as hook model or monofilament test strengths with respect to target species or dominant species caught may provide insight into prospects for by-catch reduction.

RESEARCH STUDIES UNDERWAY

Swordfish Reproduction

Due to a need for more information on the spawning potential of Atlantic swordfish, a reproductive study was initiated in 1990 under the direction of the NMFS Miami Laboratory. In previous studies, biologists have attempted to estimate female swordfish fecundity (number of eggs produced) and define maturity stages, however the data have either been from too small a

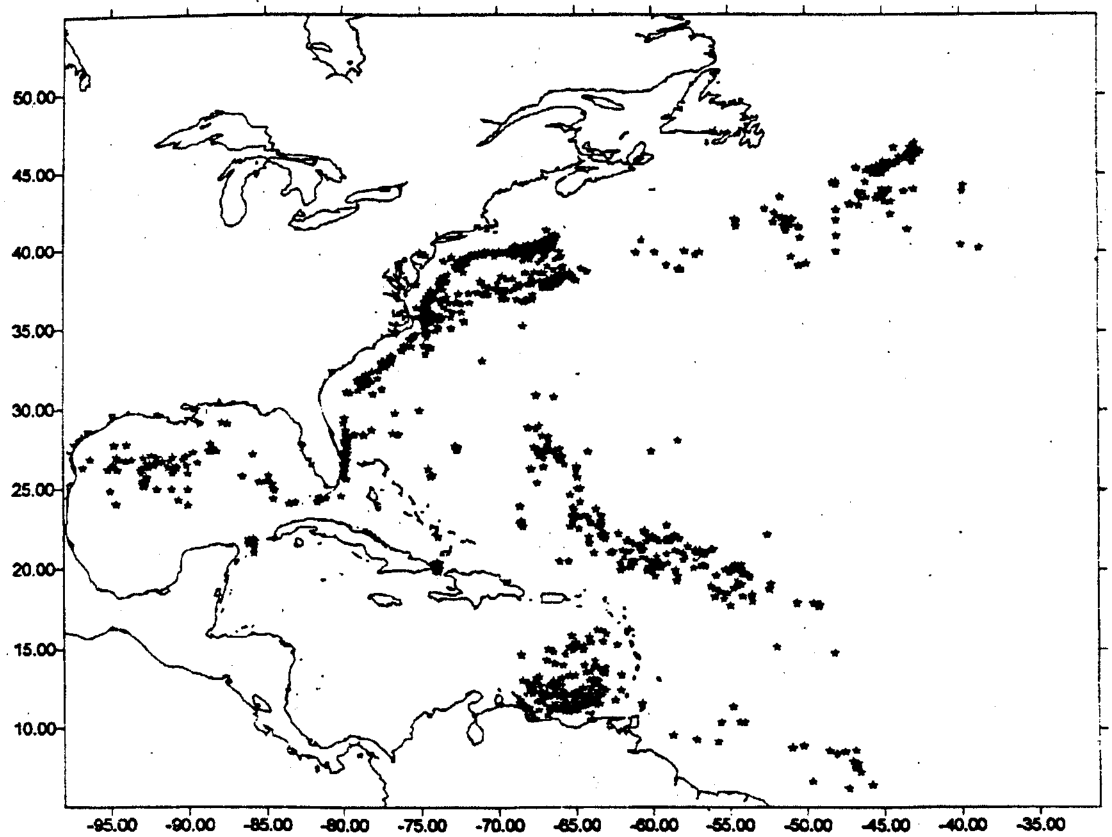


Figure 6: Location of sets where 6,316 paired gonads from male and female Atlantic swordfish were collected by from 1990 to 1995.

number of fish or from a very restricted geographical area to be convincing. Paired gonads from 6,316 Atlantic swordfish (females: N=4,127; males: N=2,189) and size measurements were collected from April 1990 through March 1995 (Figure 6) through the cooperative efforts of captains and crews of the Blue Water Fishermen's Association and observer personnel from NMFS and the Fondo Nacional de Investigaciones Agropecuarias (FONAIAP) of Venezuela. Using these data and biological samples, the Miami Laboratory is re-evaluating prior scientific understanding of sexual maturity in swordfish by analyzing gonadal index values (the gonadal index is calculated from ovary weight and carcass weight of female swordfish). We also are continuing to examine sex ratios for various geographical areas. Because male and female swordfish appear to grow at different rates and to different maximum sizes, the number of large fish in the catch which are female is generally greater than the number of large fish caught that are male. Sex ratio-at-size information is also needed to more accurately estimate the age of the fish caught and provide the means to assess stock status. The geographical region from which these samples were obtained extends from George's Bank in the north Atlantic to the Caribbean Sea and into the Gulf of Mexico. In addition, estimates of fecundity based on the presence of hydrated ova (ready to spawn eggs) have been derived for female swordfish, as well as documenting several likely spawning areas, primarily in the Caribbean and along the Florida east coast. Results of these analyses are reported in Arocha and Lee (1995.

Age and Growth Studies

In an effort to determine the age, longevity, and growth rate of swordfish, these same cooperative groups and agencies have also been collecting swordfish anal finrays and otoliths (tiny calcified structures found in the head of fish). These bony, calcified structures display internal growth zonations that may be useful in determining the age of swordfish. From 1990 to March 1995, approximately 4,000 anal finrays were collected from swordfish caught in the Atlantic. These fish ranged in size of 65 to 285 cm (lower jaw to fork of tail). Finray samples were collected for each month of the year and were collected within the same geographical areas as the gonadal material previously discussed. Currently, the 2nd anal finray is being separated from the overall finray system, cleaned of tissue, and cross sectioned. The cross sections from over 1,647 anal finrays have been examined and analyzed for age determination. This is accomplished by counting the growth zonations in the finray cross section much like counting tree rings. Analysis of the growth zonations is underway to see if these are being laid down as an annular event. Analyses from this research are reported in Ehrhardt (1995).

Collection of swordfish heads by observers for otolith removal has been less routine due to variability swordfish processing between boats (otoliths are located close to where many fishermen cut off the fish head and are sometimes lost or damaged during this process) and the difficulty in locating otoliths in the heads. However, over 500 otolith pairs have been collected from specimens ranging in size from 6.5-258 cm LJFL. Scientists at Louisiana State University (Baton Rouge, LA) are examining otoliths from these samples for age analysis based on daily growth zone counts (a much finer grouping of rings than those found in the anal finrays).

Stock Identification

Beginning in 1992, collection of blood and tissues (small portions of the meat, liver, heart, and gonad) by POP observers for stock identification has been actively pursued for swordfish, yellowfin tuna, bigeye tuna, and bluefin tuna. Scientists at the NMFS-Charleston Laboratory and the University of South Carolina, as well as various international organizations, such as the Commonwealth Scientific and Industrial Research Organization (CSIRO) in Australia, are examining genetic variability at the cellular (DNA) level. The application of these techniques may help detect differences in fish in widely separated geographical areas and determine if these differences are important in stock management. Initial tests are being conducted using swordfish, yellowfin, and bluefin tuna samples for the reason that scientists are unclear which genetic marker (DNA protein) will be the most informative. Results of these analyses are reported in Alverado et al. (1995) and Graves et al. (1995).

ACKNOWLEDGMENT

The Miami Laboratory, Pelagic Observer Program is grateful to vessel owners, operators, and crews that have participated in the observer program. Without their overall cooperation, the collection of catch and effort data, as well as biological samples would have been difficult. Special acknowledgement is given to the help provided by port agens and observer personnel of the SEFSC and NEFSCl, as well as observera personnel form Manomet Observatory, RRA, and FONAIAP. We also graciously thank the captains, crews, and individuals associated with the Blue Water Fishermen's Association in providing assistance to the program research activities.

LITERATURE CITED

Alvarado Bramer, J. R., J. Mejuto, and B. Ely. 1995. Global Population Structure of the Swordfish (*Xiphias gladius* L.) As Revealed by Analysis of the Mitochondrial DNA Control Region. Intnational Commission for the Conservation of Atlantic Tunas, Collective Volume of Scientific Papers, Madrid, In. Press.

Arocha, F. and D. W. Lee. 1995. Maturity at Size, Reproductive Seasonality, Spawning Frequency, Fecundity and Sex Ratio in Swordfish from the Northwest Atlantic. Intnational Commission for the Conservation of Atlantic Tunas, Collective Volume of Scientific Papers, Madrid, In. Press.

Ehrhardt, N.M. 1995. Review of the Age and Growth of the Swordfish, *Xiphias gladius*, in the Northwest Atlantic. Intnational Commission for the Conservation of Atlantic Tunas, Collective Volume of Scientific Papers, Madrid, In. Press.

Farber, M. I. and D. W. Lee. 1991. A Statistical Procedure for Estimating the Mortality on Discarded Billfish caught by Longline Gear. International Commission for the Conservation of Atlantic Tunas, Collective Volume of Scientific Papers, 35:113-119.

Graves, J. J. Gold, B. Ely, J. Quattro, C. Woodley, and J. Dean. 1995. Population Genetic Structure of the Bluefin Tuna in the North Atlantic Ocean. I. Identification of Variable Genetic Markers. Intnational Commission for the Conservation of Atlantic Tunas, Collective Volume of Scientific Papers, Madrid, In. Press.

Hoey, J.J. 1992. Bycatch in U.S. Atlantic Longline Fisheries for Swordfish and Tuna. Blue Water Fishermen's Association Newsletter, March 16, 1992. 7p.

Lee, D.W. , C.J. Brown, A. J. Catalano, J.R. Grubich, T. W. Greig, R. J. Miller, and M.T. Judge. 1994. SEFSC Pelagic Longline Observer Program Data Summary for 1992-1993. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SEFSC-347. 19p.

For more information

For information about the observer program or for scheduling an observer trip, please contact the Pelagic Observer Program Coordinator, Dennis Lee:

(Office) 800 858-0624 (FAX) 305 361-4515

Address: Southeast Fisheries Science Center
Miami Laboratory
75 Virginia Beach Drive
Miami, FL 33149

General information or questions about programs concerning dealer reporting, logbook submission, or the tagging program, persons should contact the NMFS Miami Laboratory's main office telephone number (305) 361-5761. The following contact persons are provided:

DEALER REPORTING: John Poffenberger or Andy Bertolino
PELAGIC LOGBOOK REPORTING: Ernie Snell
GAMEFISH TAGGING PROGRAM: Dr. Eric Prince - 800 473-3936
Fish tagging liaison (commercial fisheries): Dennis Lee 305 361-4236

Information on fishing permits or regulation should be directed to the NMFS Southeast Regional Office, St. Petersburg, FL:

REGULATIONS AND PERMITS BRANCH: (813) 570-5326
FISHERIES OPERATIONS BRANCH: (813) 570-5305

Address: NMFS Southeast Regional Office
9721 Executive Center Drive
St. Petersburg, FL 33702

TABLE 1. Number of vessels covered, sets observed, total hooks set, days spent at sea, and percent of sets observed from the total sets required for 5% coverage of the fishing effort by quarter from 1992 to 1994

SEFSC OBSERVER COVERAGE
1992 - 1994

YEAR	CALENDAR QUARTERS	VESSELS COVERED	SETS OBSERVED	TOTAL HOOKS SET	DAYS AT-SEA	% of SETS COVERED[1]
1992	2	9	47	14,970	69	27%
	3	9	36	13,334	63	32%
	4	13	88	52,122	160	>100%
	Total	31	171	80,426	292	
1993	1	17	150	95,863	271	>100%
	2	22	145	92,015	246	>100%
	3	23	161	61,074	303	>100%
	4	13	92	105,601	157	>100%
	Total	75	548	356,353	977	
1994	1	17	99	56,552	212	86%
	2	17	85	48,046	163	84%
	3	17	86	44,633	139	72%
	4	17	77	43,894	135	69%
	Total	68	347	193,125	649	
Overall		174	1,066	629,904	1,918	77%

1

$$\%Sets = \frac{Sets\ Observed}{Sets\ Required} X\, 100$$

TABLE 2: Numbers of alive, dead, and damaged (shark bitten) swordfish, billfish, tunas, and sharks when brought along side the boat as recorded by POP observers while deployed aboard U.S. pelagic longline vessels from 1992 to 1994

FISH GROUP	COMMON NAME	ALIVE	DEAD	DAMAGED
SWORDFISH	Swordfish	1,603	6,552	425
TUNAS	Bigeye	609	425	35
	Bluefin	34	61	3
	Yellowfin	2,685	1,903	323
BILLFISH	Atlantic Sailfish	222	319	33
	Blue Marlin	243	106	15
	White Marlin	176	176	8
	Spearfish Longnose	24	35	1
SHARKS				
Small Coastal	Atlantic Sharpnose	220	214	3
Large Coastal	Bignose	3	2	0
	Blacktip	64	86	2
	Bull	10	8	0
	Dusky	197	142	4
	Finetooth	17	11	0
	Hammerhead ssp	10	7	1
	Hammerhead Great	6	10	0
	Hammerhead Scalloped	80	149	8
	Hammerhead Smooth	1	2	0
	Night	4	18	0
	Reef	4	2	0
	Sand Tiger	3	1	0
	Sandbar	144	28	0
	Silky	375	688	12
	Spinner	18	8	0
	Tiger	135	5	0
Pelagic	Blue	2,709	861	4
	Mako ssp	1	0	0
	Mako Longfin	15	13	0
	Mako Shortfin	195	88	3
	Porbeagle	0	2	0
	Thresher ssp	0	2	0
	Thresher Bigeye	36	44	0
	Thresher Common	8	4	0
	Oceanic Whitetip	81	37	0
OTHERS	Skates/rays	955	4	1
	Smooth Dog	3	0	0
	Nurse	7	0	0

TABLE 3: Numbers of alive, dead, and damaged (shark bitten) finfish, other tunas, marine mammals, marine turtles, and unknown species groups when brought along side the boat as recorded by POP observers while deployed aboard U.S. commercial longline vessels from 1992 to 1994

SPECIES GROUP	COMMON NAME	ALIVE	DEAD	DAMAGED
OTHER TUNA	Blackfin Tuna	64	136	10
	Bonito	4	27	1
	Little Tunny	22	132	3
	Albacore	40	191	6
	Skipjack	5	159	5
FINFISH	Cobia	4	0	0
	Dolphin Fish	1,743	418	25
	Wahoo	47	290	17
	Amberjack	2	0	0
	Barracuda	51	10	1
	Bigeye Cigarfish	11	9	0
	Eel	93	0	0
	Escolar	502	604	34
	Grouper	1	1	0
	Jack spp	1	0	0
	King Mackeral	0	2	0
	Lancetfish	320	824	165
	Snake Mackeral	10	34	3
	Oilfish	118	74	6
	Opah	2	5	0
	Pomfret	43	39	2
	Puffer	26	4	0
	Red Snapper	13	1	0
	Remora	1	0	0
	Sunfish	44	0	0
MARINE MAMMAL	Atlantic spotted	1	0	0
	Bottlenose dolphin	1	0	0
	Pilot whale	3	0	0
	Pantropical spotted	1	0	0
	Rissos dolphin	4	1	0
MARINE TURTLE	Green Turtle	2	0	0
	Leatherback Turtle	58	1	0
	Loggerhead Turtle	19	1	0
UNKNOWN	Unknown Tuna	7	7	93
	Unknown Finfish	20	30	1
	Unknown Billfish	14	9	5
	Unknown Sharks	343	123	2
	Unknown Turtle	2	0	0

TABLE 4: Numbers of alive and dead[1] fish of 6 species recorded by POP observers while deployed aboard U.S. commercial longline vessels from 1992 to 1994

COMMON NAME	DISCARDED ALIVE (A)	DISCARDED DEAD (D)	PROPORTION DEAD $\frac{D}{D + A}$
Swordfish	868	3,187	0.786
Bigeye Tuna	72	104	0.591
Yellowfin Tuna	177	408	0.697
Blue Marlin	243	121	0.332
White Marlin	176	184	0.511
Sailfish	222	351	0.613

1) DEAD = Dead + Damaged fish

Table 5: Average hook depth (minimum and maximum in fathoms) and bait type used as recorded by POP observers aboard U.S. commercial longline vessels fishing in 4 geographical regions: Gulf of Mexico (GOM); Subtropical Atlantic (ST_ATL); Atlantic waters south of the 35° latitude line (SE_ATL); and Atlantic waters north of the 35° latitude line (NE_ATL). Bait recored are Atlantic mackeral[1] (M); herring[2] (H); squid[3] (S), and live bait[4] (LB)

Area Fished	Avg Hook Depth (fathoms) Min	Max	Percent (%) Occurrence M	H	S	LB
ST_ATL	36	46	18		82	
GOM	29	38	18	10	31	53
SE_ATL	26	38	49		51	
NE_ATL	13	22	21		79	

1 *Scomber scombrus*
2 *Clupea* spp.
3 *Illex* spp.
4 bigeye scad (*Selar crumenophthamus*), chub mackeral (*Scomber japonicus*), or spanish sardine (*Sardinella aurita*).

APPENDIX 1

(A) Longline Gear Characteristic Log form

PELAGIC LONGLINE OBSERVER PROGRAM — LONGLINE GEAR LOG — S.E. FISHERIES SCIENCE CENTER

OBS TRIP ID#	VESSEL NAME	VESSEL NUMBER	DATE LANDED mm dd yy
STRING NUMBER	NUMBER OF HOOKS	ANCHOR USED? NO 0 ____ YES 1 ____	WEIGHT ____ lbs

MAINLINE

COLOR: Clear 01 ____; White 02 ____; Pink 03 ____; Black 04 ____; Green 05 ____; Blue 06 ____; Multi-color 07 ____; Red 08 ____; Other 09 ____

DIAMETER ____ . ____ mm

TEST ____ lbs

MATERIAL: Nylon 1 ____; Cotton 2 ____; Steel Wire 3 ____; Other 9 ____

\# OF STRANDS ____

FLOATS

TYPE	USED? NO=0 YES=1	NUMBER	DISTANCE BETWEEN
Polyball	____	____	
Bullet/Daub	____	____	
Other	____	____	
MAX HOOK BETWEEN		____	
RADAR REFLECTORS		____	
RADIO BEACONS		____	
SECTIONS		____	____ . ____ nm

LIGHT STICKS

USED? NO 0 ____ YES 1 ____

COLOR: White 02 ____; Pink 03 ____; Black 04 ____; Green 05 ____; Blue 06 ____; Multi-color 07 ____; Red 08 ____; Other 09 ____; Yellow 10 ____; Purple 11 ____

GANGIONS

COLOR: Clear 01 ____; White 02 ____; Pink 03 ____; Black 04 ____; Green 05 ____; Blue 06 ____; Multi-color 07 ____; Red 08 ____; Other 09 ____

DIAMETER ____ . ____ mm

TEST ____ lbs

MATERIAL: Nylon 1 ____; Cotton 2 ____; Steel Wire 3 ____; Other 9 ____

DISTANCE BETWEEN ____ ft

	GANGION LENGTH	GANGION COUNT	LEADERS USED? NO=0, YES=1	SWIVELS USED? NO=0, YES=1	NUMBER/ GANGION
#1	____ ft	____	____	____	____
#2	____ ft	____	____	____	____

LEADER LENGTH ____ in

LEADER TEST ____ lbs

LEADER MATERIAL: Nylon 1 ____; Cotton 2 ____; Steel Wire 3 ____; Other 9 ____

DROPLINES

	LENGTH	DISTANCE BETWEEN
#1	____ ft	____ ft
#2	____ ft	____ ft
#3	____ ft	____ ft

HOOKS

	BRAND	MODEL/PATTERN	SIZE
HOOK #1	____	____	____ / ____
HOOK #2	____	____	____ / ____

COMMENTS: NO 0 ____ YES 1 ____

(B) Longline Haul Log form

PELAGIC LONGLINE OBSERVER PROGRAM — LONGLINE HAUL LOG — SOUTHEAST FISHERIES SCIENCE CENTER

OBS/TRIP ID	VESSEL NAME	VESSEL NUMBER	DATE LANDED mm/dd/yy	HAUL#	GEAR CODE	PAGE # 1 OF ____

HAUL OBS? NO 0 ____ YES 1 ____	CATCH? NO 0 ____ YES 1 ____	INC TAKE? NO 0 ____ YES 1 ____	WEATHER	WIND SPEED KN	WIND DIRECTION °	WAVE HEIGHT FT	GEAR COND	STRING NUMBER

MAINLINE LENGTH . NM	SET SPEED . KN	BOTTOM DEPTH RANGE — FM	HOOK DEPTH RANGE — FM	TOTAL ADD. WEIGHT ____ LBS	TARGET SPECIES ABBR.	SOAK DURATION .

ITEMS USED?

TYPE	NO	YES	NUMBER
Floats	0 ____	1 ____	____
Light Sticks	0 ____	1 ____	____
Radiers	0 ____	1 ____	____
Surface Lights	0 ____	1 ____	____
Radio Beacons	0 ____	1 ____	____
Radar Reflectors	0 ____	1 ____	____
Additional Line Wts	0 ____	1 ____	____

NUMBER OF HOOKS

SET ____

LOST ____

TENDED ____

REBAITED ____

BAIT INFORMATION

	NUMBER	LBS	KIND	TYPE	COND
#1	____	____	____	____	____
#2	____	____	____	____	____
#3	____	____	____	____	____

SET/HAUL INFO		DATE mm/dd/yy	TIME 24 hours	POSITION INFORMATION BEARING/LATITUDE N OR S	BEARING/LONGITUDE E OR W	TEMP fahrenheit	DURATION hours
SET	BEGIN					.	
	END					.	.
HAUL	BEGIN					.	
	END					.	.

COMMENTS: NO 0 ____ YES 1 ____

(C) Large Pelagics Individual Animal Log form

NOAA FISHERIES - SEA SAMPLING PROGRAM
LARGE PELAGICS INDIVIDUAL ANIMAL LOG

01/07/93

Obs/Trip Ident.	Vessel Name	Vessel Number	Date of Haul (m/d/y) ___/___/___	Haul Number	Page ___ of ___

CARCASS Tag Number	SPECIES		No. Photos Taken	STATUS Unknown (0) Alive (1) Dead (2) Damage (3)	Kept (1) Released (2 or 3) Finned (4) Lost (5) Tended (6)	LENGTH MEASUREMENTS (cm)				Actual Dressed Weight (Lbs)	SEX U (0) M (1) F (2)	TAG INFORMATION	TR (1) TT (2) RC (3)	Est Wgt (lbs)
	Name (Abbr.)	Code				Standard		Alternate						
						#1	#2	Length	Code			Number		