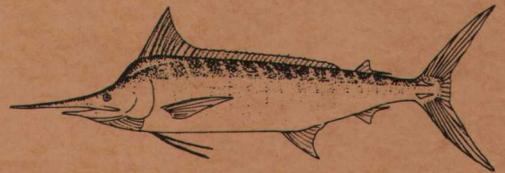


NOAA Technical Memorandum NMFS-SEFC-85



OCEANIC GAMEFISH INVESTIGATIONS: 1978, 1979 & 1980



ALLYN MONTY LOPEZ

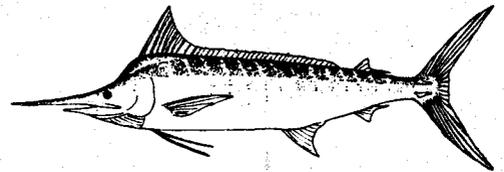
DECEMBER 1981

**U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Center
75 Virginia Beach Drive
Miami, Florida 33149**

NOAA Technical Memorandum NMFS-SEFC-85



OCEANIC GAMEFISH INVESTIGATIONS: 1978, 1979 & 1980



ALLYN MONTY LOPEZ

DECEMBER 1981

This TM series is used for documentation and timely communication of preliminary results, interim reports, or special purpose information, and have not received complete formal review, editorial control, or detailed editing.

U.S. DEPARTMENT OF COMMERCE
Malcom Baldrige, Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
John V. Byrne, Administrator

NATIONAL MARINE FISHERIES SERVICE
William G. Gordon, Assistant Administrator for Fisheries

INTRODUCTION

Oceanic Gamefish Investigations were started in 1972 by the Southeast Fisheries Center (SEFC) to collect and evaluate recreational catch and effort data to aid in determining stock status of blue marlin (Makaira nigricans), white marlin (Tetrapturus albidus), and sailfish (Istiophorus platypterus), and to study their biology and ecology. The purpose of this report is to present data for the years 1978, 1979, and 1980. Data were collected by the Office of Technical and Information Management Services (TIMS) of the SEFC, under the auspices of the Oceanic Gamefish Investigations program, and came from various fishing areas located throughout the Gulf of Mexico, the Caribbean, the Bahamas, the east coast of the United States, and the Florida Keys. This publication is made possible through the cooperation given by sport fishermen, charter boat captains, and other big game fishing enthusiasts.

Fishermen are curious about this work and continually ask how both the data and the samples we collect from these fish are utilized. An additional section briefly explaining associated billfish research has been included to answer some of these questions.

SURVEY METHODOLOGY

Data collection is conducted by biologists and port samplers throughout the southeast Atlantic and Gulf of Mexico, including the Bahamas and the Caribbean. Only information about fishing for billfish is collected. In the Gulf of Mexico port samplers have been stationed at the following ports: Port Aransas, Texas; Grand Isle, Louisiana; South Pass, Louisiana; Mobile, Alabama/Pensacola, Florida; and Destin, Florida. One biologist, located in Panama City, Florida, is responsible

for the Gulf of Mexico data and the operation of that division. Prior to 1980 biologists from Miami collected only tournament data from the Atlantic. In 1980, a contract was issued to collect dock and tournament data from the east coast of the United States. State biologists from South Carolina and Florida provide data from their respective states.

Biologists in Miami, Florida, cover the Caribbean and the Bahamas. Information from the east coast and the Gulf of Mexico is collected from May-September and is both tournament and non-tournament data. The Bahamas and the Caribbean information is collected from tournaments held from March-July. South Florida and the Florida Keys data is based only on sailfish tournaments held from November-January.

Both tournament and non-tournament data are presented. Data included: catch; effort (hours spent trolling); weather conditions; fishing activities related to the time of day; species hooked, boated, tagged, released, or lost; length; weight; sex; and technique of fishing. All tables and charts contain trolling effort. Hours spent driftfishing for swordfish are reported separately.

CATCH AND EFFORT

In the past three years 32,349 interviews have been conducted to document 152,114 hours of billfishing effort for the years 1978, 1979, and 1980. The 1979 fishing season showed a noticeable decrease in amount of fishing effort sampled compared to the previous year. Data for 1980 data show an increase of 16,896 hours of effort sampled. This increase is due partially to the initiation of the contract issued to Environmental Consultants Inc. Through this contract 4,854 interviews documented over 15,000 hours of effort. By expanding our data

collection through this contract, we were able to provide data representative of the entire study area. Tables 1, 2, and 3 show all tournament and non-tournament data collected for the past three years. Numbers in these tables indicated the number of fish hooked by species. Table 4 summarizes the number of fish boated, which includes tagged and released fish, versus the number of fish hooked. Angler success (number of fish boated divided by the number of fish hooked) for blue marlin was 44% while for both white marlin and sailfish it was approximately 60%. Table 5 shows that 90.7 hours of trolling were required to boat a blue marlin and 27.7 hours to boat a white marlin. The number of hours trolled to boat a sailfish varies greatly due to their distribution. The number of hours to boat white marlin was low due to the excellent white marlin season experienced by both the Gulf of Mexico and the east coast in 1979 and 1980. Almost 19 hours of trolling were required to catch a billfish. Total time spent fighting a fish was only 3% of the time spent trolling for billfish.

SIZE COMPOSITION

Average size of billfish measured by program biologists for the three year period showed very little fluctuation. Smallest, largest, and average size by year are presented in Table 6. The average weight of blue marlin sampled during the three year period was 254 pounds. The smallest blue marlin recorded was 39 pounds, caught in the Gulf of Mexico in 1980. The largest blue marlin was 1060.5 pounds caught in Bimini in 1979. Also in 1979, a 9.8 pound white marlin was recorded in the Gulf of Mexico and the east coast of the United States reported a 135 pound white marlin.

Table 1: Tournament Name, Location, Date, Hours Fished, and Number of Fish Hooked by Species, 1978*

| Tournament | Location | Date | Hours Fished | Number Hooked | | | | | |
|--|---------------------|--------------|--------------|---------------|--------------|-----------|------------|--------------|----------------|
| | | | | Blue Marlin | White Marlin | Sail Fish | Sword Fish | Bluefin Tuna | Yellowfin Tuna |
| Masters Invitational Sailfish | Palm Beach, FL | Jan 10-14 | 728:00 | 0 | 0 | 556 | 0 | 0 | 0 |
| Invitational Gold Cup | Palm Beach, FL | Jan 18-21 | 1413:15 | 0 | 0 | 329 | 0 | 0 | 0 |
| Frankie Brown Memorial | Bimini, Bahamas | Mar 6-9 | 751:45 | 29 | 33 | 1 | 0 | 0 | 0 |
| Bimini White Marlin | Bimini, Bahamas | Mar 27-31 | 281:05 | 1 | 20 | 4 | 0 | 0 | 0 |
| Annual His and Hers Billfish | Chub Cay, Bahamas | Apr 3-7 | 350:00 | 9 | 12 | 7 | 0 | 0 | 0 |
| Members Only Billfish | Chub Cay, Bahamas | Apr 10-14 | 371:00 | 4 | 21 | 16 | 0 | 0 | 0 |
| Bimini Light Tackle | Bimini, Bahamas | Apr 17-21 | 184:45 | 5 | 8 | 0 | 0 | 0 | 0 |
| Boca De Yuma | Dominican Republic | May 1-5 | 1873:00 | 13 | 154 | 9 | 0 | 0 | 0 |
| Annual Sea Pines Plantation | Hilton Head Isl, SC | May 6-7 | 410:00 | 20 | 0 | 1 | 0 | 0 | 0 |
| New Orleans Big Game Fishing Club First | South Pass, LA | May 11-13 | 312:45 | 4 | 0 | 0 | 0 | 0 | 5 |
| Bimini Billfish Tuna | Bimini, Bahamas | May 15-19 | 436:00 | 6 | 6 | 6 | 0 | 0 | 4 |
| Georgetown Blue Marlin | Georgetown, SC | May 25-27 | 504:40 | 25 | 2 | 1 | 0 | 0 | 0 |
| South Pass Memorial Day | South Pass, LA | May 26-28 | 525:15 | 13 | 2 | 0 | 0 | 0 | 0 |
| Mobile Big Game Fishing Club Memorial Day | Orange Beach, AL | May 27-28 | 417:30 | 4 | 1 | 0 | 0 | 0 | 0 |
| Big Rock Blue Marlin | Moorehead City, NC | Jun 5-8 | 594:00 | 22 | 4 | 1 | 0 | 0 | 0 |
| South LaFourche Rodeo | South Pass, LA | June 9-11 | 114:40 | 3 | 0 | 0 | 0 | 0 | 1 |
| Hatteras Blue Marlin | Hatteras, NC | Jun 12-17 | 1459:00 | 43 | 43 | 0 | 0 | 0 | 0 |
| New Orleans Big Game Fishing Club Invitational | South Pass, AL | June 15-17 | 1655:15 | 25 | 8 | 1 | 0 | 0 | 16 |
| Walter Founderen Poco Bueno | Port O'Conner, TX | Jun 16-17 | 739:00 | 25 | 0 | 3 | 0 | 0 | 2 |
| Bimini Blue Marlin | Bimini, Bahamas | Jun 20-23 | 1067:35 | 40 | 4 | 7 | 0 | 1 | 0 |
| Cat Cay Blue Marlin | Cat Cay, Bahamas | Jun 26-30 | 516:30 | 22 | 5 | 9 | 0 | 0 | 2 |
| Golden Meadow Tarpon Rodeo | Grand Isle, LA | Jul 1-3 | 837:25 | 14 | 6 | 0 | 0 | 0 | 0 |
| Pensacola Invitational Billfish | Pensacola, FL | Jun 30-Jul 2 | 2566:05 | 47 | 63 | 16 | 0 | 1 | 3 |
| General Ray Huff Billfish | South Pass, LA | Jul 1-3 | 643:45 | 16 | 8 | 2 | 0 | 0 | 24 |
| Texas Championship Billfish | Port Aransas, LA | Jul 1-2 | 462:00 | 15 | 2 | 7 | 0 | 0 | 0 |
| Golden Meadow Big Game Fishing Club Ladies | Grand Isle, LA | Jul 4-5 | 117:30 | 6 | 3 | 0 | 0 | 0 | 0 |
| South Jersey Open White Marlin | Cape May, NJ | Jul 6-7 | 362:30 | 0 | 10 | 0 | 0 | 0 | 71 |
| Port Aransas Masters | Port Aransas, TX | Jul 6-7 | 286:30 | 7 | 0 | 4 | 0 | 0 | 0 |
| Chub Cat Blue Marlin | Chub Cay, Bahamas | Jul 10-14 | 1079:45 | 23 | 0 | 0 | 0 | 0 | 0 |
| Cape May Marlin | Cape May, NJ | Jul 11-13 | 274:00 | 0 | 39 | 0 | 0 | 0 | 7 |
| Deep Sea Roundup | Port Aransas, TX | Jul 11-12 | 711:00 | 6 | 3 | 15 | 0 | 0 | 1 |
| New Orleans Big Game Fishing Club Ladies | South Pass, LA | Jul 14-16 | 560:05 | 18 | 15 | 1 | 0 | 0 | 14 |
| Port Mansfield Fishing | Port Mansfield, TX | Jul 2-22 | 430:05 | 8 | 3 | 17 | 0 | 0 | 0 |
| Port Aransas Outboard | Port Aransas, TX | Jul 21-22 | 368:00 | 0 | 0 | 2 | 0 | 0 | 0 |
| Dauphin Island Deep Sea Rodeo | Orange Beach, AL | Jul 22-23 | 16:00 | 1 | 2 | 0 | 0 | 0 | 0 |
| Mid-Atlantic White Marlin Open | Ocean City, MD | Jul 24-26 | 198:00 | 0 | 34 | 0 | 0 | 0 | 1 |
| Ernest Hemingway Billfish | Bimini, Bahamas | Jul 24-28 | 598:00 | 7 | 0 | 7 | 0 | 0 | 0 |
| Grand Isle Tarpon Rodeo | Grand Isle, LA | Jul 27-29 | 1452:20 | 16 | 19 | 0 | 0 | 0 | 6 |
| Eagle Claw Freeport Open | Freeport, TX | Jul 27-29 | 924:20 | 26 | 14 | 23 | 0 | 0 | 5 |

Table 1 (Continued)

| Tournament | Location | Date | Hours Fished | Number Hooked | | | | | |
|---|--------------------|---------------|--------------|---------------|--------------|-----------|------------|--------------|----------------|
| | | | | Blue Marlin | White Marlin | Sail Fish | Sword Fish | Bluefin Tuna | Yellowfin Tuna |
| Annual Fort Walton-Destin Billfish | Destin, FL | Aug 2-3 | 233:45 | 5 | 1 | 7 | 0 | 0 | 0 |
| Texas International Fishing | Port Isabel, TX | Aug 3-5 | 539:30 | 6 | 3 | 7 | 0 | 0 | 1 |
| Southwest Fishing Club | South Pass, LA | Aug 4-5 | 180:20 | 8 | 4 | 0 | 0 | 0 | 0 |
| Mobile Big Game Fishing Club Ladies | Orange Beach, AL | Aug 5-7 | 36:30 | 0 | 6 | 0 | 0 | 0 | 0 |
| Panama City Captain's Day | Panama City, FL | Aug 11-13 | 430:10 | 4 | 53 | 6 | 0 | 0 | 0 |
| Dean Hawn Memorial Billfish | Port Aransas, TX | Aug 11-12 | 377:20 | 6 | 4 | 9 | 0 | 0 | 0 |
| Governors Charity Invitational | St. Thomas, V.I. | Aug 17-21 | 190:30 | 68 | 0 | 0 | 0 | 0 | 0 |
| Empire South Pass Fishing Rodeo | South Pass, LA | Aug 17-19 | 951:05 | 22 | 27 | 0 | 0 | 0 | 8 |
| Alabama Pleasure Island Deep Sea Fishing | Mobile, AL | Aug 18-20 | 200:45 | 5 | 2 | 2 | 0 | 0 | 1 |
| Key Allegro Billfish | Key Allegro, TX | Aug 19-20 | 162:45 | 3 | 9 | 3 | 0 | 0 | 0 |
| Alabama Invitational Billfish | Orange Beach, AL | Sep 1-3 | 1252:30 | 56 | 94 | 11 | 0 | 0 | 6 |
| Ocean City Annual White Marlin | Ocean City, MD | Sep 11-15 | 216:30 | 0 | 145 | 0 | 0 | 0 | 7 |
| San Juan International Billfish | San Juan, P.R. | Sep 15-17 | 2093:30 | 43 | 1 | 0 | 0 | 0 | 0 |
| Annual Destin Billfish | Destin, FL | Sep 15-17 | 1530:55 | 37 | 62 | 6 | 0 | 0 | 4 |
| New Orleans Big Game Fishing Club September | South Pass, LA | Sep 15-17 | 227:10 | 5 | 3 | 1 | 0 | 0 | 18 |
| Oceanic Open | Sea Pines, SC | Sep 20-23 | 297:35 | 4 | 2 | 8 | 0 | 0 | 0 |
| \$1,000 Showdown | Destin, FL | Sep 23-24 | 304:40 | 3 | 17 | 1 | 0 | 0 | 0 |
| Oregon Inlet Fishing | Oregon Inlet, NC | Sep 28 | 361:00 | 1 | 17 | 0 | 0 | 0 | 3 |
| Tripod | Marathon, FL | Nov 8-11 | 567:30 | 0 | 0 | 162 | 0 | 0 | 0 |
| Bill King One Day Billfish | Marathon, FL | Nov 13 | 112:00 | 0 | 0 | 24 | 0 | 0 | 0 |
| Key Colony Beach Sailfish | Key Colony Bch, FL | Nov 15-19 | 1104:00 | 0 | 0 | 142 | 0 | 0 | 0 |
| Key West Sailfish | Key West, FL | Nov 21-25 | 853:00 | 0 | 0 | 50 | 0 | 0 | 0 |
| Islamorada Triple Crown | Islamorada, FL | Nov 29-Dec 3 | 872:15 | 1 | 0 | 73 | 0 | 0 | 0 |
| Stuart Light Tackle | Stuart, FL | Dec 6-10 | 1129:10 | 1 | 0 | 219 | 0 | 0 | 0 |
| <u>Dock Sampling</u> | | | | | | | | | |
| Panama City, FL | Trolling | May 24-Nov 4 | 703:10 | 13 | 22 | 9 | 0 | 0 | 2 |
| Destin, FL | Trolling | Apr 15-Nov 15 | 5170:05 | 112 | 270 | 83 | 0 | 0 | 4 |
| Pensacola, FL | Trolling | Apr 29-Sep 17 | 898:30 | 14 | 26 | 9 | 0 | 0 | 2 |
| Mobile, AL | Trolling | May 20-Nov 11 | 637:35 | 22 | 29 | 1 | 0 | 0 | 4 |
| Grand Isle, LA | Trolling | Jan 27-Oct 21 | 2374:40 | 33 | 20 | 2 | 0 | 0 | 4 |
| South Pass, LA | Trolling | Apr 15-Oct 29 | 1591:00 | 37 | 27 | 0 | 0 | 0 | 23 |
| Port Aransas, TX | Trolling | Apr 12-Oct 1 | 1137:15 | 20 | 9 | 51 | 0 | 0 | 0 |

*Tournaments sampled by NMFS personnel or by personnel from cooperating agencies, 1978.

Table 2: Tournament Name, Location, Date, Hours Fished, and Number of Fish Hooked by Species, 1979*

| Tournament | Location | Date | Hours Fished | Number Hooked | | | | | |
|--|---------------------|--------------|--------------|---------------|--------------|-----------|------------|--------------|----------------|
| | | | | Blue Marlin | White Marlin | Sail Fish | Sword Fish | Bluefin Tuna | Yellowfin Tuna |
| Masters Invitational Sailfish | Palm Beach, FL | Jan 9-13 | 700:00 | 0 | 0 | 506 | 0 | 0 | 0 |
| Invitational Gold Cup | Palm Beach, FL | Jan 17-20 | 1079:30 | 0 | 0 | 104 | 0 | 0 | 0 |
| Frankie Brown Memorial | Bimini, Bahamas | Mar 19-23 | 1247:30 | 10 | 32 | 0 | 0 | 0 | 0 |
| Annual His and Hers Billfish | Chub Cay, Bahamas | Mar 28-Apr 1 | 392:30 | 24 | 30 | 0 | 0 | 0 | 0 |
| Members Only Billfish | Chub Cay, Bahamas | Apr 4-8 | 427:00 | 14 | 18 | 4 | 0 | 0 | 1 |
| Bimini Light Tackle | Bimini, Bahamas | Apr 30-May 4 | 42:15 | 0 | 1 | 3 | 0 | 0 | 0 |
| Atlantic Blue Marlin Open | Hilton Head Isl, SC | May 6 | 149:25 | 8 | 0 | 0 | 0 | 0 | 0 |
| New Orleans Big Game Fishing Club First | South Pass, LA | May 11-13 | 263:10 | 10 | 3 | 0 | 0 | 0 | 10 |
| Bimini Billfish and Tuna | Bimini, Bahamas | May 14-18 | 229:49 | 6 | 10 | 1 | 0 | 0 | 0 |
| South Pass Memorial Day | South Pass, LA | May 26-28 | 497:35 | 11 | 3 | 1 | 0 | 0 | 6 |
| Mobile Big Game Fishing Club Memorial Day | Orange Beach, AL | May 26-27 | 239:15 | 12 | 6 | 0 | 0 | 0 | 0 |
| Georgetown Blue Marlin | Georgetown, SC | May 27 | 242:25 | 15 | 1 | 0 | 0 | 0 | 0 |
| Annual Big Rock Blue Marlin | Moorehead City, NC | Jun 4-8 | 643:00 | 20 | 11 | 0 | 0 | 0 | 0 |
| South LaFourche Rodeo | South Pass, LA | Jun 8-10 | 393:40 | 20 | 1 | 0 | 0 | 0 | 0 |
| Southwest Fishing Club | South Pass, LA | Jun 8-10 | 163:30 | 4 | 2 | 0 | 0 | 0 | 1 |
| Hatteras Blue Marlin | Hatteras, NC | Jun 11-15 | 981:00 | 12 | 17 | 0 | 0 | 1 | 0 |
| Walter Fonderen Poco Bueno | Port O'Conner, TX | Jun 15-16 | 421:30 | 19 | 0 | 1 | 0 | 0 | 4 |
| General Ray Huff | South Pass, LA | Jun 15-17 | 331:55 | 18 | 12 | 1 | 0 | 0 | 4 |
| Golden Meadow Big Game Fishing Club Ladies | Grand Isle, LA | Jun 17 | 120:00 | 5 | 2 | 1 | 0 | 0 | 1 |
| Bimini Blue Marlin | Bimini, Bahamas | Jun 18-23 | 1376:30 | 34 | 10 | 9 | 0 | 0 | 0 |
| Cat Cay Blue Marlin | Cay Cay, Bahamas | Jun 25-29 | 646:30 | 15 | 6 | 6 | 0 | 1 | 0 |
| New Orleans Big Game Fishing Club Invitational | South Pass, LA | Jun 28-30 | 1783:47 | 79 | 51 | 2 | 0 | 1 | 21 |
| Texas Championship Billfish | Port Aransas, TX | Jun 30-Jul 1 | 389:50 | 9 | 1 | 1 | 0 | 0 | 0 |
| Golden Meadow Tarpon Rodeo | Grand Isle, LA | Jul 6-8 | 792:15 | 28 | 13 | 0 | 0 | 0 | 4 |
| | Drifting | | 9:00 | 0 | 0 | 0 | 1 | 0 | 0 |
| Pensacola International Billfish | Pensacola, FL | Jul 6-8 | 2137:45 | 52 | 140 | 26 | 0 | 0 | 5 |
| | Drifting | | 12:00 | 0 | 0 | 0 | 1 | 0 | 0 |
| Port Aransas Masters Billfish | Port Aransas, TX | Jul 6-7 | 174:35 | 6 | 0 | 0 | 0 | 0 | 0 |
| Chub Cay Blue Marlin | Chub Cay, Bahamas | Jul 9-13 | 961:13 | 36 | 0 | 3 | 0 | 0 | 0 |
| Deep Sea Roundup | Port Aransas, TX | Jul 11-12 | 375:10 | 7 | 3 | 10 | 0 | 0 | 2 |
| New Orleans Big Game Fishing Club Ladies Day | South Pass, LA | Jul 13-15 | 418:55 | 17 | 9 | 1 | 0 | 0 | 28 |
| Ernest Hemingway Billfish | Bimini, Bahamas | Jul 17-20 | 1067:52 | 23 | 1 | 20 | 0 | 0 | 0 |
| Eagle Claw Texas Open | Freeport, TX | Jul 19-21 | 1061:40 | 28 | 56 | 19 | 1 | 0 | 2 |
| | Drifting | | 61:00 | 0 | 0 | 0 | 3 | 0 | 0 |
| Port Mansfield Fishing | Port Mansfield, TX | Jul 19-21 | 302:34 | 2 | 22 | 15 | 0 | 0 | 4 |
| District Attorney Billfish | South Pass, LA | Jul 20-21 | 84:35 | 3 | 0 | 0 | 0 | 0 | 1 |
| Dauphin Island Deep Sea Rodeo | Orange Beach, AL | July 20-21 | 146:00 | 5 | 11 | 0 | 0 | 0 | 0 |
| | Drifting | | 4:00 | 0 | 0 | 0 | 1 | 0 | 0 |

Table 2 (Continued)

| Tournament | Location | Date | Hours Fished | Number Hooked | | | | | |
|---|--------------------|--------------|--------------|---------------|--------------|-----------|------------|--------------|----------------|
| | | | | Blue Marlin | White Marlin | Sail Fish | Sword Fish | Bluefin Tuna | Yellowfin Tuna |
| Annual Fort Walton-Destin Billfish | Destin, FL | Jul 21 | 199:25 | 6 | 19 | 0 | 0 | 0 | 0 |
| Mid-Atlantic White Marlin Open | Ocean City, MD | Jul 23-25 | 270:00 | 1 | 50 | 0 | 0 | 0 | 5 |
| Grand Isle Tarpon Rodeo | Grand Isle, LA | Jul 26-29 | 427:35 | 7 | 5 | 0 | 0 | 0 | 4 |
| Challenge Cup | Ocean City, MD | Jul 28-29 | 145:00 | 0 | 82 | 0 | 0 | 0 | 0 |
| Texas International Fishing | Port Isabel, TX | Aug 2-4 | 850:25 | 23 | 16 | 24 | 0 | 0 | 171 |
| Mobile Big Game Fishing Club Ladies | Orange Beach, AL | Aug 4-5 | 322:40 | 6 | 30 | 0 | 0 | 0 | 0 |
| Gulf Breeze Optimists Rodeo | Pensacola, FL | Aug 4-5 | 65:20 | 0 | 6 | 1 | 0 | 0 | 0 |
| | Drifting | | 15:00 | 0 | 0 | 0 | 2 | 0 | 0 |
| International Tourist | Havana, Cuba | Aug 9-13 | 454:00 | 12 | 0 | 3 | 0 | 0 | 0 |
| St. Thomas Invitational Blue Marlin | St. Thomas, V.I. | Aug 9-13 | 216:15 | 28 | 1 | 0 | 0 | 0 | 0 |
| Dea Hawn Memorial | Port Aransas, TX | Aug 10-11 | 179:35 | 12 | 1 | 2 | 1 | 0 | 5 |
| Panama City Captain's Day Billfish | Panama City, FL | Aug 10-12 | 819:50 | 25 | 60 | 6 | 0 | 0 | 0 |
| | Drifting | | 45:35 | 0 | 0 | 0 | 2 | 0 | 0 |
| Annual Golden Meadow Big Game Fishing club | Grand Isle, LA | Aug 11-12 | 326:30 | 4 | 8 | 0 | 0 | 0 | 2 |
| Empire-South Pass Fishing Rodeo | South Pass, LA | Aug 16-18 | 537:05 | 11 | 10 | 0 | 0 | 0 | 6 |
| | Drifting | | 29:45 | 0 | 0 | 0 | 1 | 0 | 0 |
| Port Aransas Rod and Reel | Port Aransas, TX | Aug 18-19 | 98:00 | 4 | 0 | 1 | 0 | 0 | 0 |
| Key Allegro Fishing | Key Allegro, TX | Aug 18-19 | 171:02 | 5 | 7 | 1 | 2 | 0 | 0 |
| Pensacola Ladies | Pensacola, FL | Aug 18-19 | 266:10 | 8 | 23 | 6 | 0 | 0 | 0 |
| New Orleans Big Game Fishing Club Labor Day | South Pass, LA | Sep 1-3 | 245:20 | 12 | 9 | 0 | 0 | 0 | 1 |
| Alabama International Billfish | Orange Beach, AL | Sep 1-2 | 1160:05 | 18 | 174 | 8 | 0 | 0 | 0 |
| Oregon Inlet Fishing | Oregon Inlet, NC | Sep 18-21 | 599:00 | 2 | 278 | 4 | 0 | 0 | 0 |
| New Orleans Big Game Fishing Club September | South Pass, LA | Sep 21-23 | 88:30 | 1 | 1 | 0 | 0 | 0 | 0 |
| Oceanic Open | Hilton Head, SC | Sep 29-30 | 181:00 | 2 | 1 | 2 | 0 | 0 | 0 |
| Bluewater Classic | Orange Beach, AL | Oct 12-13 | 317:20 | 16 | 37 | 2 | 0 | 0 | 3 |
| Mobile Mini | Orange Beach, AL | Oct 13 | 27:30 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ketch L | Orange Beach, AL | Oct 27-28 | 131:05 | 2 | 17 | 0 | 0 | 0 | 0 |
| Tripod | Marathon, FL | Nov 7-10 | 611:00 | 0 | 0 | 68 | 0 | 0 | 2 |
| Bill King One Day Billfish | Marthon, FL | Nov 12 | 64:00 | 0 | 0 | 7 | 0 | 0 | 0 |
| Key Colony Beach Sailfish | Key Colony Bch, FL | Nov 14-18 | 1208:30 | 0 | 0 | 67 | 0 | 0 | 0 |
| Key West Sailfish | Key West, FL | Nov 20-24 | 432:30 | 0 | 0 | 75 | 0 | 0 | 0 |
| Islamorada Sailfish (live bait) | Islamorada, FL | Nov 28-Dec 2 | 995:35 | 0 | 0 | 223 | 0 | 0 | 0 |
| Stuart Light Tackle | Stuart, FL | Dec 5-9 | 1066:30 | 0 | 0 | 342 | 0 | 0 | 0 |

Table 2 (continued)

| Tournament | Location | Date | Hours Fished | Number Hooked | | | | | |
|------------------------|----------|---------------|--------------|---------------|--------------|-----------|------------|--------------|----------------|
| | | | | Blue Marlin | White Marlin | Sail Fish | Sword Fish | Bluefin Tuna | Yellowfin Tuna |
| <u>Dock Sampling</u> | | | | | | | | | |
| Panama City, FL | Trolling | Apr 15-Oct 15 | 440:25 | 15 | 29 | 2 | 0 | 0 | 0 |
| | Drifting | | 70:00 | 0 | 1 | 0 | 7 | 0 | 0 |
| Destin, FL | Trolling | May 6-Oct 30 | 3066:45 | 90 | 182 | 40 | 0 | 0 | 0 |
| | Drifting | | 358:19 | 0 | 0 | 1 | 37 | 0 | 0 |
| Pensacola, FL | Trolling | Jul 2-Oct 20 | 354:25 | 6 | 43 | 6 | 0 | 0 | 0 |
| | Drifting | | 55:59 | 0 | 0 | 0 | 6 | 0 | 0 |
| Mobile, AL | Trolling | Jun 17-Oct 21 | 705:35 | 33 | 86 | 10 | 0 | 0 | 2 |
| | Drifting | | 27:30 | 0 | 0 | 0 | 2 | 0 | 0 |
| Grand Isle, LA | Trolling | May 8-Oct 14 | 2641:25 | 70 | 28 | 3 | 0 | 0 | 16 |
| | Drifting | | 114:00 | 0 | 0 | 0 | 10 | 0 | 0 |
| South Pass, LA | Trolling | Apr 14-Oct 21 | 851:40 | 38 | 22 | 0 | 0 | 0 | 6 |
| | Drifting | | 4:30 | 0 | 0 | 0 | 0 | 0 | 0 |
| Port Aransas, TX | Trolling | Mar 29-Sep 12 | 512:45 | 9 | 9 | 16 | 0 | 0 | 4 |
| | Drifting | | 4:00 | 0 | 0 | 0 | 1 | 0 | 0 |
| <u>Biological Data</u> | | | | | | | | | |
| Ocean City, MD | | Jul 4-Aug 31 | 1464:00 | 4 | 598 | 0 | 0 | 0 | 132 |
| Oregon Inlet, NC | | Jul 7-Sep 29 | 1098:35 | 68 | 242 | 48 | 0 | 0 | 6 |

*Tournaments sampled by NMFS personnel or by personnel from cooperating agencies, 1979.

Table 3: Tournament Name, Location, Date, Hours Fished, and Number of Fish Hooked by Species, 1980*

| Tournament | Location | Date | Hours Fished | Number Hooked | | | | | |
|--|--------------------|--------------|--------------|---------------|--------------|-----------|------------|--------------|----------------|
| | | | | Blue Marlin | White Marlin | Sail Fish | Sword Fish | Bluefin Tuna | Yellowfin Tuna |
| Masters Invitational Sailfish | Palm Beach, FL | Jan 8-12 | 868:20 | 0 | 0 | 260 | 0 | 0 | 0 |
| Annual Silver Derby Sailfish | Palm Beach, FL | Jan 12-Feb 1 | 866:30 | 0 | 0 | 487 | 0 | 0 | 0 |
| | Drifting | | 5:00 | 0 | 0 | 9 | 0 | 0 | 0 |
| Invitational Gold Cup | Palm Beach, FL | Jan 16-19 | 1326:00 | 0 | 0 | 316 | 0 | 0 | 0 |
| International Women's Fishing Association | Palm Beach, FL | Jan 23-24 | 117:00 | 0 | 0 | 109 | 0 | 0 | 0 |
| Frankie Brown Memorial | Bimini, Bahamas | Mar 10-14 | 1041:30 | 31 | 20 | 0 | 0 | 0 | 0 |
| Annual Bacardi Billfish | Bimini, Bahamas | Mar 18-22 | 934:39 | 19 | 20 | 0 | 0 | 0 | 0 |
| Annual His and Hers Billfish | Chub Cay, Bahamas | Mar 24-28 | 514:00 | 26 | 32 | 1 | 0 | 0 | 0 |
| Members Only Billfish | Chub Cay, Bahamas | Mar 31-Apr 4 | 269:00 | 7 | 14 | 1 | 0 | 0 | 1 |
| Bertram-Hatteras Billfish | Bimini, Bahamas | Apr 10-12 | 647:00 | 11 | 9 | 1 | 0 | 0 | 0 |
| Atlantic Blue Marlin Open | Sea Pines, SC | May 3-4 | 313:00 | 32 | 2 | 0 | 0 | 0 | 0 |
| New Orleans Big Fishing Club First | South Pass, LA | May 9-11 | 218:00 | 1 | 0 | 0 | 0 | 0 | 0 |
| Calico Jack Blue Marlin | Moorehead City, NC | May 16-17 | 126:25 | 0 | 0 | 0 | 0 | 0 | 0 |
| Georgetown Blue Marlin | Georgetown, SC | May 24-25 | 347:30 | 27 | 4 | 0 | 0 | 0 | 0 |
| Mobile Big Game Fishing Club Memorial Day | Orange Beach, AL | May 24-25 | 328:00 | 5 | 5 | 3 | 0 | 0 | 2 |
| South Pass Memorial Day | South Pass, LA | May 24-25 | 388:55 | 17 | 4 | 0 | 0 | 9 | 18 |
| Bimini Big Game Fishing Club Members Only | Bimini, Bahamas | May 28-31 | 303:40 | 19 | 4 | 10 | 0 | 1 | 0 |
| Big Rock Blue Marlin | Moorehead City, NC | Jun 2-6 | 534:20 | 6 | 8 | 0 | 0 | 0 | 2 |
| Golden Meadow Big Game Fishing Club Invitational | Grand Isle, LA | Jun 5-7 | 926:00 | 20 | 15 | 0 | 0 | 0 | 5 |
| South LaFourche Rodeo | Grand Isle, LA | Jun 6-8 | 122:35 | 1 | 1 | 0 | 0 | 0 | 0 |
| | Drifting | | 9:00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hatteras Blue Marlin | Hatteras, NC | Jun 10-14 | 1330:20 | 44 | 45 | 2 | 0 | 0 | 0 |
| Baton Rouge Big Game Fishing Club | South Pass, LA | Jun 13-15 | 202:01 | 17 | 7 | 1 | 0 | 0 | 5 |
| Cat Cay Blue Marlin | Cay Cay, Bahamas | Jun 16-20 | 821:44 | 21 | 11 | 17 | 0 | 1 | 0 |
| New Orleans Big Game Fishing Club Invitational | South Pass, LA | June 19-21 | 1264:00 | 27 | 30 | 2 | 0 | 0 | 127 |
| Destin Summer Open Billfish | Destin, FL | Jun 21-22 | 264:40 | 7 | 2 | 0 | 0 | 0 | 3 |
| | Drifting | | 8:00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Port Aransas Masters Billfish | Port Aransas, TX | Jun 21-22 | 240:15 | 6 | 1 | 2 | 0 | 0 | 1 |
| Bimini Blue Marlin | Bimini, Bahamas | Jun 24-28 | 1726:30 | 30 | 5 | 9 | 0 | 0 | 0 |
| Chandeleur 'Ho Rodeo | South Pass, LA | Jun 27-29 | 236:35 | 8 | 6 | 0 | 0 | 0 | 13 |
| Ocean City Marlin Club Members | Ocean City, MD | Jun 28-29 | 50:00 | 1 | 5 | 0 | 0 | 0 | 0 |
| | Drifting | | 11:00 | 0 | 0 | 0 | 1 | 0 | 0 |
| Texas Championship Billfish | Port Aransas, TX | Jun 28-29 | 369:45 | 14 | 1 | 15 | 0 | 0 | 0 |
| Pensacola Invitational Billfish | Pensacola, FL | Jul 4-5 | 2018:50 | 34 | 111 | 1 | 0 | 0 | 14 |
| Golden Meadow Tarpon Rodeo | Grand Isle, LA | Jul 4-6 | 448:20 | 9 | 5 | 2 | 0 | 0 | 0 |
| General Ray Huff Billfish | South Pass, LA | Jul 4-6 | 377:25 | 13 | 3 | 0 | 0 | 0 | 9 |
| | Drifting | | 9:00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chub Cay Blue Marlin | Chub Cay, Bahamas | Jul 7-11 | 1015:20 | 25 | 1 | 3 | 0 | 0 | 0 |

Table 3 (Continued)

| Tournament | Location | Date | Hours Fished | Number Hooked | | | | | |
|--|--------------------|--------------|--------------|---------------|--------------|-----------|------------|--------------|----------------|
| | | | | Blue Marlin | White Marlin | Sail Fish | Sword Fish | Bluefin Tuna | Yellowfin Tuna |
| Deep Sea Roundup | Port Aransas, TX | Jul 8-10 | 379:10 | 6 | 8 | 38 | 0 | 0 | 2 |
| | Drifting | | 6:00 | 0 | 0 | 1 | 0 | 0 | 0 |
| New Orleans Big Game Fishing Club Ladies Day | South Pass, LA | Jul 11-12 | 431:30 | 18 | 19 | 1 | 0 | 0 | 5 |
| Golden Meadow Big Game Fishing Club Ladies Day | Grand Isle, LA | Jul 12-13 | 135:40 | 8 | 0 | 0 | 0 | 0 | 1 |
| Port Mansfield Fishing | Port Mansfield, TX | Jul 17-19 | 458:16 | 14 | 52 | 14 | 0 | 0 | 9 |
| | Drifting | | 10:00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mid-Atlantic White Marlin Handicap | Ocean City, MD | Jul 18-20 | 295:30 | 2 | 27 | 0 | 0 | 0 | 0 |
| Dauphin Island Deep Sea Rodeo | Dauphin Island, AL | Jul 18-19 | 311:35 | 1 | 13 | 0 | 0 | 0 | 2 |
| | Drifting | | 9:30 | 0 | 0 | 0 | 1 | 0 | 0 |
| Walter Fondren Poco Bueno | Port O'Conner, TX | Jul 18-19 | 813:27 | 21 | 42 | 41 | 0 | 0 | 2 |
| Port Aransas Outboard | Port Aransas, TX | Jul 19-20 | 133:01 | 0 | 1 | 4 | 0 | 0 | 0 |
| Grand Isle Tarpon Rodeo | Grand Isle, LA | Jul 24-26 | 958:50 | 8 | 27 | 1 | 0 | 0 | 13 |
| Eagle Claw Texas Open | Freeport, TX | Jul 24-26 | 367:18 | 9 | 14 | 8 | 0 | 0 | 2 |
| | Drifting | | 150:03 | 0 | 0 | 0 | 1 | 0 | 1 |
| Babylon Invitational Marlin | Babylon, NY | Jul 26 | 27:00 | 0 | 1 | 0 | 0 | 0 | 0 |
| | Drifting | | 23:15 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ernest Hemingway Billfish | Bimini, Bahamas | Jul 28-Aug 1 | 767:03 | 23 | 1 | 11 | 0 | 0 | 0 |
| | Drifting | | 8:00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Texas International Fishing | Port Isabel, TX | Jul 31-Aug 2 | 949:46 | 21 | 24 | 24 | 0 | 0 | 11 |
| | Drifting | | 37:15 | 0 | 0 | 1 | 1 | 0 | 3 |
| Kenner Sporting Club Rodeo | South Pass, LA | Aug 1-3 | 155:25 | 12 | 5 | 0 | 0 | 0 | 2 |
| Beach Haven Marlin | Ocean City, NJ | Aug 2-3 | 840:05 | 0 | 85 | 0 | 0 | 0 | 0 |
| Annual Fort Walton-Destin Billfish | Destin, FL | Aug 2-3 | 570:41 | 11 | 131 | 1 | 0 | 0 | 0 |
| | Drifting | | 33:30 | 0 | 0 | 0 | 1 | 0 | 0 |
| Mobile Big Game Fishing Club Ladies | Orange Beach, AL | Aug 2-3 | 289:40 | 1 | 26 | 0 | 0 | 0 | 2 |
| Atlantic City White Marlin-Swordfish | Atlantic City, NJ | Aug 8-9 | 234:00 | 2 | 25 | 0 | 0 | 0 | 0 |
| | Drifting | | 198:00 | 0 | 2 | 0 | 3 | 0 | 0 |
| Montauk Yacht Club Cup | Long Island, NY | Aug 9-10 | 48:45 | 0 | 8 | 0 | 0 | 0 | 0 |
| Gulf Breeze Optimist Rodeo | Pensacola, FL | Aug 10 | 11:30 | 0 | 4 | 0 | 0 | 0 | 0 |
| Empire South Pass Rodeo | South Pass, LA | Aug 14-16 | 792:35 | 19 | 56 | 1 | 0 | 0 | 8 |
| Panama City Captain's Day | Panama City, FL | Aug 15-17 | 924:29 | 15 | 120 | 4 | 0 | 0 | 0 |
| | Drifting | | 124:14 | 0 | 0 | 0 | 4 | 0 | 0 |
| Pensacola Ladies | Pensacola, FL | Aug 16-17 | 389:55 | 8 | 42 | 0 | 0 | 0 | 0 |
| \$25,000 White Marlin Open | Ocean City, MD | Aug 18-20 | 868:33 | 0 | 344 | 0 | 0 | 0 | 0 |
| | Drifting | | 15:00 | 0 | 0 | 0 | 0 | 0 | 0 |
| St. Thomas Invitational Blue Marlin | St. Thomas, V.I. | Aug 21-25 | 235:30 | 49 | 0 | 0 | 0 | 0 | 0 |
| Golden Meadow Big Game Fishing Club | Grand Isle, LA | Aug 23-24 | 131:55 | 9 | 6 | 0 | 0 | 0 | 0 |
| | Drifting | | 21:00 | 0 | 0 | 0 | 2 | 0 | 0 |

Table 3 (Continued)

| Tournament | Location | Date | Hours Fished | Number Hooked | | | | | |
|---|--------------------|---------------|--------------|---------------|--------------|-----------|------------|--------------|----------------|
| | | | | Blue Marlin | White Marlin | Sail Fish | Sword Fish | Bluefin Tuna | Yellowfin Tuna |
| Ocean City Annual White Marlin Open | Ocean City, MD | Aug 29-31 | 524:47 | 3 | 233 | 0 | 0 | 0 | 0 |
| Virginia Beach Blue Marlin | Virginia Beach, VA | Aug 29-31 | 377:52 | 6 | 210 | 0 | 0 | 0 | 0 |
| Alabama International | Orange Beach, AL | Aug 29-30 | 1042:15 | 12 | 76 | 4 | 0 | 0 | 4 |
| | Drifting | | 20:20 | 0 | 0 | 0 | 1 | 0 | 0 |
| South Jersey Fall Festival | Atlantic City, NJ | Aug 30-31 | 104:00 | 0 | 19 | 0 | 1 | 0 | 0 |
| | Drifting | | 88:00 | 0 | 4 | 0 | 6 | 0 | 0 |
| New Orleans Big Game Fishing Club Labor Day | South Pass, LA | Aug 30-Sep 1 | 469:10 | 24 | 23 | 3 | 0 | 0 | 6 |
| Dean Hawn Memorial Billfish | Port Aransas, TX | Sep 5-6 | 244:00 | 2 | 0 | 10 | 0 | 0 | 0 |
| Annual Destin Billfish | Destin, FL | Sep 12-14 | 1132:04 | 41 | 109 | 27 | 0 | 0 | 0 |
| Oceanic Open | Sea Pine, SC | Sep 13-14 | 193:00 | 1 | 0 | 0 | 0 | 0 | 0 |
| Oregon Inlet Fishing | Oregon Inlet, NC | Sep 17-19 | 486:35 | 9 | 165 | 21 | 0 | 0 | 0 |
| New Orleans Big Game Fishing Club September | South Pass, LA | Sep 19-21 | 226:25 | 5 | 7 | 0 | 0 | 0 | 3 |
| Blue Water Classic | Orange Beach, AL | Oct 10-12 | 1295:10 | 40 | 140 | 3 | 0 | 0 | 1 |
| Tripod-Marathon | Marathon, FL | Nov 14-16 | 469:20 | 0 | 0 | 48 | 0 | 0 | 0 |
| Key Colony Beach Sailfish | Key Colony Bch, FL | Nov 19-23 | 1130:36 | 0 | 1 | 97 | 0 | 0 | 0 |
| Duck Key Sailfish | Duck Key, FL | Nov 26-30 | 210:00 | 0 | 0 | 27 | 0 | 0 | 0 |
| Islamorada Sailfish (live bait) | Islamorada, FL | Dec 3-7 | 1365:42 | 0 | 0 | 145 | 0 | 0 | 0 |
| <u>Dock Sampling</u> | | | | | | | | | |
| New England | Trolling | Jul 22-Oct 5 | 620:13 | 1 | 11 | 1 | 4 | 0 | 0 |
| | Drifting | | 275:29 | 0 | 1 | 0 | 3 | 0 | 0 |
| New Jersey | Trolling | Jun 28-Sep 26 | 280:13 | 2 | 31 | 1 | 0 | 0 | 0 |
| | Drifting | | 67:30 | 0 | 0 | 0 | 6 | 0 | 0 |
| Ocean City | Trolling | Jun 22-Sep 28 | 1106:48 | 5 | 237 | 2 | 2 | 0 | 0 |
| | Drifting | | 31:00 | 0 | 3 | 0 | 0 | 0 | 0 |
| Virginia | Trolling | Jun 18-Aug 16 | 554:37 | 7 | 212 | 2 | 0 | 0 | 0 |
| | Drifting | | 19:59 | 0 | 0 | 0 | 2 | 0 | 0 |
| Oregon Inlet | Trolling | May 7-Aug 25 | 5732:27 | 182 | 1164 | 184 | 0 | 0 | 0 |
| Panama City | Trolling | May 8-Sep 27 | 328:31 | 14 | 51 | 3 | 0 | 0 | 16 |
| | Drifting | | 37:00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Destin | Trolling | Apr 20-Nov 9 | 2608:38 | 60 | 308 | 17 | 0 | 0 | 4 |
| | Drifting | | 133:28 | 0 | 0 | 0 | 7 | 0 | 0 |
| Pensacola | Trolling | May 24-Nov 9 | 542:03 | 15 | 33 | 1 | 0 | 0 | 9 |
| | Drifting | | 20:59 | 0 | 0 | 0 | 1 | 0 | 0 |
| Mobile | Trolling | May 10-Nov 8 | 665:30 | 15 | 45 | 4 | 0 | 0 | 1 |
| | Drifting | | 27:30 | 0 | 0 | 0 | 1 | 0 | 0 |
| Grand Isle | Trolling | Mar 31-Oct 5 | 2078:45 | 46 | 46 | 6 | 0 | 0 | 9 |
| | Drifting | | 40:35 | 0 | 0 | 0 | 3 | 0 | 0 |

Table 3 (Continued)

| Tournament | Location | Date | Hours Fished | Number Hooked | | | | | |
|------------|----------|---------------|--------------|---------------|--------------|-----------|------------|--------------|----------------|
| | | | | Blue Marlin | White Marlin | Sail Fish | Sword Fish | Bluefin Tuna | Yellowfin Tuna |
| South Pass | Trolling | May 2-Oct 12 | 688:00 | 24 | 20 | 0 | 0 | 0 | 17 |
| | Drifting | | 26:29 | 0 | 0 | 3 | 0 | 0 | 0 |
| Texas | Trolling | May 21-Oct 12 | 1154:32 | 35 | 16 | 49 | 0 | 1 | 11 |
| | Drifting | | 19:30 | 0 | 0 | 4 | 0 | 0 | 0 |

*Tournaments sampled by NMFS personnel or by personnel from cooperating agencies, 1980.

Table 4: Billfish, by species, hooked, boated (includes tagged and released), lost and % boated.

| YEAR | BLUE MARLIN | | | | WHITE MARLIN | | | | SAILFISH | | | |
|-------|-------------|--------|------|----------|--------------|--------|------|----------|----------|--------|------|----------|
| | HOOKED | BOATED | LOST | % BOATED | HOOKED | BOATED | LOST | % BOATED | HOOKED | BOATED | LOST | % BOATED |
| 1978 | 1052 | 444 | 608 | 42% | 1397 | 826 | 571 | 59% | 1932 | 1110 | 822 | 57% |
| 1979 | 1020 | 436 | 584 | 43% | 1707 | 855 | 852 | 50% | 1591 | 852 | 739 | 54% |
| 1980 | 1287 | 588 | 699 | 46% | 4620 | 3128 | 1492 | 68% | 2045 | 1216 | 829 | 59% |
| TOTAL | 3359 | 1468 | 1891 | 44% | 7724 | 4809 | 2915 | 62% | 5568 | 3178 | 2390 | 57% |

Table 5: Summary of hours recorded trolling for big game fishes for 1978, 1979, and 1980.

| | GULF OF MEXICO | EAST COAST | BAHAMAS | CARIBBEAN | ALL 4 AREAS | S. FLORIDA & KEYS |
|--------------------------------|----------------|------------|---------|-----------|-------------|-------------------|
| TOTAL HOURS TROLLED | 85,082 | 23,016 | 20,068 | 5,062 | 133,228 | 18,870 |
| NO. OF FISH BOATED* BY SPECIES | | | | | | |
| BLUE MARLIN | 869 | 267 | 222 | 110 | 1,468 | - |
| WHITE MARLIN | 2,135 | 2,386 | 175 | 113 | 4,809 | - |
| SAILFISH | 521 | 139 | 106 | 12 | 778 | 2,400 |
| ALL SPECIES | 3,525 | 2,792 | 503 | 235 | 7,055 | 2,400 |
| HOURS TROLLED TO HOOK A FISH | | | | | | |
| BLUE MARLIN | 40.2 | 45.4 | 38.6 | 23.7 | 39.6 | - |
| WHITE MARLIN | 23.3 | 6.42 | 60.1 | 32.4 | 17.2 | - |
| SAILFISH | 107.0 | 100.1 | 128.6 | 421.8 | 111.67 | 4.32 |
| ALL SPECIES | 12.9 | 5.32 | 19.9 | 13.3 | 10.8 | 4.32 |
| HOURS TROLLED TO CATCH A FISH | | | | | | |
| BLUE MARLIN | 97.9 | 86.2 | 90.4 | 46.0 | 90.7 | - |
| WHITE MARLIN | 39.8 | 9.65 | 114.6 | 44.8 | 27.7 | - |
| SAILFISH | 163.3 | 165.5 | 189.3 | 421.8 | 171.2 | 7.8 |
| ALL SPECIES | 24.1 | 8.24 | 39.8 | 21.5 | 18.8 | 7.8 |

*BOATED INCLUDES TAGGED + RELEASED

NOTE: SOME NUMBERS MAY BE MISLEADING DUE TO UNEVEN DISTRIBUTION OF SPECIES.

Table 6: Smallest, largest, and average weight of billfish for 1978, 1979, and 1980.

| YEAR | BLUE MARLIN | | | WHITE MARLIN | | | SAILFISH | | |
|------|-------------|---------|---------|--------------|---------|---------|----------|---------|---------|
| | SMALLEST | LARGEST | AVERAGE | SMALLEST | LARGEST | AVERAGE | SMALLEST | LARGEST | AVERAGE |
| 1978 | 48.0 | 699 | 250.8 | 25.0 | 128 | 55.1 | 2.0 | 84.0 | 41.6 |
| 1979 | 45.0 | 1060.5 | 262.2 | 9.0 | 114 | 52.5 | 2.0 | 86.0 | 44.4 |
| 1980 | 39.0 | 738 | 248.1 | 16.0 | 135 | 52.6 | 8.5 | 83.0 | 42.7 |

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Table 7: Sex ratios of billfish examined in 1978, 1979, and 1980.

| YEAR | BLUE MARLIN | | | | WHITE MARLIN | | | | SAILFISH | | | |
|------|-------------|------|---------|---------------|--------------|------|---------|---------------|----------|------|---------|---------------|
| | FEMALE | MALE | UNKNOWN | MALE / FEMALE | FEMALE | MALE | UNKNOWN | MALE / FEMALE | FEMALE | MALE | UNKNOWN | MALE / FEMALE |
| 1978 | 198 | 92 | 112 | 2.2:1 | 195 | 178 | 244 | 1.1:1 | 86 | 54 | 114 | 1.6:1 |
| 1979 | 231 | 75 | 99 | 3.1:1 | 210 | 138 | 211 | 1.5:1 | 69 | 34 | 55 | 2:1 |
| 1980 | 187 | 80 | 193 | 2.3:1 | 295 | 174 | 1118 | 1.7:1 | 56 | 64 | 161 | .8:1 |

SEX COMPOSITION

For the three year period, 863 blue marlin, 1,190 white marlin, and 363 sailfish, were examined for sex determination (Table 7). These numbers represent 50% of the fish brought to the dock to be weighed. Female blue marlin outnumbered males 2.5:1. The ratio of female to male white marlin was 1.4:1. Sailfish showed a 1.4:1 ratio of females to males.

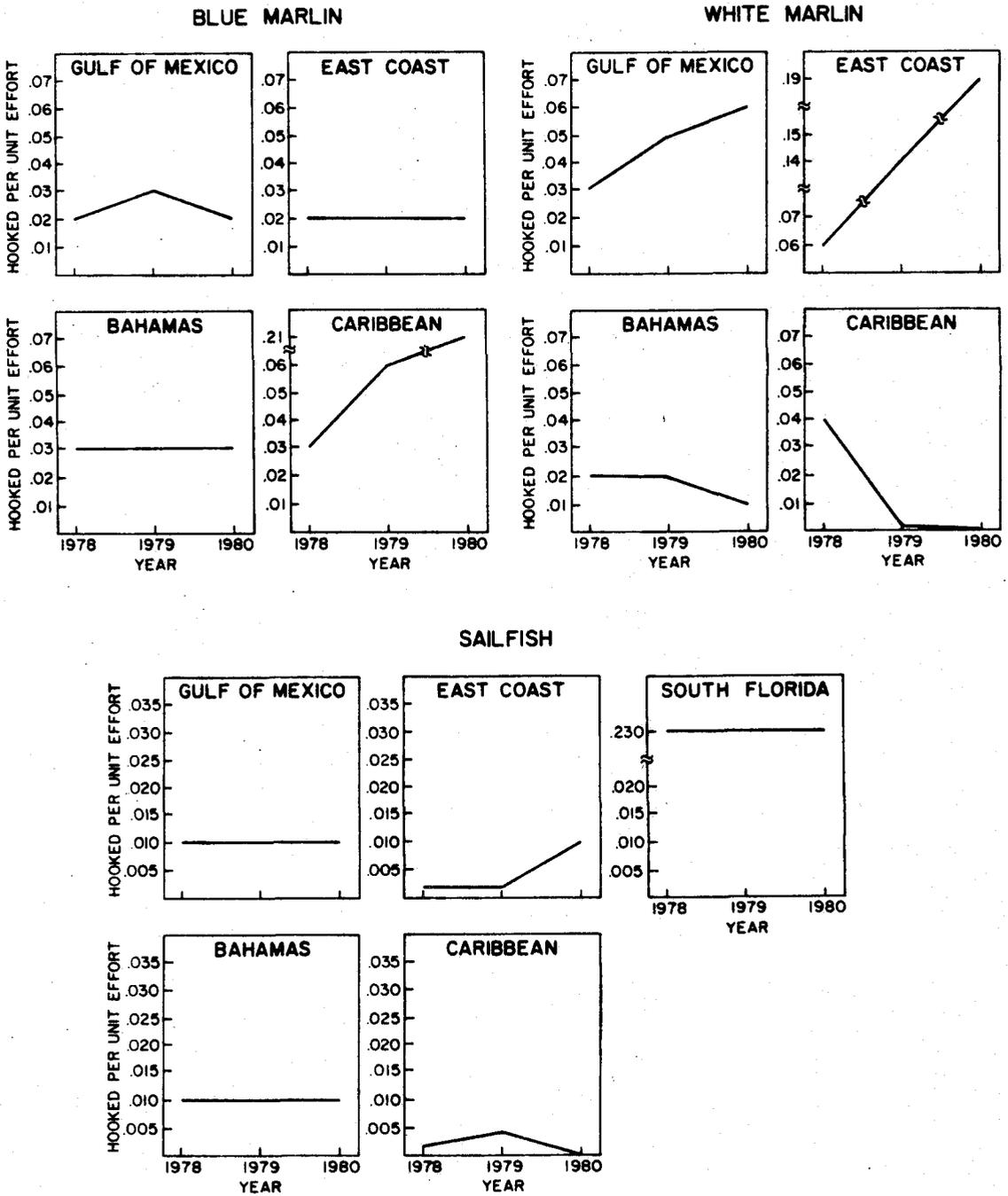
HOKED PER UNIT OF EFFORT

One of the purposes of the program was to provide an index for measuring abundance. Dividing the number of fish hooked by the number of hours spent trolling provided the abundance index. These numbers are expressed as the number of fish hooked per unit of effort (HPUE). Figure 1 shows HPUE for all three species.

The overall HPUE for blue marlin fluctuated very little. The HPUE in the Gulf of Mexico showed a slight increase in 1979 over 1978, but dropped in 1980. HPUE remained the same for all three years for the east coast and the Bahamas. The HPUE in the Caribbean showed a yearly increase. A decrease in sampling from three tournaments in 1978, to one in 1980 most likely explains this apparent increase. HPUE for 1980 was based on the St. Thomas, Virgin Island tournament, which historically has had the highest HPUE of any of the Caribbean tournaments.

Fishermen in the Gulf of Mexico and along the east coast have experienced increasing catch of white marlin for the past three years, while the catch of white marlin in the Bahamas and the Caribbean has dropped. In 1979 and 1980, Oregon Inlet, North Carolina, experienced some of the best white marlin fishing that local fishermen could ever remember. In 1980, more white marlin were caught in the Gulf of Mexico

Figure 1: Hooked per unit of effort* by species by selected areas, 1978 - 1980.



*Number of fish hooked divided by number of hours trolled.

than the total number of billfish caught in the Gulf in 1979. White marlin in the Bahamas have been scarce and the white marlin tournaments are no longer held.

HPUE for sailfish fluctuated only slightly. The indicated drop of HPUE for the Caribbean is probably due to the decrease in the number of tournaments sampled. Very few sailfish are caught in the Virgin Islands during August. The south Florida and Florida Keys show an HPUE of .23 for each of the three years.

BAIT INFORMATION

Prior to 1977, trolling artificial baits (lures) for billfishes was minimal in most areas covered by this report. A great deal of interest in using artificials has been shown recently. In the Gulf of Mexico 52,586 hours of effort sampled for bait used showed, 63% of the time artificials alone were trolled and 85% of the time fishermen were using at least one artificial bait. Fishermen in the Gulf have shown the most interest in artificials but artificials are gaining popularity in other areas also. Data collection on type of bait used was begun in 1978. Limited bait information was collected in 1978 and 1979. Extra effort and attention has been given in 1981 in hopes that future reports will be of better use to the fisherman. For information on types of bait used during the years 1978, 1979, and 1980, see Table 8. This table shows the number of hours trolled by each type of bait and HPUE, which is the number of fish (all billfish) hooked divided by the number of hours trolled using a particular bait. HPUE for live bait in the South Florida Keys continues to be slightly higher than using dead bait.

Table 8: Hours trolled and number of billfishes hooked per hour of trolling by type of bait for years 1979 and 1980.

| AREA | NATURAL BAITS (DEAD) | | ARTIFICIAL BAIT (LURE) | | BOTH SIMULTANEOUSLY | |
|----------------|----------------------|-------|------------------------|------|---------------------|------|
| | HOURS TROLLED | HPUE | HOURS TROLLED | HPUE | HOURS TROLLED | HPUE |
| GULF OF MEXICO | 7,999 | .127 | 33,073 | .077 | 11,514 | .102 |
| EAST COAST | 10,178 | .299 | 1,551 | .106 | 3,646 | .148 |
| BAHAMAS | 13,194 | .048 | 166 | .060 | 902 | .057 |
| CARIBBEAN | 686 | .077 | 6 | .167 | 214 | .182 |
| KEYS | 9,066 | *.217 | 0 | 0 | 0 | 0 |
| ALL AREAS | 41,123 | .163 | 34,796 | .078 | 16,276 | .110 |

*NOTE: HPUE FOR SAILFISH USING LIVE BAIT IN THE KEYS WAS .279

APPENDIX

Biologists and port samplers in the field are questioned frequently as to how catch-effort data, tagging data, and biological samples are utilized. Questions range from "why are you asking these questions?" to "what do you do with the samples you are collecting?" In order to provide basic information about associated billfish research this appendix has been added.

LONGLINE OBSERVER PROGRAM

As a result of the Magnuson Fishery Conservation and Management Act of 1976, the Longline Fishery Observer Program has been initiated. The law allows U.S. Observers to board foreign vessels within 200 nautical miles of the coast and record species of fish caught, whether they are dead or alive, and to identify and describe fishing techniques used. It is also required that all fish, except tunas, be released dead or alive. The Japanese have agreed to allow observers to tag and release all live billfishes. Hopefully, the data collected by the Observer Program will allow us to evaluate the effects of longlining on populations of both tunas and billfishes and help with stock assessment work. A monthly newsletter describing longline activities is available upon request by writing:

National Marine Fisheries Service
Pascagoula Lab
P.O. Drawer 1207
Pascagoula, Mississippi 39567

A publication describing the longline fishery is available upon request by writing Mr. Allyn M. Lopez at the SEFC.

COOPERATIVE GAMEFISH TAGGING PROGRAM

In 1980 the National Marine Fisheries Service assumed responsibility for the entire Cooperative Gamefish Tagging Program. In the past three years sport fishermen have tagged and released 10,075 fish. Of this number 81% have been billfish: 839 blue marlin, 2,001 white marlin, 5,268 sailfish, and 31 swordfish. Since 1978, 109 billfish have been recaptured. The tagging program has increased greatly in the last two years due mainly to two factors: increase of interest from big game fishing clubs and tournament directors and the initiation of the Foreign Longline Observer Program. Sportfishermen have played the major role in the success of the tagging program. As a result of the tagging program much has been learned about the migration and the life span of billfishes. A major finding was made this year when a white marlin was caught off Ft. Lauderdale, Florida, June 25. This white marlin had been tagged and released August 30, 1971, off of Ocean City, Maryland. This recapture set the all time time-at-large record for a billfish at nine years ten months. The shortest time-at-large also occurred in 1981. A sailfish was tagged and released off of West Palm Beach and five minutes later was taken by another angler. The second factor to help the tagging program was the initiation of the Foreign Longline Observer Program. One stipulation of the Magnuson Fisheries Conservation and Management Act of 1976, was all live billfishes caught on longline gear were to be released and tagged if possible. In 1978 an observer in the Gulf of Mexico tagged and released five white marlin. Of the five, four were recaptured the next year: two in the same area and two off the coast of Virginia. This is significant in that white marlin had previously been recorded as migrating in the opposite manner during that

same time or year. Also the two fish recaptured off the Virginia coast had been reported as being dead when the observer released them. Apparently some fish that appear to be dead or dying after being tagged survive. If you would like to receive a copy of the annual tagging newsletter, please contact Mr. Ed Scott, 75 Virginia Beach Drive, Miami, Florida 33149.

AGE AND GROWTH STUDY

An important part of assessing billfish stock structure and understanding their population dynamics is being able to age the fish. The Miami Lab has initiated research to determine age and growth of blue and white marlin. Little information is available on the biology of these animals, partly because large migratory fish are difficult to observe. Past research has indicated that marlin are fairly slow growing, long-lived fishes, but the specifics of their age and growth are not known.

The skeletal hardparts of fish: vertebrae, otoliths (minute inner ear bones) spines, gill covers, and scales, have been used by biologists to successfully determine the age and growth of some species. These hardparts form growth rings much like the concentric growth rings of a tree. During slow growth, these rings (called circuli) form close together, while during fast growth they are spaced farther apart. By counting the major growth bands, it is possible to estimate age, and growth rates. Validating these estimates is usually more difficult.

Not all skeletal hardparts can be used to estimate age and growth. For marlin, it must first be determined which (if any) are most reliable. To do this, a variety of hardparts from both sexes, over the

complete size range are needed. It is particularly important to collect samples from very small fish (for blues 50 pounds or less, and for whites 30 pounds or less) because they are easier to age; collecting samples from very large fish is also important. Obtaining these samples will hopefully answer questions such as: "How many growth bands are laid down each year?" and "How old do marlins get?"

For information pertaining to this work please write to Dr. Eric Prince at the Miami Laboratory, SEFC.

ACKNOWLEDGEMENTS

As in the past, we owe a great deal of gratitude to all of the anglers, crews and tournament managers for their cooperation and patience in providing us with their fishing data. We particularly thank the Florida Department of Natural Resources, and the South Carolina Wildlife and Marine Resources Department for their cooperation and assistance in sampling tournaments in their respective states. For the Gulf of Mexico data, we are grateful for the continued support of the various big game fishing clubs and charterboat associations from Texas to Florida. We also thank the Bimini Big Game Fishing Club, the Cat Cay Club, the Chub Cay Club, the Club Nautico de San Juan, and the directors of the Governors Invitational Blue Marlin Tournament. Special recognition is extended to Theresa Guarino and Teresa Wilson for their preparation of tables and text in this paper.