

SUMMARY OF A 1992-93 VOLUNTEER SURVEY OF BILLFISH LANDINGS FROM THE FLORIDA
EAST COAST AND KEYS

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SUMMARY

Billfish recreational harvests, particularly sailfish (*Istiophorus platypterus*), have not been well estimated along the Florida east coast and Keys due to the large number of vessels and potential landing sites in this region. Accordingly, monitoring this fishery has been difficult and prohibitively expensive. Therefore, recent ICCAT reports on the U.S. recreational billfish landing estimates are conservative or rely on previous survey estimates. In order to obtain more accurate and timely statistics on the landings of sailfish and marlin along the Florida east coast and Keys, the NMFS Miami Laboratory implemented a voluntary survey which began in November of 1992. This report summarizes the results of the initial year's voluntary billfish survey.

RESUME

Les prises de la pêche sportive d'istiophoridés, en particulier de voilier (*Istiophorus platypterus*) n'ont pas pu être bien estimées le long de la côte est de la Floride et des Cayes, à cause du grand nombre de navires et des lieux de pêche potentiels dans ce secteur. Par conséquent, le suivi de cette pêche s'est avéré difficile et très onéreux. Les rapports récents de l'ICCAT sur les estimations des débarquements d'istiophoridés de la pêche sportive des Etats-Unis sont donc conservatifs ou reposent sur des estimations de suivi antérieures. Le laboratoire du NMFS de Miami a mis sur pied un suivi volontaire qui a démarré en novembre 1992, dans le but d'obtenir des statistiques plus adéquates et ponctuelles des débarquements de voilier et de makaire qui ont lieu le long de la côte est de la Floride et des Cayes. Ce rapport récapitule les résultats de la prospection volontaire initiale sur les istiophoridés.

RESUMEN

Las capturas deportivas de marlines, particularmente de pez vela (*Istiophorus platypterus*) a lo largo de la costa este de Florida y los Cayos, no han sido bien estimadas debido al gran número de barcos y potenciales lugares de desembarques en esta región. Por ello, ha sido difícil y prohibitivamente caro hacer un seguimiento de esta pesquería. En consecuencia, los recientes informes ICCAT sobre las estimaciones de desembarques de la pesquería deportiva de Estados Unidos son conservadores o se apoyan en estimaciones de encuestas anteriores. Con el fin de obtener estadísticas más precisas y puntuales de los desembarques de pez vela y marlines frente a la costa este de Florida y los Cayos, el Laboratorio de NMFS en Miami implementó una encuesta voluntaria que dio comienzo en noviembre de 1992. Este informe resume los resultados del año inicial de la encuesta voluntaria sobre marlines.

INTRODUCTION

The National Marine Fisheries Service (NMFS), Southeast Fisheries Science Center (SEFSC), has collected recreational billfish data from the western Atlantic Ocean, Gulf of Mexico, and Caribbean Sea since 1972. Data collected from both tournament and non-tournament billfishing activities are relied upon to develop indices of abundance and landing estimates. Survey coverage of tournaments increased significantly until 1986 (Prince et al., 1990) and has since become relatively stable. However, coverage of non-tournament fishing has historically been sporadic and generally lacking due to difficulties in monitoring. The Gulf of Mexico has been the only area to consistently collect non-tournament landings data.

A persistent problem exists with documenting non-tournament billfish landings along the Florida East coast and Keys (i.e. the study area). This area, defined as occurring from Key West north to Cape Canaveral, has a relatively high concentration of sailfish (*Istiophorus platypterus*) and sustains a substantial directed fishery (Figure 1). In fact, Jolley (1974) reports that sailfish are one of the most important species in Southeast Florida's marine sport fishery. South Florida sailfish are available year-round, are usually found closer to shore than the marlins (*Makaira* sp. and *Tetrapterus* sp.), and are more accessible by smaller boats (17-19 ft, 5-6 m) than other billfish. Hence, a substantially larger number of boats target sailfish compared to the marlins and many more potential sailfish landing sites occur in the study area. For example, there are about 125 major landing sites (commercial marinas and fishing/yachting clubs) and probably many-fold more minor landing sites (boat ramps, boat rental locations, private homes with access to open ocean by boat, boat dockage facilities) which exist between Key West and Cape Canaveral (Division of State Lands, 1984). These factors make monitoring the South Florida fishery for sailfish logistically difficult and prohibitively expensive.

A 1977 questionnaire and telephone survey of recreational billfish anglers in the U.S. western Atlantic Ocean, including the South Florida area (Hamm and Slater, 1979) was used as the basis for estimating U.S. nominal landings of sailfish reported to ICCAT in 1977. However, because no other comprehensive survey of the South Florida fishery for sailfish, particularly non-tournament landings, has been conducted since 1977, the original 1977 estimate of U.S. recreational sailfish landings was substituted as the best available information on nominal landings for this species and area from 1978-1984 (ICCAT, 1993). This has subsequently caused problems with assessment of sailfish stocks in the western Atlantic Ocean (Jones and Farber 1993). After 1985, NMFS developed alternative methods for estimating sailfish landings in South Florida from billfish surveys covering tournaments, but non-tournament landings remain difficult to monitor.

In order to obtain more accurate and timely statistics on U.S. billfish landings, particularly from the South Florida fishery for sailfish, the NMFS Miami Laboratory initiated a voluntary Billfish Landings Survey in November, 1992, in the study area. This report summarizes the results of data collected from the initial year's survey.

DATA AND METHODS

Twenty nine major marinas from Cape Canaveral to Key West, Florida were identified as highly probable landing sites for sailfish and marlin (Figure 1). Each marina operator was contacted personally by telephone and an explanation of the survey was provided. A follow-up letter was sent (Figure 2) with letters from the Executive Directors of The Billfish Foundation (Ft. Lauderdale, FL) and the International Game Fish Association (Pompano Beach, FL) asking for support. Personal visits were made to assess cooperation. Marina operators were asked to record all billfish (non-tournament) landings on a "Billfish Landings Form" accompanied by the boat or angler name, length, weight, and date of capture (Figure 3). Participating marina operators were telephoned on a regular

basis to inquire about their progress and were asked to mail the completed forms monthly. Follow-up visits were also made to each marina to insure cooperation. A NMFS Cooperative Game Fish Tagging Program hat, and a T-shirt donated by The Billfish Foundation, were also given to participants as incentives for cooperating.

Sailfish landings were recorded in numbers. Estimates in metric tons (mt) were calculated from average weight and numbers landed. Total lengths and lower-jaw-fork-lengths were converted to weights when no weight measurement was available (Prager et al., 1992).

RESULTS and DISCUSSION

All marina operators from the 29 locations ultimately agreed to participate in the survey. Most marina operators were supportive of the survey during the initial request for cooperation and throughout the survey. A small percentage of marina operators required more persuasive tactics such as repeated visits and phone calls before cooperation was obtained. Participation from individual marinas had to be re-established in some cases because contact persons moved or changed jobs. Overall participant responsiveness declined towards the latter part of the survey, e.g. landings data was supplied less frequently and general attitude during telephone correspondence was less positive than in the beginning of the survey.

The submitted "Billfish Landings Form" was often incomplete or had data reported in a different format than requested. Of 330 recorded billfish landings, 92 (28%) had measured weights and 267 (81%) had measured lengths reported. In 230 instances (70%), lengths were recorded as total length instead of the requested lower-jaw-fork-length. The day of capture was unknown for 7 fish, but the month was available. Only the year was available for 19 fish.

A total of 322 sailfish, 4 blue marlin, 2 white marlin, and 2 spearfish were reported landed from the participating 29 marinas between November 21, 1992 to July 31, 1993 (Table 1). The vast majority of reported landings were sailfish (98%) of which 46% were reportedly landed at Palm Beach. Sailfish landings were seasonal with highest landings between January and March (Table 2). A total of four blue marlin were reported landed — one each at Key West and Palm Beach in June and two at Palm Beach in May. Two white marlin were reported landed — one at Key West in July and one at Palm Beach in May. Two spearfish were reported landed at Islamorada in May.

Size frequencies of sailfish (measured and converted) ranged from 11.8 to 47.6 kg and 140.1 to 223.5 cm (Figures 4 and 5). The average for 90 weighed sailfish (21 kg) was virtually the same when compared to an average of 20 kg computed from 171 weights converted from lengths. An average weight of 21 kg was used to estimate sailfish landings. The estimated landings were 6.7 mt for 322 sailfish, and less than 1 mt each for blue marlin, white marlin, and spearfish.

The NMFS recognizes that these landings represent a minimum estimate. The landings reported from the 29 major marinas are an unknown fraction of the actual landings. Further, the 29 major marinas represent only 23% (= 29/125) of the estimated major landing sites surveyed from this area. It is possible that the number of minor landing sites far exceeds the number of major landing sites. Also, these landings were reported from only eight months of the year. Nevertheless, these minimum landing estimates (6.7 mt for sailfish) represent numbers which previously were undocumented. Prior to this survey, U.S. recreational landings of sailfish were estimated at 8, 2, 1, and 3 mt from 1988 to 1991, respectively (ICCAT, 1993). These estimates appear to be significantly underestimated, given the minimum landings result of 6.7 mt from this modest survey.

The results of this survey are informative and establish a basis for expansion and changes. Theoretically, if the survey is carried on, a continuous source of landings data would be available. However, voluntary participation is difficult to maintain for long periods of time and the level of responsiveness has already begun to decline, as previously mentioned. The overall scope and direction of this survey needs to be examined to determine its future effectiveness.

RECOMMENDATIONS

Based on the number of landings from only twenty-nine marinas, we strongly recommend expansion of this survey. The study area should be expanded to include a greater proportion of marinas and should include more cooperation from fishing clubs in the study area. Also, areas along the U.S. East coast north on Cape Canaveral, Florida and into the Gulf of Mexico should be considered for expansion. Recent information provided to the NMFS has revealed that the Daytona Beach and Jacksonville areas (which are north of Cape Canaveral) have had a long-term history of billfish landings which may represent an important addition to this survey. Several areas which were not targeted in this survey (i.e. minor landing sites) may need to be examined to better determine the frequency and magnitude of sailfish landings, e.g., boat ramps, boat rental locations, and smaller resorts featuring ramps.

Sampling efforts should be concentrated at locations when a high volume of billfish landings are anticipated in an attempt to maximize the number of catches, especially if large-scale expansion is not possible due to budgetary constraints. Less emphasis might be placed at charter boat marinas which land few billfish, owing to very high release policies. Additionally, assessing the relative proportion of landed billfish which are brought to taxidermists or smoke houses should also be considered, as surveying these sites could prove to be more feasible and cost effective.

Expansion of this survey, to a great extent, depends upon the cooperation and participation of marina operators and fishermen. The NMFS realizes the inherent problems of conducting on-going voluntary surveys, i.e. lack of motivation and waning interest from participants. Thought must be given to developing more innovative incentives for participants, or devising ways to keep participants interested and motivated if the voluntary nature of this survey is continued. Conversely, if voluntary cooperation is not feasible for long-term surveys, the possibility of mandatory reporting of landings may need to be investigated. The U.S. Fishery Management Plan (FMP) for Atlantic Billfishes has a stipulation requiring mandatory reporting of billfish catches from selected tournaments (Federal Register, 1988). The NMFS could make a recommendation to revise the FMP to include mandatory reporting of billfish landings not associated with tournaments.

Finally, based on the results of this survey, revisions to the historical database of the SEFSC should be made and landing estimates corrected.

ACKNOWLEDGMENTS

We express our appreciation to all marina operators for their diligence in collecting billfish landings data. We also thank John Spence and Sue Graves from The Billfish Foundation and Michael Leech from the International Game Fish Association for their on-going support.

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Table 1. Number of billfish landings reported, by species and location, and number of marinas in each location from November 21, 1992 to July 31, 1993 from the Florida East coast and Keys. (SAI = sailfish, BUM = blue marlin, WHM = white marlin, SPF = spearfish). Locations are listed northward from Key West, Florida.

LOCATION	# OF MARINAS	# SAI	# BUM	# WHM	# SPF
Key West	4	14	1	1	0
Marathon	1	0	0	0	0
Islamorada	4	78	0	0	2
Key Largo	2	20	0	0	0
Miami	1	19	0	0	0
Miami Beach	2	0	0	0	0
Hollywood	1	2	0	0	0
Ft. Lauderdale	1	0	0	0	0
Lighthouse Point	1	4	0	0	0
Pompano Beach	1	18	0	0	0
Deerfield Beach	1	5	0	0	0
Boynton Beach	2	2	0	0	0
Palm Beach	6	149	3	1	0
Sebastian	1	11	0	0	0
Cape Canaveral	1	0	0	0	0
TOTALS	29	322	4	2	2

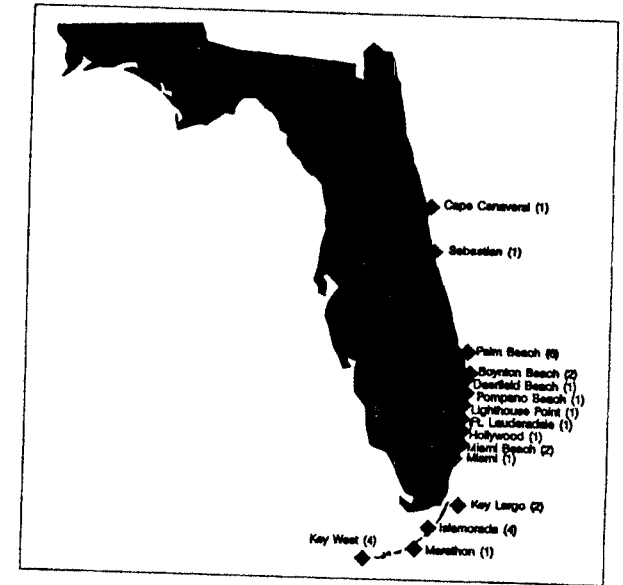


Figure 1. Locations of the twenty nine marinas from Cape Canaveral to Key West, Florida included in the November 1, 1992 - July 31, 1993 Billfish Landings Survey. (Numbers in parentheses indicate the number of participating marinas at each location).

Table 2. Number of sailfish landings, by month, from the Florida East coast and Keys from November 21, 1992 to July 31, 1993. Locations are listed northward from Key West, Florida.

LOCATION	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	TOTALS
Key West	5	0	0	0	3	1	0	4	1	14
Marathon	0	0	0	0	0	0	0	0	0	0
Islamorada	6	13	22	19	13	3	2	0	0	78
Key Largo	0	2	2	5	7	3	1	0	0	20
Miami	?	?	?	?	?	?	?	?	?	19
Miami Beach	0	0	0	0	0	0	0	0	0	0
Hollywood	0	0	1	0	0	1	0	0	0	2
Ft. Lauderdale	0	0	0	0	0	0	0	0	0	0
Lighthouse Pt.	0	0	3	0	1	0	0	0	0	4
Pompano Beach	0	0	0	4	4	6	4	0	0	18
Deerfield Beach	0	0	0	0	0	0	2	0	3	5
Boynton Beach	0	0	0	0	0	0	0	0	2	2
Palm Beach	0	0	18	49	32	23	20	7	0	149
Sebastian	0	0	2	4	1	1	2	1	0	11
Cape Canaveral	0	0	0	0	0	0	0	0	0	0

National Marine Fisheries Service
Southeast Fisheries Science Center
Miami Laboratory
75 Virginia Beach Drive
Miami, FL 33149

November 1, 1992

Dear Marina Operator:

The National Marine Fisheries Service (NMFS), Miami Laboratory is conducting a voluntary survey to obtain estimates of the minimum total billfish landings from marinas in South Florida (Cape Canaveral, FL, to Key West, FL). The results of this survey will be used by NMFS scientists to monitor trends in billfish landings.

Please record all boated billfish on the attached "Billfish Landings" form. I will visit your marina to answer any questions and to retrieve the forms. Although you are not required to participate, your cooperation and efforts will be greatly appreciated. A copy of our annual newsletter, including the results of this survey, will be sent to you.

Questions or comments should be directed to:

Robin Carter (305) 361-4239
National Marine Fisheries Service
75 Virginia Beach Drive
Miami, Florida 33149

Sincerely,

Robin Carter
Fishery Biologist

Figure 2. Letter sent to marina operators asking for cooperation in the 1992/1993 voluntary Billfish Landings Survey.

