

PROGRESS OF THE ICCAT ENHANCED RESEARCH PROGRAM FOR BILLFISH IN THE WESTERN ATLANTIC OCEAN DURING 1998

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SUMMARY

Research activities of the ICCAT Enhanced Research Program for Billfish in the western Atlantic Ocean during 1998 are summarized by location and research objective. At-sea sampling with observers on Venezuelan industrial longline vessels accomplished 24 trips by October, 1998, and more are targeted before the end of the year. Most of these vessels are based out of Cumana targeting tuna, swordfish, or both at the same time. At-sea sampling was also initiated on Brazilian longline vessels targeting swordfish during the 1998 sampling season. Biological sampling of swordfish, istiophorids, and yellowfin tuna for reproductive (12 samples) and age determination (200 samples) studies, as well as genetics research were continued during the 1998 sampling season. Shore-based sampling of billfish landings for size frequency data, as well as tournament sampling were obtained from Venezuela (4), Grenada, U.S. Virgin Islands, Bermuda, Barbados and Brazil. Program participants in Venezuela, Grenada and Barbados continued to assist in obtaining information on tag-recaptured billfish, as well as numerous sharks, in the western Atlantic Ocean during 1998. A total of 104 tag recoveries were submitted to the Program Coordinator in 1998. The Federation of Japan Tuna Fisheries Co-operative Associations (JTFCA) reported that tag release activities for billfish were initiated from its vessels in 1996 and this program is continuing during 1998. The amount of JTFCA tagging activity during 1998 will not be known until these boats report back to port later in the year. Age and growth samples from several billfish were obtained during 1998. Tagging of juvenile swordfish off Venezuelan longline vessels has resulted in a total of 68 releases since 1996. The Third ICCAT Billfish Workshop Report was published in an upgraded format, including a hard binding, and was distributed in early 1998.

RÉSUMÉ

Les recherches effectuées en 1998 dans l'Atlantique Ouest dans le cadre du Programme ICCAT de recherche intensive sur les Istiophoridés sont récapitulées par location et objectif. A la date d'octobre 1998, 24 sorties avaient été couvertes par l'échantillonnage en mer par des observateurs à bord de palangriers industriels vénézuéliens ; d'autres étaient prévues d'ici la fin de l'année. La plupart de ces bateaux ont leur port d'attache à Cumana, et visent des thons, de l'espadon, ou les deux à la fois. L'échantillonnage en mer a également commencé pour les palangriers brésiliens qui visaient l'espadon pendant la saison d'échantillonnage de 1998. L'échantillonnage biologique d'espadons, d'istiophoridés et d'albacores pour les études sur la reproduction (12 échantillons) et la détermination de l'âge (200 échantillons) s'est poursuivi pendant la saison d'échantillonnage de 1998, ainsi que la recherche génétique. L'échantillonnage à terre de la fréquence de tailles des débarquements d'istiophoridés, ainsi que l'échantillonnage des championnats, a été réalisé par le Venezuela (4), la Grenade, les Iles Vierges américaines, les Bermudes, la Barbade et le Brésil. Les personnes qui prennent part au programme au Venezuela, à Grenade et à La Barbade continuent de contribuer des informations sur les istiophoridés marqués et recapturés, comme de nombreux requins, dans l'Atlantique Ouest en 1998 ; en tout, 104 récupérations de marques ont été signalées au coordinateur du programme en 1998. La Federation of Japan Tuna Fisheries Co-operative Associations (JTFCA) a signalé que du marquage d'istiophoridés avait commencé sur ses bateaux en 1996, et que ce projet s'était poursuivi en 1998. Le volume des opérations de marquage de la JTFCA ne sera connu qu'une fois que les bateaux seront revenus au port en fin d'année. Un échantillonnage d'âge et de taille a porté sur plusieurs istiophoridés en 1998. Le marquage d'espadon juvénile sur des palangriers vénézuéliens a permis de relâcher marqués 68 poissons depuis 1996. Le rapport des Troisièmes Journées d'étude sur les Istiophoridés a été publié sous un format spécial relié, et diffusé début 1998.

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RESUMEN

Se resumen las actividades de investigación del Programa ICCAT de Investigación Intensiva sobre los Marlines en el Atlántico oeste durante 1998, por lugar y objetivo de estudio. El muestreo en la mar con observadores a bordo de palangreros industriales venezolanos se hizo en 24 mareas, completadas en octubre de 1998. Algunas más están planificadas antes de finales del mismo año. La mayor parte de estos barcos tienen su base en Cumaná y pescan túnidos, pez espada o ambas especies a un tiempo. También se inició el muestreo en la mar a bordo de palangreros brasileños de pesca de pez espada en el curso de la temporada de muestreo de 1998. El muestreo biológico de pez espada, istiofóridos y rabil destinado a estudios de reproducción (12 muestras) y determinación de la edad (200 muestras), así como investigación genética, prosiguió en 1998. Se realizó muestreo en tierra de desembarques de marlines, respecto a datos de frecuencias de tallas, así como muestreo de los torneos en Venezuela (4), Grenada, Islas Vírgenes (USA), Bermudas, Barbados y Brasil. Los participantes en el programa, en Venezuela, Grenada y Barbados siguieron colaborando en la obtención de información sobre marlines marcados y recuperados, así como muchos tiburones, en el Atlántico oeste durante el año 1998. Se envió al coordinador un total de 104 marcas recuperadas en 1998. La *Federation of Japan Tuna Fisheries Co-operative Associations (JTFC)*, comunicó que se habían iniciado en sus barcos las actividades de marcado de marlines en 1996 y que proseguía en 1998. El volumen del marcado del JTFC en 1998 no se sabrá hasta que los barcos regresen a puerto a finales de año. En 1998 se obtuvieron muestras de edad y crecimiento de varios marlines. El marcado de pez espada juvenil efectuado desde palangreros venezolanos, ha tenido como resultado la colocación de 68 marcas desde el año 1996. El informe de las Terceras Jornadas ICCAT de Trabajo sobre los Marlines se publicó en un formato cuidado, con tapas duras, y se distribuyó a principios de 1998.

INTRODUCTION

Research activities during 1998 began immediately after the SCRS meeting in October, 1997. The objectives in the initial program plan in 1986 (Appendix to Annex 12 of Report of Biennial Period, 1986-87 part 1) have not changed, and include: (1) Provide more detailed catch and effort statistics; (2) Initiate and expand the ICCAT billfish tagging program; and (3) Assist in collecting data for age and growth studies.

The two locations for intensive scientific study given in the original plan remain the Caribbean Sea and the west coast of Africa. The overall program coordinator during 1998 was Dr. Joseph E. Powers (U.S.A.); Dr. Eric D. Prince (U.S.A.) was coordinator for the western Atlantic Ocean, and Dr. Taib Diouf (Senegal) and Dr. Martin Mensah (Ghana) coordinated activities for the eastern Atlantic Ocean.

The Third ICCAT Billfish workshop report, as well as associated working documents, was published in an upgraded format, as well as hardbound cover, and distributed by the ICCAT Secretariat in early 1998. Funding for increased publication costs of this volume were provided by The Billfish Foundation. The following coordination activities were realized by this program during 1998 in the western Atlantic Ocean.

OBJECTIVE 1 – LANDING STATISTICS

Dr. Freddy Arocha with the University of Oriente in Cumana, Venezuela (supported by National Marine Fisheries Service funds), made a trip to Miami during the first part of 1998 to finalize work on swordfish biology, establish and confirm the annual ICCAT billfish sampling schemes in Venezuela, submit data (including tag recoveries), and return biological samples to Miami. Dr. Mark Farber (NMFS SEFSC staff), traveled on behalf of the Western Atlantic Coordinator to Trinidad and Tobago, Barbados, and Venezuela (Cumana and La Guaira) during the first part of 1998 to train samplers, sample billfish tournaments for catch and effort data, and obtain biological samples for DNA analysis.

The following summarizes research progress according to location and/or type of research activity.

Barbados. The shore-base sampling in Barbados was not conducted due to low fishing effort but at least 7 recreational billfish tournament were covered in 1998. Summaries of catch and effort data from these recreational billfish tournaments are normally submitted to the western Atlantic Coordinator at the end of the year, but data from a number of these tournaments were retrieved during Dr. Farber's trip in April/May, 1998.

Bermuda. Dr. Brain Luckhurst of the Bermuda Division of Fisheries continues to collect catch and effort statistics from billfish tournaments at this location. Dr. Luckhurst has summarized these research activities in papers submitted to the past two ICCAT billfish workshops, as well as in recent SCRS meetings.

Brazil. Dr. Alberto Amorim of Institute de Pesca continues his billfish tagging activities, as well as biological sampling of billfish heart tissue for Mitochondria DNA research. The heart tissue samples were shipped to Dr. John Graves (Virginia Institute of Marine Science) for his work on stock structure on Atlantic billfish. The first observer trip aboard a Brazilian longline vessel targeting swordfish was made during the summer of 1998. Data from this trip are currently being analyzed and were submitted to the western Atlantic Coordinator in September, 1998.

Grenada. The Ministry of Industrial Development and Fisheries continued shore-based sampling activities of the artisanal fisheries during the 1998 season. Data from the 1998 Spice Island Billfish Tournament were also collected, including CPUE, size and sex information of billfish landings.

Jamaica. Dr. Guy Harvey continues to collect data at recreational tournaments including size and sex information of the landed fish, as well as catch and effort data. Most of this activity takes place in the fall to coincide with the billfish tournament schedule.

St. Martin, N.A. The billfish tournament normally held on St Martin was canceled for 1998 due to the world soccer tournament. This cancellation also prevented our normal sampling of size frequency data from the Nichirei Carib Corporation at St. Maarten (Dutch side).

St. Vincent. Members of CARICOM continue their efforts in tagging small pelagic species throughout the Caribbean. Research cruises aboard the St. Vincent Department of Fisheries longline vessel were not made during 1998. This activity will be re-evaluated at the end of this year to determine if it is appropriate to continue this research next year.

Trinidad and Tobago. Shore-base sampling of the industrial longline vessels (mostly Taiwanese vessels) that off-load in the Port of Spain is normally carried out by Dr. Christine Chan-A-Shing, Ministry of Food Production and Marine Exploitation. However, due to recent changes in the ownership of the large freezer facility in Port of Spain, shore-based sampling was not conducted during 1998. With consideration of budgetary constraints, this work may be re-activated next year. Dr. Farber did take a tour of the offloading facility (National Fisheries Company, Ltd.) during his recent trip to Port of Spain, as well as sampled a billfish tournament on Tobago.

Venezuela. At-sea sampling activities of FONAIAP continued at the port of Cumana, where the fleet of industrialized longline vessels target yellowfin tuna and swordfish, but also catch billfish. In addition, the fleet of smaller artisanal vessels often target billfish. There were a total of 24 at-sea observer trips reported to the western Atlantic Coordinator since the last SCRS meeting. Several of these trips were made on the larger Korean type longline vessels and smaller artisanal boats, but most were made on the mid-size industrialized longline boats. Biological sampling of billfish consisted of collecting heart tissue, reproductive tissue, and anal spines from about 224 fish during 1998 at-sea sampling activities. Shore-based sampling in Venezuela continued during 1998, with harbor sampling in Juangriego and Playa Verde, in addition to Cumana and La Guaira. Sampling of 3 recreational tournaments held in Playa Grande Marina as well as Puerto Cabello and Punto Fijo, continued in 1998. A major effort to obtain reports of tag recaptured billfish, as well as tagging of juvenile swordfish off Venezuelan longline vessels, continued during 1998. These results are including in the tagging section (below).

U.S. Virgin Islands. Shore-based sampling of billfish tournaments continued during 1998 (normally at least 4 tournaments are held each year). Arrangements were made through the Virgin Islands Game Fishing Club in St. Thomas to sample tournament and non-tournament billfish activities during the 1998 fishing season. Dr. Farber made these arrangement during his visit to the island during the fall of 1997.

OBJECTIVE 2 – BILLFISH TAGGING PROGRAM

The Western Atlantic Coordinator continued to maintain communication with representatives of the Federation of Japan Tuna Fisheries Cooperative Associations relative to tagging of billfish from the Japanese longline fleet. However, the level of tagging activity will not be available until after the boats offload at Las Palmas later in the year. A total of over 104 tag recaptured billfish (as well as a few sharks) have been reported to the western Atlantic Coordinator through October, 1998. These recaptures represent both NMFS and The Billfish Foundation tags and continue to indicate increased tag recapture reporting rates in the southeast Caribbean Sea as a result of the ICCAT Enhanced Research Program for Billfish. In addition to recapture activities, a total of 68 juvenile size swordfish (40-105 cm lower jaw fork length) were tagged and released off Venezuelan longline vessel during 1996-1998. A miniaturized nylon anchor tag (NMFS SW series) was used to tag these small pelagic fishes. A document summarizing these activities was submitted to the 1998 SCRS meeting.

OBJECTIVE 3 – AGE AND GROWTH

The 1998 sampling year was rather slow for the acquisition of calcified structures from very large and small istiophorids for our age and growth program. However, almost 200 anal fin spines were collected from swordfish caught off Venezuelan longline fisheries for ongoing age and growth studies. No samples over 1,000 pounds were obtained during 1998, although several juvenile billfish were also collected from the stomachs of larger predators.