

REPORT OF THE CARICOM FISHERIES RESOURCE ASSESSMENT AND MANAGEMENT PROGRAM (CFRAMP)

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SUMMARY

Nominal catch statistics for large pelagic species are presented for the period 1988-1993. In 1994, the Program's Pelagic and Reef Fishes Resource Assessment Unit began implementation of a two-year program of biological data collection in participating countries. The CFRAMP/ICCAT project to tag billfish and large tunas has conducted a trial field trip to test and refine the method of tagging proposed by staff of the ICCAT Enhanced Billfish Program. Antigua and Barbuda began tagging billfish at their 28th annual sportfishing tournament which took place in May of this year.

RESUME

On trouvera dans ce document les statistiques de capture nominale des grands pélagiques pour la période 1988-1993. En 1994, la *Pelagic and Reef Fishes Resource Assessment Unit* a mis en place un programme de deux ans pour la collecte de données biologiques dans les pays participants. Dans le cadre du projet ICCAT/CFRAMP de marquage des istiophoridés et des grands thonidés, une sortie expérimentale a été réalisée sur le terrain, afin de tester et d'affiner la méthode de marquage proposée par les participants au Programme de Recherche Intensive sur les Istiophoridés de l'ICCAT. A Antigua et Barbuda, le marquage des istiophoridés a commencé lors des 28èmes Championnats qui ont eu lieu cette année en mai.

RESUMEN

Se presentan las estadísticas nominales de captura de grandes especies pelágicas en el período 1988-1993. En 1994, el "Pelagic and Reef Fishes Resource Assessment Unit" del Programa, inició la implementación de un programa de dos años de duración dedicado a la recogida de datos biológicos en los países participantes. El proyecto CFRAMP/ICCAT para marcado de marlines y grandes túnidos ha llevado a cabo una campaña experimental sobre el terreno para comprobar y poner a punto el método de marcado propuesto por el personal del Programa de Investigación Intensiva sobre Marlines de ICCAT. Antigua y Barbuda empezaron a marcar marlines en el curso de su 28 torneo anual de pesca deportiva que tuvo lugar en mayo de este año.

INTRODUCTION

At present, twelve Caribbean countries participate in the CARICOM Fisheries Resource Assessment and Management Program (CFRAMP) which has as its goal the promotion of management and conservation of fishery resources in CARICOM, to permit their exploitation on a sustainable basis. The fisheries in these countries are largely artisanal. This document briefly reports on recent developments in the large pelagic fishing industry of these countries, annual large pelagic landings for 1988 to 1993, and CFRAMP's as well as individual country activities in large pelagic research for the period 1993-1994.

RECENT DEVELOPMENTS IN THE LARGE PELAGIC FISHING INDUSTRY

In 1993, seven of the eight longliners (36 ft) donated to the Government of Grenada through a grant aid programme were sold to local fishermen, enabling them to spend longer periods at sea. The eighth vessel was retained by the Fisheries Division for commercial operations and research. Also, there has been a gradual increase in the number of hooks being used on longlines as fishermen now store their gear on reels rather than in boxes. Smaller wooden and fiberglass reinforced plastic (FRP) boats have been introducing ice boxes to improve on the landed quality of fish, as prices are now based on the grade of fish.

On 5 March 1994, St. Lucia put in place new fisheries regulations, in which submission of fishing logbooks is one of the licencing conditions for both foreign and local fishing vessels

LARGE PELAGIC RESEARCH ACTIVITIES FOR 1993/1994

(Anon.(a), 1994). Also, all sportfishing events must have the written consent of the government and vessel owners/operators must be licensed. Under the sportfishing rules, any migratory fishery resource that is caught shall not consist of more than 18 kingfish, dolphinfish or wahoo per person on the boat, and any resource not intended to be used shall not be injured unnecessarily but shall be returned to the sea alive (Anon.(a), 1994).

In St. Lucia, emphasis is being placed on developing the offshore fishery for large pelagics in an attempt to ease the fishing pressure on heavily exploited nearshore resources. Fishermen are moving away from the traditional wooden boats (ranging from 11 to 30 feet in length) to the more stable fiberglass pirogues (ranging from 25 to 27 feet) which are being purchased from Martinique and Trinidad. Since 1991, a Japanese master fisherman has been working with the Fisheries Department to adapt commercial longlining techniques to suit the vessels and fisheries of St. Lucia. This St. Lucia/Japan cooperative programme and the more recent exposure to the Cuban-derived longlining techniques practiced in Grenada have resulted in a variety of training activities for local fishermen. A number of fish aggregating devices (FADs) have been deployed as part of this experimental fishing programme.

In St. Vincent and the Grenadines, emphasis is also being placed on developing the offshore fishery for large pelagics. Under a 1991 Japanese grant aid programme, improved onshore infrastructure, new fishing technology and training are being provided to develop the fishery. The storage and ice making facilities of the New Kingstown Fish Market (one of the main landing areas for pelagics) which was constructed and officially opened in 1990, will be upgraded. Similar facilities are being constructed on Bequia and Union Island. Four of the five tuna longline vessels (42 feet) provided under this programme in 1992 have been sold to fishermen. The fifth is being used by the Fisheries Division for research and training purposes. Also, two FADs, obtained under the programme, were deployed by the Fisheries Division east of the Grenadines (Bequia and Mustique) in 1992. They were deployed in an attempt to increase the commercial catch of pelagic fish. Reports by fishermen indicated that there were significant aggregations of dolphinfish and wahoo approximately ten to fourteen days after deployment of the FADs.

LARGE PELAGIC CATCHES

Table 1 provides landing statistics for large pelagics in those participating countries with large pelagic fisheries. As noted in table 1, some categories can include more than one species, and may represent a different group of species for each country. Due to uncertainties in species identification at the data collection level in Barbados, catches previously recorded as yellowfin tuna and skipjack tuna no longer exist; these catches are therefore now included in the unclassified tunas category in table 1. The statistics presented for Grenada have been revised to incorporate a raising factor to obtain estimates of overall total landings. CFRAMP is continuing efforts to standardise fishery data collection systems in all participating countries.

Table 2 notes landing statistics from Antigua and Barbuda's main sportfishing tournament for 1994. The national report of Trinidad and Tobago provides details of recreational landings from that country (Anon.(b), 1994).

The Program conducted a study to investigate the role of naturally occurring objects in fisheries for pelagic species in the southeastern Caribbean (flying fish, dolphinfish, kingfishes, wahoo, sharks, billfishes and tunas). The investigation was done by conducting a questionnaire survey of two hundred and fifty three fishers, fifty each from St. Lucia, Barbados, Grenada, and Tobago, and fifty three from St. Vincent. The study showed that drifting objects played an important role in large pelagic fisheries in the southeastern Caribbean by attracting fish and thereby increasing their catchability. This effect was found to be seasonal, being greatest between January and March in all islands, but had a more seasonal duration in Grenada and Tobago. The effect was greatest in water which was green or brown in colour. Fish associated with both natural and anthropogenic objects with no apparent preference either within or between these groups. Fishers actively sought and fished around drifting objects. Fishers from St. Lucia, Barbados, Grenada and Tobago targeted flying fish (*Hirundichthys affinis*) by deploying FADs which they constructed from naturally occurring material. However, no fishers in the southeastern Caribbean deployed drifting FADs when fishing for large pelagics (Gomes et al, 1994).

Regarding CFRAMP's planned two-year biological data collection program, preliminary assessments of the financial, personnel, training and equipment requirements of the participating countries were done in 1994. Data collection is expected to commence later this year, and will be conducted in conjunction with CFRAMP's catch and effort data collection program which is already in progress in most of the participating countries.

In August 1994, CFRAMP, in collaboration with staff of the ICCAT Billfish Tagging Program, conducted a trial field tagging trip in the EEZ of St. Vincent and the Grenadines. The St. Vincent Fisheries Division's research vessel, outfitted with a livebait well, was used for the exercise. From a set of one hundred and six hooks using live bait (goggle-eye scads (*Selar crumenophthalmus*) and round scads (*Decapterus mackerellus*)), three sailfish (*Istiophorus albicans*), one king mackerel (*Scomberomorus cavalla*), one dusky stingray (*Dasyatis americana*) were caught. The one sailfish that survived being caught was tagged and released. Additional one-day tagging trips are planned for late 1994 and 1995.

The Antigua and Barbuda Sports Fishing Club held its 28th annual sportfishing tournament during 20-21 May, 1994. A total of 56 boats participated in the tournament in which 129 fish were caught weighing a total of 2.3 mt (see Table 2). Ten marlins under 200 lbs were tagged and released. This was the first year of tagging. The tagging exercise was initiated by the Antigua and Barbuda Fisheries Division with assistance from CFRAMP. The tags were supplied by ICCAT and the tag/release information was sent back to ICCAT. The organisers hope to make tagging a permanent part of the annual tournament.

During the 1993/1994 billfish season, Grenada continued to collect biological data (length, weight and sex) for the ICCAT Programme for Enhanced Research for Billfish. A total of 842 billfish (49 blue marlin, 10 white marlin and 783 sailfish) were sampled. In addition, 5 blue marlin, 1 white marlin and 39 sailfish were sampled (for length, weight and sex) at the Spice Island Billfish Tournament, during 30 January-1 February 1994.

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Table 1. Commercial landings (mt, rounded to the nearest 0.1 mt when data were sufficiently precise) of large pelagic fish species by some CARICOM countries, 1988 - 1993.

| Country | Common Name | Scientific Name | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | |
|---------------------------|-------------------|--------------------------------------------------------------|---------------|--------------|---------------|---------------|---------------|---------------|------|
| Barbados | Tuna unsp | | 233.0 | 36.0 | 87.0 | 71.0 | 112.0 | 93.0 | |
| | Billfish unsp | | 333.0 | 76.0 | 102.0 | 58.0 | 84.0 | 59.0 | |
| | Wahoo | <i>Acanthocybium solandri</i> | 332.0 | 87.0 | 51.0 | 60.0 | 51.0 | 54.0 | |
| | Shark unsp | | 134.0 | 33.0 | 18.0 | 19.0 | 24.0 | 18.0 | |
| | Total | | 1032.0 | 232.0 | 258.0 | 208.0 | 271.0 | 224.0 | |
| Dominica | Yellowfin Tuna | <i>Thunnus albacares</i> | 3.2 | 6.5 | 18.0 | 11.7 | 22.6 | 30.2 | |
| | Skipjack Tuna | <i>Katsuwonus pelamis</i> | 4.5 | 15.2 | 60.0 | 37.8 | 41.1 | 23.6 | |
| | Blackfin Tuna | <i>Thunnus atlanticus</i> | 1.1 | 4.1 | 18.7 | 9.7 | 13.9 | 14.8 | |
| | Wahoo | <i>Acanthocybium solandri</i> | 0.9 | 2.5 | 5.8 | 9.3 | 12.5 | 6.9 | |
| | King mackerel | <i>Scomberomorus cavalla</i> | 20.0 | 29.0 | 32.5 | 33.5 | 46.6 | 51.7 | |
| Total | | 29.7 | 57.3 | 135.0 | 102.0 | 136.7 | 127.2 | | |
| Grenada | Yellowfin Tuna | <i>Thunnus albacares</i> | 376.8 | 411.3 | 530.1 | 620.2 | 595.2 | 857.9 | |
| | Skipjack Tuna | <i>Katsuwonus pelamis</i> | 38.3 | 18.6 | 22.6 | 25.0 | 30.1 | 25.1 | |
| | Blackfin Tuna | <i>Thunnus atlanticus</i> | 219.5 | 134.2 | 293.1 | 194.8 | 146.0 | 252.7 | |
| | Bigeye Tuna | <i>Thunnus obesus</i> | | | | 64.8 | 25.0 | 20.1 | |
| | Spanish Mackerel | <i>Scomberomorus maculatus</i> | 0.4 | 1.1 | 3.3 | 0.4 | 0.2 | 0.7 | |
| | Wahoo | <i>Acanthocybium solandri</i> | 136.9 | 57.2 | 54.1 | 76.5 | 104.0 | 95.7 | |
| | Atlantic Sailfish | <i>Istiophorus albicans</i> | 198.6 | 171.2 | 217.9 | 315.7 | 310.0 | 246.2 | |
| | Blue Marlin | <i>Makaira nigricans</i> | 33.6 | 40.1 | 52.3 | 63.9 | 51.8 | 57.9 | |
| | Swordfish | <i>Xiphias gladius</i> | 97.1 | 8.9 | 0.9 | 2.0 | 3.2 | 13.1 | |
| | Total | | 1101.2 | 842.6 | 1174.3 | 1363.3 | 1265.5 | 1569.4 | |
| St Lucia | Yellowfin Tuna | <i>Thunnus albacares</i> | | | 57.6 | 49.3 | 57.5 | 91.7 | |
| | Skipjack Tuna | <i>Katsuwonus pelamis</i> | | | 37.0 | 51.2 | 39.3 | 52.6 | |
| | Blackfin Tuna | <i>Thunnus atlanticus</i> | | | 16.6 | 14.2 | 13.4 | 15.9 | |
| | Tuna unsp. | | | | 33.9 | 56.1 | 44.5 | 71.8 | |
| | Atlantic Bonito | <i>Sarda sarda</i> | | | 2.7 | 3.2 | 2.8 | 4.2 | |
| | Kingfish | <i>Scomberomorus cavalla</i> & <i>Acanthocybium solandri</i> | | | 55.0 | 78.6 | 149.8 | 141.2 | |
| Total | | | | 202.8 | 252.6 | 307.3 | 377.4 | | |
| St.Vincent and Grenadines | Yellowfin Tuna | <i>Thunnus albacares</i> | 0.1 | 0.6 | 19.6 | 23.9 | 21.8 | 65.0 | |
| | Albacore | <i>Thunnus alalunga</i> | | | | | | 2.0 | |
| | Skipjack Tuna | <i>Katsuwonus pelamis</i> | 16.5 | 28.2 | 29.0 | 27.4 | 19.8 | 65.8 | |
| | Blackfin Tuna | <i>Thunnus atlanticus</i> | 18.5 | 15.3 | 37.9 | 10.6 | 6.6 | 53.4 | |
| | Bigeye Tuna | <i>Thunnus obesus</i> | | | 0.0 | 0.3 | 1.2 | 3.3 | |
| | Little Tuna | <i>Euthynnus alleteratus</i> | | | | | 0.2 | 1.0 | |
| | Wahoo | <i>Acanthocybium solandri</i> | 4.4 | 3.7 | 28.0 | 32.5 | 32.9 | 41.0 | |
| | Cero Mackerel | <i>Scomberomorus regalis</i> | | | | | 0.7 | 0.2 | |
| | Atlantic Sailfish | <i>Istiophorus albicans</i> | | | 1.8 | 0.6 | 4.0 | 3.7 | |
| | Blue Marlin | <i>Makaira nigricans</i> | | 0.5 | 0.4 | 0.3 | 1.4 | 1.7 | |
| | White Marlin | <i>Tetrapturus albidus</i> | | | | | 0.1 | 0.8 | |
| | Swordfish | <i>Xiphias gladius</i> | | | 0.0 | 3.3 | 0.0 | 3.1 | 22.4 |
| | Shark | <i>Carcharhinus sp</i> | | | | | | 6.4 | |
| Total | | 39.5 | 48.3 | 120.3 | 95.3 | 91.8 | 266.7 | | |

Table 1. (cont). Commercial landings (mt, rounded to the nearest 0.1 mt when data were sufficiently precise) of large pelagic fish species by some CARICOM countries, 1988 - 1993.

| | | | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|------------------------|-------------------|-------------------------------------|--------|---------------|---------------|---------------|---------------|---------------|
| Trinidad and Tobago | Yellowfin Tuna | <i>Thunnus albacares</i> | 0.6 | 10.0 | 302.7 | 540.1 | | 218.5 |
| | Skipjack Tuna | <i>Katsuwonus pelamis</i> | 1.0 | | | | | 2.1 |
| | Bigeye Tuna | <i>Thunnus obesus</i> | 1.0 | 18.9 | 56.7 | 263.2 | | 257.6 |
| | Bluefin Tuna | <i>Thunnus thynnus</i> | 0.1 | 0.1 | | | | 0 |
| | Albacore | <i>Thunnus alalunga</i> | | 0.2 | 1.9 | | 47.5 | 639.1 |
| | Tunas unsp | | 1229.3 | 3110.4 | 3537.9 | 50.6 | 4428.1 | 347.1 |
| | Blue Marlin | <i>Makaira nigricans</i> | | 0.9 | | | | 114.8 |
| | Black Marlin | <i>Makaira indica</i> | | 25.5 | 1.8 | | | 110.6 |
| | Marlin unsp | | 74.0 | 18.8 | 15.6 | 7.1 | | 0 |
| | Atlantic Sailfish | <i>Istiophorus albicans</i> | 23.7 | 9.5 | 5.6 | 2.6 | 2.2 | 55.1 |
| | Spearfish | <i>Tetrapturus pfluegeri</i> | 9.7 | 6.7 | 1.0 | | | 62.2 |
| | Swordfish | <i>Xiphias gladius</i> | 42.0 | 79.1 | 65.9 | 71.0 | 562.4 | 125.1 |
| | Kingfish | <i>Scomberomorus cavalla</i> | 752.0 | 541.0 | 424.3 | 656.6 | | 1192.1 |
| | Carite | <i>Scomberomorus brasiliensis</i> | 2704.2 | 2864.1 | 2470.8 | 2748.6 | | 2130.0 |
| | Wahoo | <i>Acanthocybium solandri</i> | | | | 117.8 | | |
| | Blue Shark | <i>Prionace glauca</i> | | | | | | 58.3 |
| | Mako Shark | <i>Isurus oxyrinchus, I. paucus</i> | | | | | | 113.5 |
| | Shark unsp | | | | | | | 104.2 |
| | Total | | | 6825.6 | 8674.2 | 8874.2 | 6448.6 | 7032.2 |

Table 2. Catch (kg) from 1994 Annual Sportfishing Tournament in Antigua

| Common Name | Scientific Name | 1994 | |
|---------------|-------------------------------|------------|---------------|
| | | Number | Weight(kg) |
| Tuna | <i>Thunnus spp</i> | 10 | 121.7 |
| Sailfish | <i>Istiophorus albicans</i> | 1 | 15.5 |
| White Marlin | <i>Tetrapturus albidus</i> | 1 | 33.2 |
| Marlin unsp. | | 5 | 917.3 |
| Dolphinfish | <i>Coryphaena hippurus</i> | 53 | 585.1 |
| Wahoo | <i>Acanthocybium solandri</i> | 51 | 544.1 |
| Kingfish | <i>Scomberomorus cavalla</i> | 7 | 786.9 |
| Cero Mackerel | <i>Scomberomorus regalis</i> | 1 | 4.5 |
| Total | | 129 | 3008.3 |

Interpretative Notes:

Blanks signify that no data are available

Barbados: Landings of Wahoo are mostly *A. solandri*, but also include king mackerel *S. cavalla*. Unknown quantities of frigate tuna (*A. thazard*) are also caught.

Grenada: Prior to 1991, bigeye tuna and blackfin tuna were reported together as blackfin tuna. Grenada Fisheries Division estimates that reported blackfin tuna landings actually comprised 50% Blackfin, 20-25% bigeye and the balance made up of bullet and frigate tunas.

St. Vincent and the Grenadines: Landings are from Kingstown market only. However, most landings of pelagic fish are made at that port.

Trinidad and Tobago: Two fisheries sectors contribute to the landings recorded above: the industrial fishery and the inshore fishery (see SCRS /94/129). The 'Tuna unspecified' category in 1991 and 'Sailfish' in 1992 contain the inshore component only.