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UK national report

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ABSTRACT

The UK National Report summarises fishing by vessels licensed to fish for tuna and tuna like species in the British Indian Ocean Territory (Chagos Archipelago) Fisheries Conservation and Management Zone (FCMZ) during the 2007 / 2008[1] fishing season. Five UK flagged vessels were also registered with IOTC to fish during 2008, but they did not fish in the BIOT FCMZ, and are reported to IOTC by the UK Department for Environment Food and Rural Affairs (DEFRA) through the EU. In 2007/08 75 licences were issued to 41 longline vessels of two size classes (±100 GRT). The estimated total catch was 1,366t comprising 31% yellowfin tuna, 63% bigeye tuna, and 6% other species. 57 licences were issued to 54 Purse seine vessels that year. The total catch for the 20087/08 season by purse seiners was 23,418t. The reported species composition (before correction) was yellowfin tuna, 79.09%; skipjack tuna, 12.70%; bigeye tuna, 7.44%; and, albacore, 0.77%. It is estimated that a further 24.6t of tuna and tuna like species were landed by recreational fishers on Diego Garcia in 2007. The five UK vessels caught[2] ???? tonnes from the IOTC area of which swordfish (??%) and sharks (??%) were the predominant species. There was no BIOT or UK observer programme during 2007/08. Some data on non target species and discards is however available in logbooks, and 79 tonnes of sharks were landed by longline vessels in 2008, representing 5.8% of the catch. New stock assessment models were applied to the assessment of yellowfin, bigeye and skipjack tunas for the WPTT in October. Minor changes to BIOTAs systems have been introduced as a result of IOTC SC and Commission recommendations and resolutions.

1 For the purposes of this report, the fishing season for the BIOT FCMZ (Chagos Archipelago) is defined as running from the 1st of April through to the 31st of March the following year. This season definition is used because the main historical peaks in the purse seine and longline seasons in the BIOT FCMZ (Chagos Archipelago) occur during the months of December and January.

2 At the time of writing, complete statistical data had not been received from MFA for the UK flagged vessels operating in the IOTC area. These data will be reported separately. Qualitative information in this report relates to the current reporting period, 2007.

Contents

1. Introduction

This paper reports on both fishing activity within the British Indian Ocean Territory (BIOT) Fisheries Conservation and Management Zone (FCMZ), and UK fisheries targeting tuna and tuna like species in the IOTC area. The BIOT Authorities do not operate a flag registry, BIOT does not have a fleet of fishing vessels, and there is no commercial port in BIOT. Access is granted to third parties to fish in the BIOT FCMZ under licence, with attached terms and conditions. A small recreational fishery exists on Diego Garcia which catches some tuna and tuna like species. These characteristics set the context in which IOTC resolutions are applied within the BIOT FCMZ. This report summarises fishery statistics relating to vessels licensed to fish for tuna and tuna like species in the BIOT FCMZ during the April 2007 / March 2008 fishing season, and compares them to data for the four previous years.

During the calendar year 2007 there were also 5 authorised UK flagged vessels registered with IOTC which caught ???? tonnes of fish. The activities of these vessels are reported through the UK Department for Environment Food and Rural Affairs (DEFRA), and have also been included in this report. None of these vessels fished in the BIOT FCMZ in 2007/08.

2. Fishery Statistics: BIOT

Three tuna fisheries operated in the British Indian Ocean Territory (Chagos Archipelago) Fisheries Conservation and Management Zone (FCMZ) during the 2007 / 2008 fishing season: a longline fishery, a purse seine fishery and a recreational fishery.

2.1. BIOT Longline Fishery

In 2007 / 08 75 longline licences were issued to 41 longline vessels of two size classes (±100 GRT). The number of vessels licensed in the smaller class has decreased greatly with the effort level for this class dropping from 696 days in 2006 / 07 to only 77 days in 2007 / 08. The estimated total catch was 1,366t (Table 1) comprising 31% yellowfin tuna, 63% bigeye tuna, and 6% other species (Table 2). Species composition varies by vessel class (Table 3) with the longliners >100 GRT targeting the deeper swimming bigeye tuna (63%) and the longliners <100 GRT targeting yellowfin and other tunas and billfish closer to the surface.

Table 1. BIOT FCMZ longline summary 2003/04 to 2007/08

Year	2003/04	2004/05	2005/2006	2006/07	2007/08
Number of Vessels	38	33	24	26	41
Number of Licences	54	48	27	34	75
Number of Days Fished	1060	664	1207	1147	1508
Total Catch (t)	1162	730	916	590.04	1366
CPUE (t/day)	1.096	1.099	0.759	0.515	0.906
CPUE (t/1000 hooks) [3]	0.406	0.407	0.281	0.196	0.306

3 Based on an average rate of 2700 hooks set per day

Table 2. BIOT FCMZ longline summary species composition 2003/04 to 2007/08 for all vessels fishing within the zone.

Year	2003/04	2004/05	2005/2006	2006/07	2007/08
Yellowfin tuna	45%	48%	34%	45%	31%
Bigeye tuna	42%	52%	48%	41%	63%
Other species	13%	--	28%	11%	6%
Total Catch (t)	1162	730	916	590	1366

Table 3. BIOT FCMZ longline summary 2007/08 by vessel class

Vessel Size Class	Days	Total Catch (t)	CPUE (t/day)	Catch YFT (t)	Catch BET (t)	Catch Other (t)
Longliners >100 GRT	1289	1357.24	1.053	420.50	856.44	80.3
Longliners <100 GRT	77	9.37	0.122	4.03	1.96	3.38

In the first 6 months of the 2008/09 season (from April to the end of September) a total of 7 longline vessels have been licensed. Catch and effort data are very limited from the logbook returns so far and will be reported more fully at the next meeting. This represents a smaller number than in recent years. In 2007/08 by September a total of 24 longline vessels had fished.

2.2. BIOT Purse Seine Fishery

The total catch for the 2007/08 season by purse seiners inside the BIOT FCMZ was one of the highest since the since the FCMZ was declared at 23,418t (See Table 4). The reported species composition (before correction) was typical for a 'normal' year within the BIOT FCZM when sets are focussed on free schools. In 2007/8 the catch was dominated by yellowfin tuna 79.09% (18,521t) with skipjack tuna at 12.70% (2,975t) and minor catches of bigeye tuna (7.44% - 1742t) and albacore (0.77% - 181t). These catch data are based on radio reports daily to the vessel and verified by logbook data as and when they are available (Table 5). The catch composition is markedly different to 2006/7 where skipjack were the dominant species as seen in other poor years in BIOT such as 2002/03 where fishing occurs on FADs.

Table 4. BIOT FCMZ Purse Seine summary 2003/04 to 2007/08

Year	2003/4	2004/05	2005/2006	2006/07	2007/08
Number of Vessels	52	52	54	55	54
Number of Licences	53	56	56	56	57
Number of days fished	104	991	394	27	1294
Total Catch (MT)	1320	23535	13865	95	23418
Catch rate (t/day)	12.69	23.75	36.19	3.52	18.10

Table 5. BIOT FCMZ Purse Seine summary species composition 2003/04 to 2007/08

Year	2003/04	2004/05	2005/2006	2006/07	2007/08
Yellowfin tuna	71.74%	83.80%	77.93%	0.00%	79.09%
Skipjack tuna	14.24%	14.50%	20.95%	97.89%	12.70%
Bigeye tuna	1.97%	1.70%	1.08%	2.11%	7.44%
Albacore	11.89%	0.00%	0.00%	0.00%	07.77%
Total catch (t)	1320	23535	13865	95	23418

2.3. BIOT Recreational Fishery Catches

A small recreational (sports) fishery occurs under licence at Diego Garcia. Tuna and tuna like species represent 69% of the catch (the remainder are reef associated species). For 2007 no species information was available. Species composition observed in 2002 (the previous year with complete coverage) has therefore been applied to the catch per month by vessel type in order to derive species catches (Table 6). From January 2008 improved data on species composition is available and will be fully reported next year.

Table 6. Estimated catches of tuna and tuna like species landed from the BIOT recreational fishery during 2007 – based on % observed species composition in 2002.

Month	Estimated catch of tuna and tuna like species (Kg)										TOTAL (kg)			Total (kg)	% catch
	Blue Marlin	Dolphinfish	Kawakawa	Rainbow runner	Sailfish	Wahoo	Dogtooth tuna	Skipjack tuna	Yellowfin tuna	Other tuna nei	Tunas	Tuna like spp	**All**	All Spp	Tuna and tuna like spp
Jan-07	13.4	8.6	125.2	22.2	3.0	683.4	10.9	25.2	751.9	17.3	805.2	855.8	**1661.0**	2791.6	59.5%
Feb-07	15.4	9.4	135.1	25.4	3.5	778.3	12.5	28.6	865.2	17.6	923.9	967.1	**1891.0**	3005.7	62.9%
Mar-07	14.8	8.9	126.3	24.4	3.4	736.1	12.0	27.4	832.5	14.0	886.0	913.9	**1799.9**	2761.0	65.2%
Apr-07	13.6	8.9	128.7	22.6	3.1	685.6	11.1	25.8	765.6	15.5	818.0	862.6	**1680.6**	2814.4	59.7%
May-07	16.7	9.8	134.8	27.4	3.8	813.4	13.6	30.7	938.6	11.9	994.8	1005.9	**2000.7**	2890.3	69.2%
Jun-07	15.8	9.6	129.7	26.0	3.6	755.8	12.9	29.3	888.7	8.3	939.2	940.5	**1879.7**	2705.2	69.5%
Jul-07	25.4	14.4	187.2	41.5	5.7	1176.3	20.6	46.3	1426.1	4.4	1497.5	1450.5	**2948.0**	3772.5	78.1%
Aug-07	14.2	8.3	117.0	23.3	3.2	701.1	11.5	26.1	796.9	12.5	847.0	867.2	**1714.1**	2553.3	67.1%
Sep-07	32.7	18.3	236.5	53.4	7.4	1518.2	26.6	59.4	1837.2	6.0	1929.2	1866.4	**3795.6**	4787.4	79.3%
0ct 07	22.2	12.6	165.7	36.4	5.0	1048.8	18.1	40.6	1251.3	7.5	1317.5	1290.7	**2608.2**	3418.9	76.3%
Nov-07	14.8	9.0	115.5	24.4	3.4	680.8	12.1	27.5	834.4	1.4	875.4	847.9	**1723.3**	2725.2	63.2%
Dec-07	0.0	6.8	40.8	15.0	0.0	565.6	0.0	47.6	208.7	0.0	256.3	628.2	**884.5**	1459.9	60.6%
TOTAL	**198.9**	**124.5**	**1642.6**	**342.0**	**45.1**	**10143.6**	**161.8**	**414.6**	**11397.1**	**116.4**	**12089.9**	**12496.8**	**24586.7**	**35685.6**	**68.9%**

3. Fishery Statistics – UK vessels.

During the 2007 calendar year 5 UK flagged vessels were registered on the IOTC list of authorised vessels. Catches are summarised in the table below.

Data to be added

4. Information on non target species

4.1. BIOT

Logbooks record discards, and since 1993 the number of sharks caught has been recorded. From 2005 the logbook has also included the weight of shark caught. From 2009 sharks and rays will be separated in logbooks (see 2.6). In the past sharks may have been targeted for fins but not fully reported, but in 2006 the removal of fins from sharks caught in BIOT was prohibited and any sharks caught must be retained whole or released. The total catch of non tuna and tuna-like species recorded in longline logbooks is indicated in Table 7. Shark catches have apparently increased since the introduction of the shark legislation (although large numbers were caught in 1997-98), but this may reflect better maintenance of logbook records. All sharks found on board during an inspection must be accounted for in logbooks. Prior to 2006 shark catches may not have reliably been reported. Similarly, it would seem that discards are not accurately or consistently reported in logbooks.

In addition to sharks and discards, Table 2 indicates the proportion of other species caught by longline vessels, and Table 7 indicates the numbers retained. In 2007/08 'others' represented 6% of the catch or 82 tonnes. Others consist mostly of billfish and marlins.

Table 7. Number and weight of sharks landed, numbers of 'others' and number of sharks and total 'fish' discarded by longliners, from logbook records 1993-2007. (Total discards include the sharks and some tunas).

Year	Sharks retained		# Others	Discard numbers	
	Weight (kg)	Number	retained	Shark	All fish
1993	0	174	1064		
1994	0	54	661		
1995	0	2	113		
1996	0	4	515		
1997	0	1633	5444		
1998	0	5148	17107		
1999	0	176	28223		
2000	1138	470	7676	199	233
2001	0	693	6981		227
2002	0	1029	5035	4	51
2003	0	295	1897		5
2004	100	303	556		
2005	17506	567	4302		
2006	64433	2304	4021		
2007	79327	2772	6970		

No information on bycatch or discards is available from returned purse seine logbooks. In previous years such information was collected from both purse seine and longline vessels during the BIOT Observer Programme in order to verify logbook reporting[4], as has been reported in previous UK reports. During 2007/08 there was

[4] Logbooks frequently do not provide the detailed species composition on by-catch and discards that an observer is able to collect. Also logbooks only record the landed catch so do

no observer programme. Data on bycatch available from previous observer programmes was presented to the working Party on Ecosystems and Bycatch last year (2007, see also Annex 1).

Mitigation measures

BIOT does not operate a flag registry and so does not control its own fishing vessels. All control measures are applied to foreign fishing vessels licenced to fish within the BIOT FCMZ, and they are applied through the BIOT fisheries legislation and through terms and conditions of licencing.

For purse seine vessels very little bycatch in BIOT is associated with free schools. That associated with fishing on fish aggregating devices is greater. However, as reported in section 2.2 most fishing in the BIOT FCMZ occurs on free schools and that was the case during 2007/08. There are no specific bycatch mitigation measures in the purse seine terms and conditions of licensing, but the following apply:

- ensure that all fishing gear is deployed in a manner that targets only tunas, tuna like species and those species that are generally caught incidentally thereto;
- ensure that all fishing gear is deployed in a manner that avoids or minimises the catching or damage to species of fish or other marine creatures that are not the target species of the tuna fishing operations;
- The release of all sharks is recommended;

For longline vessels sharks and other fish species are the predominant bycatch (see Annex 1). Turtles and seabirds have not been recorded as a problem by observers. There are therefore no specific mitigation measures within the terms and conditions of licensing for longline vessels that relate to seabirds or turtles, but the same conditions as reported above for purse seiners do apply. Resolution 08/03 relating to mitigation measures for seabirds applies to longline fishing activities South of 30˚S where bird by catch is a significant issue. North of 30˚S (which includes the BIOT FCMZ) measures can optionally be introduced and given the lack of seabird mortality in BIOT this has not been considered necessary. The situation will continue to be monitored. In addition to the terms and conditions already indicated, with respect to fishing gear, mitigation measures designed to reduce incidental catch of sharks include a ban on the use of wire trace.

The terms and conditions for both purse seiners and longliners make provision for closed areas that may be introduced from time to time. These are mostly applied to the inshore reef based fishery rather than the offshore tune fisheries. However, further analysis of the logbook and observer data from the BIOT tuna fisheries (*e.g.* examination of seasonal and area effects and of fishing behaviour) may provide some management options for reducing the catch rates of these species.

4.2. UK

Bycatch mitigation measures: The activities of UK flagged vessels operating in waters regulated by the IOTC are monitored by the Marine and Fisheries agency. All vessels are required to comply with IOTC recommendations as part of their UK licensing requirements.

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not record observations of depradation or other bycatch that may be cut off the line and discarded. Observer programmes are able to monitor this.

5. Changes to national data collection and processing systems

5.1. BIOT

There were no substantive changes to the BIOT data collection and processing systems in 2007/08. The BIOT longline logbook was examined in light of the recommendation of IOTC resolution 08/04 for minimum data requirements for logbooks relating to longliners. The BIOT logbook already requires more information than the minimum proposed. Nevertheless, to improve recording of catches of rays and sharks the level of detail for these species groups in the BIOT longline logbooks has been increased (sharks were already added in 2005) and skates and rays will separated in the logbook from 1/1/2009.

As noted in Section 2.3 improved species composition data has been gathered on the recreational fishery at Diego Garcia since January 2008.

A vessel monitoring system will be introduced from December 2008.

5.2. UK

UK registered vessels are required to complete EU logbooks. In 2009 they will be required to use an electronic logbook which is being introduced under EU regulations.

6. Implementation of recommendations of the Scientific Committee

6.1. BIOT

The BIOT Authorities participate actively in the Scientific Committee and the Working Party on Tropical Tunas and contributed to the stock assessments for yellowfin tuna, bigeye tuna and skipjack tuna[5]. Complete data submissions were provided to IOTC as required. No observer programme was conducted by the BIOT Authorities during 2007/08, and so no new size frequency data or other scientific observations are available this year. The BIOT longline logbook was updated to separate information on sharks and rays from January 2009.

Recommendations of the Science Committee are reflected in the resolutions adopted by the Commission. Actions taken by the BIOT Authorities in respect of resolutions made in 2007 and 2008 are indicated in Annex 2. Note that as the BIOT Administration does not maintain a flag register itself many of the recommendations do not apply directly to BIOT.

5 IOTC-2008-WPTT-12 Surplus production analyses for Indian Ocean yellowfin and bigeye tuna R.M. Hillary
IOTC-WPTT-2008-13 External analysis of yellowfin tagging data R.M. Hillary and J. Million
IOTC-WPTT-2008-14 External analysis of bigeye tagging data R.M. Hillary and J. Million
IOTC-WPTT-2008-15 External analysis of skipjack tagging data R.M. Hillary and J. Million

6.2. UK

Those recommendations that apply to UK flagged vessels are in the process of being implemented and will be reflected in the vessels UK licence conditions. See also Annex 2.

7. National Research Programmes

7.1. BIOT

Research has been conducted into the stock assessment of tropical tunas as part of the BIOT Authorities' contribution to the WPTT, reported in October 2008.

7.2. UK

The UK has implemented no national research programmes due to the limited interest in the relevant fisheries.

Annex 1: Extracts from 'Preliminary Characterisation of Bycatch of Tuna Longliners Operating in the BIOT Area, J. Roberts, 2007 (MRAG)

Over a period of three fishing seasons (from 2000/01 to 2002/03), hook surveys were conducted by observers on-board a total of 11 different longline fishing vessels, all targeting yellowfin (*Thunnus albacares*) and bigeye tuna (*Thunnus obesus*). Observers monitored a portion of every haul conducted while on-board. Observers recorded information on each hook as it was brought on to the boat, including presence or absence of fish and species identification. There was 100% observer coverage of sections of line subject to hooks surveys.

A total of 38,447 hooks were sampled and more than 4,084 fish were counted and identified. Target yellowfin 29% and bigeye tuna (26%) were the most frequently caught species, though longnose lancet fish (25%), rays (5%) and sharks (4%) were also caught in relatively large numbers.

A total of 217 rays were caught, of which stingrays or butterfly rays comprised more than 85% by numbers. Catches of shark were dominated by blue shark (52%), though pelagic thresher (15%) and silky shark (14%) were also caught relatively frequently. The CPUE of blue shark, 2.06 individuals per 1000 hooks is approximately one-tenth of the CPUE for the target species (21.81 and 18.08 for yellowfin and bigeye tuna respectively). The CPUE for all other shark species was lower than 0.5 individuals per 1000 hooks.

The composition of the bycatch at BIOT is comparable to that experienced in other longline fisheries operating in the Indian Ocean. The bycatch contains a large proportion of elasmobranchs (9% by numbers), which are slow growing have a low reproductive capacity and the shark species caught include some registered on the IUCN Redlist. Catches of butterfly rays and stingrays were also high and merit attention. Further analysis of the observer data from the BIOT tuna fisheries (*e.g.* examination of seasonal and area effects and of fishing behaviour) may provide some management options for reducing the catch rates of these species.

Annex 2: Table of IOTC resolutions adopted in 2007 and 2008, indicating action taken by the BIOT and UK Authorities.

IOTC Resolutions

No.	Resolution	Application	Responsibility	Status	Action
08/01	Mandatory statistical requirements for IOTC members and cooperating non contracting parties	Improved reporting by flag states on their vessels, and improved reporting of surface fisheries (FADs)	Contracting parties and Cooperating Non-Contracting Parties.	Supersedes and replaces 01/05	BIOT: N/A - National flagged vessels only UK flagged vessels report through the EU
08/02	On establishing a programme for transshipment by large-scale fishing vessels	Port transshipment is preferred, but a record of vessels authorized to receive transhipments at sea is established. Coastal states required to authorize at sea transhipments	Contracting parties and Cooperating Non-Contracting Parties.	Supersedes and replaces 06/02	BIOT: N/A - BIOT does not permit transshipment at sea within the FCMZ UK vessels do not tranship at sea within the FCMZ
08/03	On reducing the incidental by-catch of seabirds in longline fisheries	The resolution applies to longline fishing activities South of 30˚S and requires the introduction of two sea bird mitigation measures. North of 30˚S measures can optionally be introduced.	Contracting parities and Cooperating Non-Contracting Parties.	Supersedes and replaces 06/04	BIOT: No- action – optional and Seabird by-catch is not an issue in the FCMZ. Data on bird by-catch to be monitored to determine future need for introducing such controls. UK vessels will submit data on bird by-catch in future years and this will be monitored to determine whether controls are needed.
08/04	Concerning the recording of catch by longline fishing vessels in the IOTC area.	Sets minimum standards for reporting by Longline vessels	CP and flag CPCs		BIOT: N/A, and BIOT logbook already requires more information than the minimum proposed. Updated in 2008 to separate details on sharks and rays. UK flagged longliners report their catches in line with the recommendation and these are transmitted through the EU

No.	Resolution	Application	Responsibility	Action
07/01	To promote compliance by nationals of contracting parties and co-operating non-contracting parties with IOTC conservation and management measures	Actions in respect of IUU vessels and UK persons	Contracting parties and Cooperating Non-Contracting Parties.	BIOT: N/A UK flagged vessels report through EU
07/02	Concerning the establishment of an IOTC record of vessels authorized to operate in the IOTC area (Supersedes and replaces 05/02)	Updates list of authorized vessels by adding IMO number, and GT replaces GRT	Contracting parties and Cooperating Non-Contracting Parties.	BIOT: N/A UK flagged vessels report through EU
07/03	Concerning the recording of catch by fishing vessels in the IOTC area.	Sets minimum logbook requirements for purse seine vessels	Contracting parities	BIOT: Minor adjustments to BIOT PS logbook were made. BIOT logbook currently collects more than the minimum requirement.
07/04	Concerning registration and exchange of information on vessels fishing for tunas and swordfish in the IOTC area. (Supersedes and replaces 05/04)	Amendments now include vessels fishing for albacore tuna, and require IMO number and main target species.	CP and CPCs; including those that issue licences to foreign flagged vessels	BIOT has added these details to vessel notification requirements.
07/05	Limitation of fishing capacity of IOTC contracting parties and co-operating non contracting parties in terms of number of longline vessels targeting swordfish and albacore.	Limits capacity targeting Swordfish and albacore to that of # vessels in 2007	Contracting parties and Cooperating Non-Contracting Parties	BIOT: N/A UK flagged vessels report through EU

During 2007 the BIOT Authorities also developed a revised and consolidated 'Fisheries (Conservation and Management) Ordinance 2007' relating to the regulation, conservation and management of the fishing waters of the British Indian Ocean Territory, implemented since 1 January 2008. This incorporated recent changes to the legislation that had occurred in the light of IOTC resolutions, such as Resolution 05/05 relating to sharks. Ther BIOT Authorities have also maintained a BIOT Patrol Vessel throughout the year to police the fisheries within the BIOT FCMZ including inspections on board licensed purse seine and long line fishing vessels and un-licensed vessels in transit through the zone.