UK (British Indian Ocean Territory) National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2018

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INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

In accordance with IOTC Resolution 15/02, final scientific data for the previous year was provided to the IOTC Secretariat by 30 June of the current year, **for all fleets other than longline** [e.g. for a National Report submitted to the IOTC Secretariat in 2018, final data for the 2017 calendar year must be provided to the Secretariat by 30 June 2018)	YES 26/06/2018
In accordance with IOTC Resolution 15/02, provisional **longline data** for the previous year was provided to the IOTC Secretariat by 30 June of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2018, preliminary data for the 2017 calendar year was provided to the IOTC Secretariat by 30 June 2018). **REMINDER:** Final longline data for the previous year is due to the IOTC Secretariat by 30 Dec of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2018, final data for the 2017 calendar year must be provided to the Secretariat by 30 December 2018).	NO
If no, please indicate the reason(s) and intended actions: The UK British Indian Ocean Territory (BIOT) Administration does not operate a flag registry, BIOT does not have a fleet of commercial fishing vessels, and there is no commercial port in BIOT. The waters of the Territory are a no-take Marine Protected Area (MPA) to commercial fishing. An MPA exclusion zone covering Diego Garcia and its territorial waters exists where pelagic and demersal recreational fisheries are permitted. The recreational fishery catches some tuna and tuna like species.	

Executive Summary
The United Kingdom (BIOT) waters are a no take Marine Protected Area (MPA) to commercial fishing. Diego Garcia and its territorial waters are excluded from the MPA and include a recreational fishery. UK (BIOT) does not operate a flag registry and has no commercial tuna fleet or fishing port. The UK(BIOT) National Report summarises fishing in its recreational fishery in 2017 and provides details of research activities undertaken to date within the MPA.

The recreational fishery landed 13.18 tonnes of tuna and tuna like species on Diego Garcia in 2017. Principle target tuna species of the industrial fisheries (yellowfin, bigeye and skipjack tunas) contributed 21.48% of the total catch of tuna and tuna like species of the recreational fishery. Recognising that yellowfin tuna are currently overfished and subject to overfishing in the Indian Ocean and that Resolution 18/01 seeks to address this, UK(BIOT) are taking action to reduce the number of yellowfin tuna caught in the BIOT recreational fishery and to encourage their live-release. Length frequency data were recorded for a sample of 305 yellowfin tuna from this fishery. The mean length was 74.66cm. Sharks caught in the recreational fishery are released alive.

IUU fishing remains one of the greatest threats to the BIOT ecosystem but a range of other threats exist including invasive and pest species, climate change, coastal change, disease, and pollution, included discarded fishing gear such as Fish Aggregating Devices. During 2017/18 the BIOT Environment Officer continued to take forward the BIOT Interim Conservation Management Framework which will be replaced with the BIOT Conservation Management Plan 2018-2023 by the end of 2018. In 2017/18 Recommendations of the Scientific Committee and those translated into Resolutions of the Commission have been implemented as appropriate by the BIOT Authorities and are reported.

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1. BACKGROUND/GENERAL FISHERY INFORMATION

The waters of the British Indian Ocean Territory (BIOT) are a no-take Marine Protected Area (MPA) to commercial fishing. An MPA exclusion zone covering Diego Garcia and its territorial waters exists where pelagic and demersal recreational fisheries are permitted. The recreational fishery catches some tuna and tuna like species. Permitted recreational fisheries also include visiting yachts that fish outside the exclusion zone within the waters of the MPA, but not within Strict Nature Reserves. Such fishing must be for consumption within three days. Yachts must apply for a permit to moor in designated areas.

The UK (BIOT) Administration (BIOTA) does not operate a flag registry, BIOT does not have a fleet of commercial fishing vessels, and there is no commercial port in BIOT.

2. FLEET STRUCTURE

N/A: As stated above, UK (BIOT) does not have a flag registry or fleet of commercial fishing vessels. The recreational fishery is described in Section 4.

3. CATCH AND EFFORT (BY SPECIES AND GEAR)

N/A: As stated above, UK (BIOT) does not have a flag registry or a fleet of commercial fishing vessels.

4. RECREATIONAL FISHERY

A small recreational fishery occurs in Diego Garcia. A total of 13.18 tonnes of tuna and tuna like species were caught in 2017 representing 52 % of the recreational catch (the remainder are reef associated species). The principle commercial tuna species (yellowfin, bigeye and skipjack tunas) contributed 21.48% of the total catch of tuna and tuna like species of the recreational fishery (Recognising that yellowfin tuna are currently overfished and subject to overfishing in the Indian Ocean and that Resolution 18/01 seeks to address this, UK(BIOT) are taking action to reduce the number of yellowfin tuna caught in the BIOT recreational fishery and to encourage their live-release.

Table 1).

Recognising that yellowfin tuna are currently overfished and subject to overfishing in the Indian Ocean and that Resolution 18/01 seeks to address this, UK(BIOT) are taking action to reduce the number of yellowfin tuna caught in the BIOT recreational fishery and to encourage their live-release.

Table 1: Catches of tuna and tuna like species landed from the UK (BIOT) recreational fishery during the period 2013-2017.

Year	Estimated catch of tuna and tuna like species (kg)										TOTAL (kg)		
Species	Blue marlin	Dolphinfish	Kawakawa	Rainbow runner	Sailfish	Wahoo	Dogtooth tuna	Skipjack tuna	Yellowfin tuna	Other tuna nei	Tunas	Tuna like spp	All
2013	0	64	464	135	363	6844	317	101	3635	0	4052	7871	11924
2014	0	97	444	126	0	7259	290	106	1670	0	2067	7926	9992
2015	0	27	977	152	73	9005	197	179	1741	0	2118	10233	12351
2016	0	73	1033	169	0	4076	203	251	2075	0	2529	5350	7879
2017	0	70	1525	288	0	7899	569	107	2425	0	3401	9783	13184

Length data have been collected for yellowfin tuna (*T. albacares*) from the recreational fishery since June 2009. A total of 305 fish were measured in 2017. The mean length of the *T. albacares* sampled was 74.66cm. For comparison, observer programmes on purse seiners (2005/6) and longliners (2003/4) operating in BIOT

recorded mean lengths of 98cm (n=378) and 123cm (n=2385) respectively and the mean length in 2016 was 73cm.

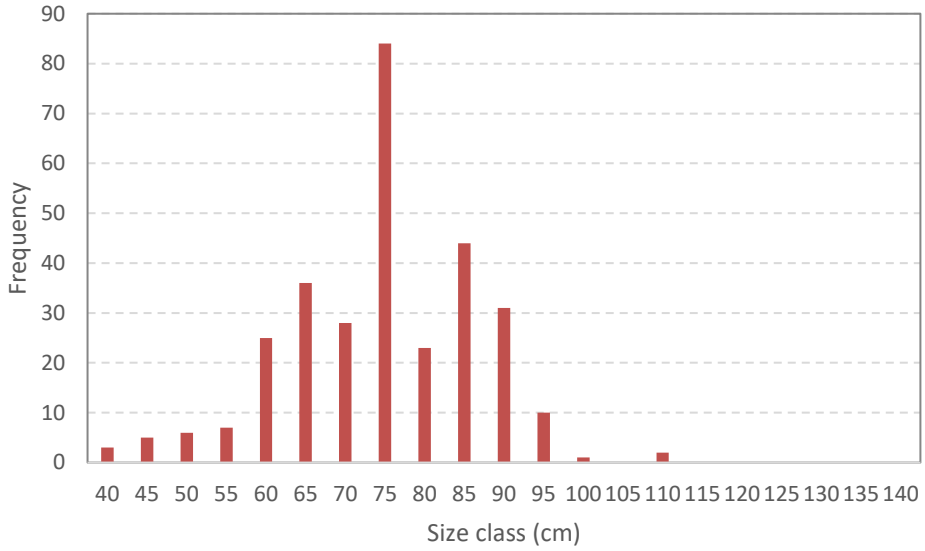

Figure 1: **Yellowfin tuna length frequency plot using data from the recreational fishery in 2017 (n=305)**

5. ECOSYSTEM AND BYCATCH ISSUES

The BIOT zone, excluding territorial waters around Diego Garcia, is a no-take MPA closed to commercial fishing. The recreational fishery on Diego Garcia is monitored. Beyond the blanket protection of all species through the declaration of the MPA, there are currently no separate national plans of action in place for individual species or species groups. However, in its recreational fishery, all sharks and billfish caught must be released alive and fishers are encouraged to release yellowfin tuna.

The current ecosystem threats relate to illegal unreported and unregulated fishing of which a number of events were detected by the BIOT Patrol Vessel in 2017, reported separately to the Compliance Committee. Controlling IUU is a core element of the BIOT Conservation Management Plan 2018-2023.

Other threats to the ecosystem that have been identified include invasive and pest species (e.g. introduced by visiting vessels), climate change (including weather changes; coral bleaching and mortality, sea level rise, likely increasing rates of erosion or inundation events; and oceanic chemical composition change), coastal change, disease (particularly of corals), and pollution. The latter includes lost and abandoned fishing gear including fish aggregating devices which have harmful impacts on species and habitats within BIOT. Consequently this also forms a core element of the BIOT Conservation Management Plan 2018-2023.

5.1 Sharks

Sharks must be released alive when caught in BIOT's recreational fishery. Sharks continue to be caught illegally by IUU vessels in BIOT waters.

Research, including tagging of sharks in BIOT waters is ongoing through the Bertarelli Programme on Marine Science which includes scientific research expeditions in BIOT (see Table 2).

5.2 Seabirds

Seabird bycatch does not occur in the recreational fishery and has not been observed in IUU fisheries.

5.3 Marine Turtles

No turtle bycatch / interaction was reported in the BIOT recreational fishery in 2017. The BIOT area includes undisturbed and recovering populations of hawksbill and green turtles. Island sweeps are conducted as part of the normal monitoring programme, where part or entire islands are inspected and regularly encounter and record turtle nesting tracks. Field work continued in 2018 (See Table 2)

5.4 Other ecologically related species (e.g. marine mammals, whale sharks)

No incidental mortality / annual catches on other ecologically related species such as marine mammals and whale sharks has been observed in the recreational fishery.

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

6.1. Logsheet data collection and verification (including date commenced and status of implementation)

Logbook data collection for the recreational fishery is completed by the vessel charterer for each trip conducted. The system was introduced in 2006 and provides 100% coverage of all boat based recreational fishing activity. Prior to that a system of logbooks to be completed by fishers was utilised but proved less effective and did not achieve 100% coverage. A similar fisher based system was introduced in 2016 for shore based recreational fishers, although they tend not to catch tuna and tuna like species.

6.2. Vessel Monitoring System (including date commenced and status of implementation)

As there are no vessels flagged by the BIOT Authorities and no commercial vessels are licensed to fish inside the BIOT MPA, the BIOT VMS is currently not operational.

6.3. Observer programme (including date commenced and status; number of observer, include percentage coverage by gear type)

Length frequency data collection was initiated for the recreational fishery on Diego Garcia in June 2009.

6.4. Port sampling programme [including date commenced and status of implementation]

NA. BIOT has no commercial port

6.5. Unloading/Transhipment [including date commenced and status of implementation]

As BIOT has no commercial ports there is no unloading or transhipment allowed. Transhipment by foreign fishing vessels is not permitted anywhere within BIOT waters.

7. NATIONAL RESEARCH PROGRAMS

The BIOT Administration supports and encourages high-quality scientific expedition research applications from all scientists, particularly anyone from the Indian Ocean region and those which provide opportunities for members of the Chagossian community to be involved. Applications where regional and / or international organisations collaborate together on projects are also strongly encouraged. Scientific research is expected to contribute to the delivery of the Conservation Management Plan (CMP) 2018-2023 or tell BIOTA something new about the environment of the Territory. All research applications are reviewed for approval by BIOTA.

Currently research is conducted through a series of expeditions funded under the Bertarelli Programme in Marine Science (BPMS, see Table 2). Some activities that were initiated under the Interim Conservation Management Framework (reported on in previous National Reports), which will be replaced by the BIOT CMP by the end of 2018, are continuing in one form or another through this programme. Research under the BPMS particularly links to the CMP through 'Key Species' research.

Outputs of research conducted in BIOT can be accessed through the Chagos Information Portal (ChIP, https://chagosinformationportal.org/) and the BIOT website https://biot.gov.io/ where details of expeditions up to that conducted in April 2018 (the ecosystem health expedition, see Table 2) are currently available.

Table 2. Summary table of national research programs: BPMS Scientific Expeditions to the British Indian Ocean Territory during 2018

Project title	Period	Institutions involved	Objectives	Outcomes (results, publications, future work)
January Seabird Ecology	08 January - 07 February 2018	ZSL/Exeter University	1. To document the year round biology and foraging ecology of breeding Red-footed Boobies (RFB) at Barton Point Nature Reserve. 2. To document the distribution of non-breeding RFBs from the colony on DG. 3. To establish the status and distribution of breeding RFB on DG.	https://biot.gov.io/environment/biot-science/2018-science-expeditions/jan-seabird-exped/
March Acoustic Array Servicing	02 – 16 March 2018	ZSL/Stanford University	1. Perform maintenance on the existing Vemco acoustic receiver array to assure its continued performance, including downloading of all archived data, replacing Acoustic Release receivers in 15 locations, installation of new batteries and if necessary, replacement of weathered moorings in need of repair. 2. Conduct electronic tagging of up to 150 elasmobranchs and teleost fish that utilise the habitat in and around the receiver array. An increased diversity and number of sharks and teleosts will be targeted for tagging. 3. During the tagging event, opportunistic sample tissues for isotopic analyses will be obtained to provide information on the trophic ecology and habitat use of species within BIOT and on the patterns of connectivity of elasmobranchs and teleosts across the Indian Ocean. 4. To collect previously deployed sensor instruments (temperature and oxygen), and redeploy additional units for collecting environmental data that will complement the on-going research activities and extend the time-series data for which we have continuous environmental monitoring of the reserve.	The team deployed tags on 71 sharks from four different reef associated species. In total, 81 individual tags were deployed, with 10 individuals double tagged with both pop-up satellite tags in addition to the acoustic tags. The team was able to recover, download and redeploy 43 VR2W receivers and 1 underwater modem unit, yielding over 370,000 new detections to contribute to the time-series. In addition, two VR4 Global units were serviced with new moorings, ensuring continued live feeds of acoustic data.

Project title	Period	Institutions involved	Objectives	Outcomes (results, publications, future work)
			5. To undertake opportunistic fish aggregation device (FAD) surveys whilst in transit between atolls with data being fed directly back to the Senior Fisheries Protection Officer onboard the BIOT Patrol Vessel.	
March Reef 1	21 March – 17 April 2018	ZSL	1. Extending existing long-term coral reef datasets 2. Integrating Sea Surface Temperature trends into coral reef resilience 3. A Video Archive for Long Term Monitoring of Coral Reef Benthic Communities 4. Three-dimensional determination of reef structural complexity 5. Measuring future resilience via juvenile coral abundance 6. Reef Biodiversity Assessment 7. Quantifying and reducing vulnerability of the BIOT Marine Reserve to climate change	https://biot.gov.io/environment/biot-science/2018-science-expeditions/march-reef-exped/
April Ecosystem Health	12 April – 05 May 2018	Indigo V	1. Define the biodiversity and productivity of the BIOT marine microbiome using metagenomic, metatranscriptomic and metaproteomic techniques. 2. Determine the major environmental factors influencing the composition and functional capacity of the BIOT microbiome by integrating data with existing oceanographic, meteorological, physical and chemical models. We have already developed novel bioinformatic tools for correlating community composition, gene composition and gene expression (at the transcriptome and proteome level) to physico-chemical parameters aimed at identifying the principal components affecting changes in the biota and the trophic health of the environment.	https://biot.gov.io/environment/biot-science/2018-science-expeditions/april-ecosystem-health-exped/
May Reef 2	02 – 22 May 2018	Lancaster University	1. Do seabird nutrient inputs influence the resilience of coral reefs to climate change? 2. Carbonate budgets and the future growth potential of coral reefs across the BIOT 3. Fish surveys to monitor change in abundance, biomass and composition of the fish community through time. 4. Development of biochronologies of fish growth across BIOT for selected species.	Not yet published. Results from this body of work will be used for scientific publications, PhD theses, presentations, and to feed into the management and conservation plan of the BIOT.

Project title	Period	Institutions involved	Objectives	Outcomes (results, publications, future work)
			5. Trophic cascades, mesopredator release and reef resilience. 6. Drone surveys of reef associated megafauna	
June Turtles 1	26 June – 19 July 2018	Swansea University	1. Satellite tracking of nesting green turtles, Chelonia mydas. 2. Satellite tracking of immature turtles foraging in Diego Garcia lagoon 3. Monitoring of immature turtles in Diego Garcia lagoon 4. Baseline nesting beach surveys of Diego Garcia coastline	Increased understanding of: movement of green turtles from Diego Garcia to elsewhere in the Indian Ocean, and space use and location of green turtle foraging sites and associated seagrass habitats within and outside BIOT, as well as better population estimates of nesting turtles in BIOT. Increased awareness of foraging ecology of immature hawksbill and green turtles in Diego Garcia lagoon. Information will feed into Biodiversity Action Plans and Conservation Management planning in BIOT. It will also contribute to large scale regional conservation efforts such as the Seychelles Marine Spatial Planning Initiative underway in Seychelles to set aside 30% of the EEZ of Seychelles as marine protected areas.
June Seabird	05 June – 24 July 2018	ZSL/ Exeter University	1. To document the year round biology and foraging ecology of breeding RFBs at Barton Point Nature Reserve and Red Footed Boobies (RBF) and Brown Boobies (BB) at Nelson's Island. 2. To document the distribution of non-breeding RFBs from the colony on DG and RFB and BB at Nelson's island. 3. To establish the status and distribution of RFB on DG and breeding seabirds on Nelson's Island.	This research provided essential data that will inform the following: (i) The current status, distribution and recent trends of breeding seabird species in BIOT. (ii) The establishment of standardised, long-term monitoring protocols for breeding seabirds in BIOT. (iii) The spatial and temporal use of the MPA by RFBs and BBs during their breeding season. (vi) The at-sea distribution of RFBs outside of the breeding season. The data collected as part of the proposed research will contribute to a set of management recommendations for seabirds in BIOT, one PhD and a number of scientific publications. In addition an expedition report will be produced. Results to be published over coming months.
August Invasive Species Team	01 – 06 August 2018	Centre for Ecology & Hydrology	1. Work with Diego Garcia environment team to derive a list of invasive non-native species with the potential to arrive, establish and threaten biodiversity and ecosystems, human health or the economy.	Horizon scanning work has produced a list of potential species that could arrive. Some would have profound human health impacts and all have the potential to disrupt ecosystem functioning. New biosecurity measures to reduce risks. To be published in new conservation management plan.
November Turtles team	13 Nov – 6 Dec 2018	Swansea University	1. To increase understanding of sea turtle movements within and outside of BIOT by attachment of satellite tags to nesting hawksbill turtles. 2. To increase understanding of the immature turtle population in Diego Garcia lagoon through (a) the mark (flipper tagging) and recapture monitoring	First understanding of: movement of post-nesting hawksbill turtles from Diego Garcia to elsewhere in the Indian Ocean, and space use and location of hawksbill turtle foraging sites and associated coral reef habitats within and outside BIOT, as well as improved population estimates of nesting turtles in BIOT. Increased understanding of foraging ecology of immature hawksbill and green turtles inside the Diego Garcia lagoon. Information will feed into Biodiversity Action Plans and Conservation Management

Project title	Period	Institutions involved	Objectives	Outcomes (results, publications, future work)
			programme commenced in 1996 and through (b) tagging of turtles with Fastloc-GPS satellite tags. 3. To improve our knowledge of the turtle population in Diego Garcia lagoon by commencing a UAV (quadcopter drone) monitoring survey of the lagoon. 4. To improve our understanding of the importance of seagrass ecosystems in BIOT with a baseline survey in Diego Garcia lagoon.	planning in BIOT. It will also contribute to large scale regional conservation efforts such as the Seychelles Marine Spatial Planning Initiative underway in Seychelles to set aside 30% of the EEZ of Seychelles as marine protected areas (www.seymsp.com).

8. IMPLEMENTATION OF SCIENTIFIC COMMITTEE RECOMMENDATIONS AND RESOLUTIONS OF THE IOTC RELEVANT TO THE SC.

Table 9. Scientific requirements contained in Resolutions of the Commission, adopted between 2011 and 2017.

Res. No.	Resolution	Scientific requirement	CPC progress
15/01	On the recording of catch and effort by fishing vessels in the IOTC area of competence	Paragraphs 1–10	Not applicable as BIOT has no flag registry or fleet of vessels.
15/02	Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)	Paragraphs 1–7	BIOT submits all mandatory statistical reports, including null reports
18/05	On management measures for the conservation of the billfishes: striped marlin, black marlin, blue marlin and Indo-Pacific sailfish	Paragraphs 7-9	Not applicable as BIOT has no flag registry or fleet of vessels.
13/04	On the conservation of cetaceans	Paragraphs 7– 9	Not applicable as BIOT has no flag registry. Cetaceans are not associated with the recreational fishery
13/05	On the conservation of whale sharks (*Rhincodon typus*)	Paragraphs 7– 9	Not applicable as BIOT has no flag registry. Whale sharks are not associated with the recreational fishery
13/06	On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries	Paragraph 5–6	Not applicable as BIOT has no flag registry and releases all sharks alive from the recreational fishery.
12/09	On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC area of competence	Paragraphs 4–8	BIOT releases all sharks alive from the recreational fishery
12/06	On reducing the incidental bycatch of seabirds in longline fisheries.	Paragraphs 3–7	Not applicable as BIOT does not have a flag registry.
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	Parts relating to flag vessels are not applicable as BIOT does not have a flag registry. Nesting sites in BIOT are monitored on island visits.
11/04	On a regional observer scheme	Paragraph 9	Not applicable as BIOT does not have a flag registry.
17/05	On the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 6, 9, 11	No sharks are retained in BIOT. Sharks caught in the recreational fishery are released alive. Sharks caught by IUU fishing vessels are reported in communications to the Compliance Committee.
18/02	On management measures for the conservation of blue shark caught in association with IOTC fisheries	Paragraphs 2-5	Not applicable as BIOT does not have a flag registry.
18/07	On measures applicable in case of non-fulfilment of reporting obligations in the IOTC	Paragraphs 1, 4	As set out in this report, BIOT does not operate a flag registry, nor have a fleet of commercial fishing vessels, but a small recreational fishery exists on Diego Garcia that catches tuna and tuna like species. BIOT consistently fulfils all reporting obligations in a timely manner in respect of this fishery. Sharks caught in the recreational fishery are released alive. In 2016 steps were taken to improve data collection for catches taken by shore-based fishers, though it is not anticipated this will include significant catches of tuna or tuna like species. Reference to this information will be included in the Annual Report of Implementation.

9. LITERATURE CITED