

**Annex 51**

British/Mauritian Fisheries Commission, Joint Communiqué,  
14 March 1997

JOINT COMMUNIQUE

BRITISH/MAURITIAN FISHERIES COMMISSION

12

1. The fourth meeting of the British/Mauritian Fisheries Commission took place at the Foreign and Commonwealth Office, London on 13 and 14 March 1997. The British delegation was led by Mr Bruce Dinwiddy, Head of African Department (Southern), Foreign and Commonwealth Office and Commissioner of the British Indian Ocean Territory. The Mauritian delegation was led by Ambassador Anand P Neewoor.
2. On the issue of sovereignty of the British Indian Ocean Territory (Chagos Archipelago) and the surrounding maritime areas, both delegations recalled that the meeting of the Commission, and anything resulting from it, would be governed by the formula set out in paragraph 1 of the Joint Statement on Conservation of Fisheries signed in London on 27 January 1994.
3. The meeting then proceeded to review the report of the scientific sub-committee and consider matters arising.
4. The Commission noted the need to exchange data on tuna fisheries on a timely basis. It endorsed the recommendations made by the scientific sub-committee relating to arrangements for the exchange of data and decided to recommend these to their respective governments.
5. The Commission endorsed the recommendations made by the scientific sub-committee concerning the continuation of the observer programme for inshore fisheries and decided to recommend these to their respective governments.
6. The UK delegation informed the Commission that plans to introduce a system of Marine Protected Areas (MPAs) were at an early stage. The Commission noted the Mauritian delegation's suggestion that the establishment of MPAs be effected through licensing arrangements rather than legislation. Once these plans are at a more advanced stage, the possibility of collaboration on a baseline study could be considered, as requested by the Mauritian delegation.
7. The Commission noted with approval that no illegal fishing activities by tuna vessels were recorded in the BIOT (Chagos Archipelago) FCMZ during the period 1996/97, other than minor infringements by licensed vessels relating to failure adequately to meet reporting requirements. It noted that the presence of a Fisheries Protection Vessel, which will be in the area for the foreseeable future, appeared to have acted as a deterrent. It noted with approval that no illegal fishing had been reported in the Mauritian EEZ.
8. The Commission noted with concern reports of illegal inshore fishing activities both in the BIOT (Chagos Archipelago) FCMZ

JMS



and more widely within the region. The Commission decided to recommend that their respective governments co-ordinate action this matter together with other interested governments in the region.

9. At the request of the Mauritian delegation, the UK delegation explained the general principles governing the calculation of licence fees for fishing.

10. The UK delegation asked for information on the level and nature of non-Mauritian involvement in the Lady Sushil I, in respect of which an application for the renewal of a licence had been received. The Mauritian delegation undertook to provide this information.

11. The UK delegation explained its plans with respect to licensing inshore fisheries in BIOT's (Chagos Archipelago's) waters which will provide, inter alia, for the payment of an administrative fee when the applicant had failed to make use of a previous licence issued to it in the same season. The Mauritian delegation asked that Mauritian vessels be exempted from the payment of such fees. The UK delegation indicated that such exemptions would only be considered in exceptional circumstances. The Mauritian delegation expressed strong reservations on this issue.

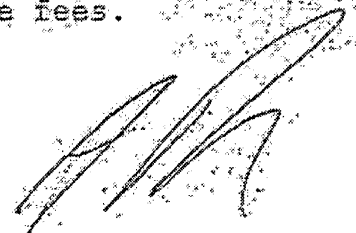
12. The Commission noted with approval that the British High Commission had contributed £7500 from the British Partnership Scheme to the training of scientific officers of the Mauritian government in both financial years 1995/96 and 1996/97. Further requests for such funding will be considered positively.

13. The Commission considered further the proposal made at its third meeting that the mandate of the Commission be extended to include joint reporting on fisheries to regional and international organisations. It was decided that the status quo should be retained for the time being.

14. The UK delegation indicated that legislation will be introduced to reduce the environmental damage caused by diving expeditions operated by commercial companies in BIOT (Chagos Archipelago) waters. This legislation is likely to introduce a licensing regime in respect of all diving in the territorial waters of BIOT (Chagos Archipelago). The UK delegation will make the relevant Ordinance available to the Mauritian High Commission in London before it is gazetted.

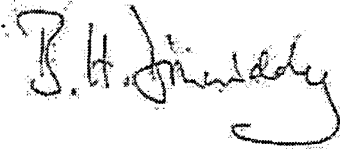
15. In response to the request of the Mauritian delegation the UK delegation informed the Commission that licence fees received are currently used to cover, inter alia, costs related to the running of the Fisheries Patrol Vessel, payment to consultants, research, administrative purposes and contributions to the IOTC. Licence revenues may vary from year to year. The UK delegation indicated that it was not in a position to consider the Mauritian delegation's proposal for the sharing of licence fees.

JHS

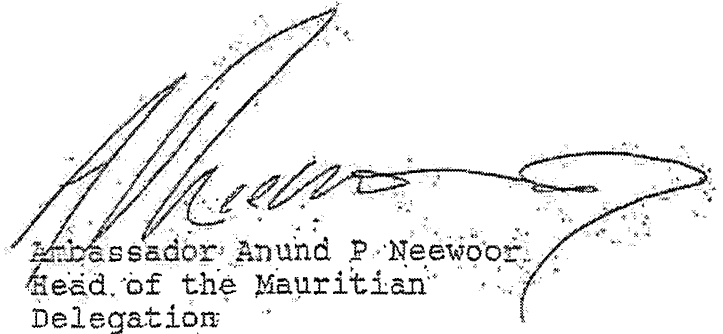


16. The next meeting of the British/Mauritian Fisheries Commission will be held in Port Louis in the second half of April 1998.

17. The fourth meeting of the Commission was held in a friendly and positive atmosphere and its deliberations were guided by a spirit of cooperation between the two sides.



Mr B. H. Dinwiddy  
Head of the British  
Delegation



Ambassador Anund P. Neewoor  
Head of the Mauritian  
Delegation

London, 14 March

**Annex 52**

British/Mauritian Fisheries Commission, Foreign and Commonwealth Office Briefing Notes,  
11-12 June 1998

**FCO BRIEFING NOTES**

**British-Mauritian Fisheries Commission  
Mauritius, 11-12 June 1998**

copy back to me  
✓  
done 2/6  
3/6

**1. Introductory Remarks**

Regional importance of tuna, local importance of inshore fisheries.  
Recent developments in the Indian Ocean - IOTC,  
Joint observer programmes and future collaboration.  
Mauritian 10 year plan : A 10 year development plan for the fisheries sector.

Note that whilst CM was in Seychelles recently the following came to light:

- The Mauritians requested a copy of the Joint Communique from the BSFC held in Seychelles in April 1998, and this was sent.
- By accident, one of the secretaries at SFA faxed the minutes of the September 1997 Seychelles SSCM to AFRC. AFRC have not acknowledged this, but [redacted] believes from a conversation he had with [redacted] Secretary that it was received. However, having looked at those minutes there is not any sensitive information, but the principal issue of sensitivity could be that more detail is discussed with Seychelles with respect to tuna than with Mauritius.
- Following the 1998 BSFC an article appeared in a Mauritian paper : Week End, 10 May 1998. This is appended (in French with summary English translation Appendix 5). Significantly it raises the question why the Government of Tony Blair discusses fisheries agreements in Chagos with Seychelles without asking Mauritius to be present.

**2. Adoption of the Agenda**

Draft agendas for the Fourth SSCM and Fifth Commission Meetings are presented in Appendices 1 & 2. It should be noted that we have informally requested copies of the Agendas from [redacted] of Albion Fisheries Research Centre, but to date these have not been forthcoming. The following briefing is therefore based on the format adopted in previous years.

With respect to the SSCM it should also be noted that it was agreed that Background Papers should be exchanged two weeks before the meeting. This has not yet taken place.

### 3. Composition of the Delegations

The composition of the Mauritian delegation is not known at this time

### 4. Review of Scientific Sub Committee Meeting and matters arising

The matters arising from the Third SSCM and Fourth Commission Meeting are listed below (Appendices 3 & 4).

The matters arising from the third SSCM were discussed by the Commission during the fourth BMFC in 1997. Still outstanding are: Evaluation of support vessels(1); details of the latest situation for Mauritian fisheries legislation (2); closed areas have not yet been introduced (3); MPA's have not yet been introduced (4).

Outstanding from the 4<sup>th</sup> BMFC : MPA's not yet introduced, so no action on joint baseline studies appropriate (1); Proposals for a co-ordinated response to illegal fishing (2)

#### 4.1 Data exchange

##### 4.1.1 Offshore Tuna Fisheries

The timetable for data exchange was agreed at the first BSFC. Logbook data is exchanged on 01 July each year to cover the period 1 May to 30 April and a list of licensed vessels is exchanged monthly.

Licensing data has been exchanged by a combination of email / fax on a monthly basis with AFRC. A few problems have been encountered with the reliability of the email server in Mauritius but all licensing data has now been exchanged and is up to date.

Lists of vessels licensed and notified with the BIOT Authorities will be handed over for the period between the two Commission meetings to confirm the exchange.

Fine scale (1° x 1°) logbook data for the 1996 / 97 season was exchanged in August 1997, slightly later than the planned date of the 1<sup>st</sup> of July. This was due to the delay in return of the logbooks to the UK from the fishing fleets. A similar delay is anticipated this year due to the extension of the purse seine season and the continuation of the longline season.

##### 4.1.2 Inshore Demersal Fisheries

Both parties have access to the database from the joint observer programme and two sets of logbooks are filled in by each Mauritian vessel operating in the BIOT FCMZ, one for the BIOT Authorities and a separate less detailed logbook for the Mauritian authorities

Summary details of the inshore fisheries around Mauritius have been provided in background papers in previous years.

## 4.2 Observer Programme

A joint observer programme for the BIOT Inshore fishery was established in 1994. There is no joint observer programme for the offshore tuna fisheries, and the UK dropped 'Offshore Tuna fisheries' as a sub-item on the Agenda in 1997. The Mauritians may wish to raise it again in 1998 (it was on the agenda in 1996).

The inshore observer programme in 1997 was successful. MRAG produced an observer report and a copy of this was also sent to AFRC. A copy of that produced by AFRC has been received but it contains little information.

During 1998 the observer programme was arranged in advance of the Commission meeting. The same objectives as defined during previous Commission meetings were retained. The UK observer, [REDACTED] left Port Louis on Talbot III at the end of March, but had to return to Port due to a mortality on board. The vessel eventually entered the BIOT FCMZ on 7 April 1998. This vessel was fishing with electric reels for the first time in order to target deeper water species at the edge of the banks. The vessel left the zone on 4 May at which time the observers transferred to Talbot IV. Due to bad weather that vessel also left the zone on 15 May. It is currently fishing on Saya de Malha Bank and is expected back in port on 19 June. The only other vessel to have applied for a license (Hoi Siong II) had not entered the zone due to bad weather and the license has now expired, not having been utilised within 30 days. The observers thus had no alternative but to leave the zone.

## 4.3 Future co-operation

### 4.3.1 Offshore Tuna Fisheries

At previous meetings Mauritius has enquired about the possibilities of Mauritian observers and fisheries officers taking part in the tuna observer programme and surveillance operations of the BIOT FCMZ respectively, and is likely to do so again.

### 4.3.2 Inshore Demersal Fisheries.

Continued co-operation in relation to the inshore observer programme is appropriate.

The Mauritian Delegation have requested collaboration on any baselining studies for MPA's in BIOT. This is not yet appropriate, but it is worth noting that two of the Mauritian MPA's opened during late 1997/ early 1998, and it will be appropriate to obtain details of their experiences.

## 5. Illegal activities

### 5.1 Offshore Fisheries

No illegal fishing has been detected in the BIOT FCMZ offshore fisheries in the last year. The only administrative penalty was that imposed on the Seychelles flagged purse seiner Men Goe (SC-03) as detailed in section 5 of BP03.



## 5.2 Inshore Fisheries

Detected illegal activities in the inshore sector are reported in 4.3 of Background paper 2.

Note that the problem of illegal fishing by Sri Lankan Vessels in the Indian Ocean is continuing, and during May 1998 a vessel was arrested by Seychelles on the Mahé Plateau. The vessel was confiscated and a Rs2.2 million fine imposed!

## 6. Prospects for 1998 / 99

### 6.1 Licensing Arrangements

#### 6.1.1 Offshore Tuna Fisheries

The only Mauritian offshore vessel still licensed is the Lady Sushil, which is 50:50 Mauritian and French owned (ACF). A decision on the future licensing of this vessel is still undetermined. The vessel effectively operates as part of the French fleet. It may be useful to define or discuss a procedure for licensing future Mauritian flagged vessels with joint non-Mauritian ownership.

The Mauritians may ask for details on the basis of any intended fisheries agreements with both the purse seine and longline fleets.

#### 6.1.2 Inshore Demersal Fisheries

No changes to the licensing system are proposed. Back-ground paper 2 indicates the management strategy and management instruments applied to the inshore fishery. The management plan is subject to annual review and it was not considered necessary to make any changes during 1998.

Requests for changes to the licensing system made by the Mauritian Delegation in 1997 (multiple entry licences to 80 days, or a split season) are not considered appropriate since they could potentially lead to increased fishing effort.

Note that during 1997 : Licensing of vessel Cevita- In discussions with Albion Fisheries Research Centre it transpired that this vessel, although operating through a company which traditionally operated mother-vessels, was not Mauritian owned, and was not permitted to land its catch in Mauritius. In future it may be appropriate to check all new applications with AFRC - do you wish us to do so? The details were:

M/s Cevita: Registered in Port Vila, Vanuatu, chartered through [REDACTED] of Noor Fishing Co, but owned by Norwegians. Constructed in 1961, and rebuilt in 1996/97 in Norway. Unloading and transhipment port is Port Louis.

Vessel licensed 18/07/97 to 05/10/97 (80 days). Vessel in the zone 19-25 July 1997. Only position information received.

To date 3 vessels have been issued inshore fishing licenses in 1998: Talbot II and IV and Hoi Siong II : Details follow

**BIOT INSHORE FISHING LICENCES 1998**

1 June 1998

Vessel	BIOT#	Date applied	Date issued	Licence #	Valid from	Valid to	Date entered zone	Date left zone	No. of days in zone
Talbot III	MU/INF/03	16/01/98	13/03/98	INF 046	01/04/98	19/06/98 (80 days)	07/04/98	04/05/98	27
Talbot IV	MU/INF/012	13/03/98	21/03/98	INF 047	10/04/98	28/06/98 (80 days)	12/04/98	15/05/98	34
Hoi Siong No.2	MU/INF/007	04/03/98	02/04/98	INF 048	25/04/98	13/07/98 (80 days)	see note 1		

**Notes:**

1. Licence number INF 048 issued to Hoi Siong No.2 became invalid on 25/05/98 as the vessel did not enter the zone within 30 days of the commencement of validity of the licence. IKS have been advised that they will need to apply for a new licence should this vessel wish to enter the zone.

2. IKS have indicated that they may require a licence for Hoi Siong No.3 effective from mid-June, but have not submitted a formal licence application yet.

## 6.2 Inshore Fisheries

The existing logbook, observer and management systems are functioning adequately and do not need revision.

In 1997 it was indicated that closed areas would be used as a management tool in 1998. However, it is impractical to attempt this without a Patrol vessel (see my Fax IO332191 of 5 March). Thus it appears we have climbed down on this management objective this year. Background Paper UKO2 indicates that the situation is still under review without referring to the reason why we have not implemented it. However, analyses of the data continue in 1997 to suggest that Pitt Bank and South and SE Chagos are suitable areas for temporary closure. Should a means of enforcing closed areas become available we would strongly recommend that the idea of experimental closures be taken up.

Marine Protected Areas have not yet been introduced. The current status is indicated in appendix 6.

Other research: The pilot study of the recreational fishery on Diego Garcia has been completed, and a full time field researcher is now in Diego Garcia. TOR are indicated in Annex 7.

## 6.3 Illegal Fishing

Continued detection of illegal fishing throughout the year will remain a problem in the absence of a Fisheries Patrol Vessel.

### 6.3.1 Offshore Tuna Fisheries

With the current increase in longline activity beyond the usual season the Mauritian delegation may ask questions about the policing of the fishery in the absence of an FPV. With licensed vessels fishing in the zone there is an element of self-policing, we have had reports in from Japanese vessels for example notifying us of Taiwanese vessels positions and descriptions, although there is no mechanism for arresting illegal fishing vessels.

### 6.3.2 Inshore demersal Fisheries

Given the continued evidence for illegal activity by Sri Lankans in the region, and the lack of a Patrol Vessel, this is a real possibility in the inshore fishery where considerable damage may be done. The possible decline of reef shark populations in Chagos has been highlighted by the Chagos Expedition. The BIOC management strategy was outlined to WWF in a letter to [REDACTED] (29 April 1998, IOA32517) and the question of sharks discussed. It was indicated that declines were not attributable to any licensed inshore activities. It may be that they are attributable to illegal activities if these activities are more substantial than we had hitherto imagined. That letter was copied by WWF to [REDACTED] and [REDACTED]. The latter has contacted me indicating :

*'I have also heard from [REDACTED] who faxed me a copy of your letter of 29 April to WWF. Regarding shark by-catch, while our data may be limited, and their analysis subject to difficulties in interpretation, I do not think it is possible to avoid the conclusion that the Chagos reef shark population has declined dramatically since the 1970s. To say that such a decline "was not attributable to any licenced inshore fishing activity" may well be true but does not address the issue of what/who did cause the decline. I would be interested to hear if you have had any further thoughts on this.'*

The question of future action on closed areas and MPA's will also be relevant under this agenda item. Again, without a FPV it will be difficult to enforce either.

#### **7. Any other Business**

The Mauritian Delegation asked to be kept informed of the results of the 1996 Chagos Expedition. A list of articles to be published in a forthcoming book are indicated in BP UK02.

Other research such as the DFID FMSP projects may be raised at this time. The Mauritius 10 year fisheries sector development plan could also be raised.

#### **8. Date of Next Meeting**

The 6<sup>th</sup> meeting of the BMFC is due to be held in London around April - June 1999.

#### **9. Adoption of Joint Communiqué.**

## Appendix 1:

### Fifth Meeting of the British-Mauritian Fisheries Commission Friday 12 June 1998

#### Provisional Agenda

1. Introductory Remarks
2. Adoption of agenda
3. Composition of the Delegations
4. Review of Scientific Sub Committee Meeting and matters arising
  - 4.1 Data exchange
    - 4.1.1 Offshore Tuna Fisheries
    - 4.1.2 Inshore Demersal Fisheries
  - 4.2 Observer Programme
    - 4.2.1 Offshore Tuna Fisheries (See note below)
    - 4.2.2 Inshore Demersal Fisheries
  - 4.3 Future co-operation
    - 4.3.1 Offshore Tuna Fisheries
    - 4.3.2 Inshore Demersal Fisheries.
5. Illegal activities
  - 5.1 Illegal Fishing
    - 5.1.1 Offshore Fisheries
    - 5.1.2 Inshore Fisheries
  - 5.2 Other
6. Prospects for 1997 / 98
  - 6.1 Licensing Arrangements
    - 6.1.1 Offshore Tuna Fisheries
    - 6.1.2 Inshore Demersal Fisheries
  - 6.2 Inshore Fisheries
  - 6.3 Illegal Fishing
    - 6.3.1 Offshore Tuna Fisheries
    - 6.3.2 Inshore demersal Fisheries
7. Any other Business
8. Date of Next Meeting
9. Adoption of Joint Communiqué.

**Appendix 2:**

**Fourth Meeting of the British-Mauritian Fisheries Commission  
Scientific Sub-Committee Meeting  
Thursday 11 June 1998**

**Provisional Agenda**

- 1. Introductory Remarks**
- 2. Adoption of the Agenda**
- 3. Composition of the Delegations**
- 4. Review of the 1997 / 98 Tuna Fishery**
- 5. Review of the 1997 / 98 Inshore Fisheries**
- 6. Data Exchanges**
- 7. Inshore Observer Programme**
- 8. AOB**

### **Appendix 3: Matters arising from the Third Scientific Sub-Committee Meeting of the British - Mauritian Fisheries Commission held in London, 13 March 1997.**

#### **1. Support Vessels**

The issue of support vessels for the Spanish purse seine fleet was raised at the meeting for discussion at a later date.

#### **2. Review of Mauritian Fisheries Legislation**

The Mauritian delegation indicated that the Mauritian fisheries legislation was under review at the time including the level of penalties for illegal fishing.

#### **3. Cooperation with Mauritian Companies on Closed Areas**

It was suggested that a cooperative approach with fishing companies would be desirable prior to the implementation of any regulation of the inshore fisheries by use of closed areas. It was suggested that appropriate discussions should be held with them.

#### **4. Revision of Licensing Procedures**

It was noted that due to the failure of inshore vessels to take up licences, which created administrative difficulties and affected the planning of the inshore observer programme, the licensing procedures would be revised. Note that the Mauritians requested multiple entry licenses up to 80 days.

#### **5. Data Exchange**

The sub-committee recommended that the data exchange protocols be tightened with a monthly schedule even when no data was to be exchanged.

#### **6. Inshore Observer Programme**

It was recommended that the joint observer programme continues with the same objectives.

#### **7. Other Research : Chagos Expedition / MPA's**

The Mauritian delegation requested to be kept informed of outputs of the Chagos Expedition. The Mauritian Delegation requested that they collaborate on baseline studies for MPA's in Chagos

## **Appendix 4: Matters arising from the Fourth Meeting of the British - Mauritian Fisheries Commission held in London, 14 March 1997.**

### **1. Marine Protected Areas**

Plans for the introduction of a system of MPAs were presented by the UK Delegation. It was noted that when the plans were at a more advanced stage the possibility of collaboration on a baseline study with Mauritius could be considered.

### **2. Illegal Inshore Fishing**

The Commission noted with concern reports of illegal inshore fishing activities both in the BIOT (Chagos Archipelago) FCMZ and more widely in the region. The Commission decided to recommend that their respective governments co-ordinate action on this matter together with other interested governments in the region.

### **3. Non-Mauritian Involvement in Lady Sushil I**

The UK delegation asked for information on the level and nature of non-Mauritian involvement in the Lady Sushil I. The Mauritian delegation undertook to provide this information.

### **4. Diving Legislation**

The UK delegation indicated that legislation would be introduced to reduce the environmental damage caused by diving expeditions operated by commercial companies in BIOT (Chagos Archipelago) waters. Diving would be licensed throughout the waters of BIOT (Chagos Archipelago). The relevant Ordinance would be made available to the Mauritian High Commission in London before it would be gazetted.







## Are the Chagos Waters Exploited by the Seychelles?

- A joint British-Seychellois commission has examined studies on fisheries in the archipelago.

This commission discussed, among other subjects, the contribution of the two countries to the preservation of fish stocks in the Indian Ocean and the co-ordination of scientific research on fish species in the region. This British-Seychellois enterprise should call the Mauritian government insofar as the Seychellois government would be exploiting Chagos waters, the rights of which are claimed by Mauritius.

According to the Seychellois newspaper "Nation", the meeting took place at the SFA... Louise Savill ... John Beddington ... MRAG Ltd ... Philippe Michaud ... and representatives of the Seychelles ministry of foreign affairs. There was a lot of debate on two studies relative to : the inshore fisheries in the Seychelles and in the Chagos and the deterioration of the reefs in the Seychellois waters.

According to "Nation", the final statement produced at the end of the meeting asserts that "the sharing of information concerning various programmes and research projects undertaken by both parties is highly beneficial as tuna resources are shared stocks and the targeted species in the Chagos are similar to those of the Seychelles".

The Seychellois newspaper also says that both parties have expressed their concern regarding the effects of the industrial seine fisheries on the tuna stock and have recommended a careful approach in the management of this stock. This is how, the British authorities have limited the number of seine licences in the Chagos to 45 vessels for the 1997-99 season and that on its side, the Seychellois government has acted in the same direction.

### Seychelles have no relation to Chagos

It is comforting to know that the British authorities take good care of the marine environment in the Chagos archipelago. But the two studies which were discussed in Victoria must, according to us, be directly pertinent to the Mauritian government. Would it not be in the interest of the Mauritian government to try to know what the situation is—because, even if the British occupy the Chagos *de facto*, it is clearly understood that Mauritius has conserved exclusive fishing rights in the archipelago.

We now know that the forced transfer of the Chagos to the British crown in 1965 was never formalised with a document officially signed by mandated British and Mauritian signatories. There are however documents in the British Foreign Office which confirm the arrangement by which Mauritius would regain the archipelago at such a time as when the West would have no more need of it for its security and defence, and that, in the meantime, our country would keep its exclusive fishing and other rights in the archipelago. In the archives of the British government, there is even a document which was filed away earlier as "confidential" (no. 306) dated 21 Dec 1985, in which the British authorities go as far as to reiterate the assurance that if bauxite or uranium were to be found in the Chagos waters, the rights to exploit and the revenues from this would go back to Mauritius. Further, there exists an arrangement by which Great Britain has no right to sublet the archipelago without consulting Port-Louis.

In this context, one is truly perplex before the decision of the government of Mr Tony Blair to discuss fisheries agreements in the Chagos with the Seychelles without even asking Mauritius to be a participant. The Seychellois state has from a point of view of sovereignty no say in the Chagos.

Either way, there is an affair that the Mauritian government must at all cost try to clear up with the government of Mr Albert René, while being extremely cautious not to taint our excellent relations with our neighbours.

## Appendix 6 : HISTORY OF MARINE PROTECTED AREAS IN CHAGOS

1. 19 March 1996 the idea of MPA's was floated in Background paper 2 of the SSSC meeting that year. Two types of closure were envisaged having different objectives :
    - MPA's - permanently protected areas. The atolls of Peros Banos, Salomon Islands and Egmonts Islands were proposed for designation as MPA's with a *Conservation* objective. (Little fishing occurs here and the impact to fisheries would be small)
    - Temporary closed areas - Experimental closures were suggested to evaluate their utility as a fisheries management tool - closures should be located in areas subject to heavy fishing pressure (*Fisheries management* objective)
- MPA's are usually designated in the legislation. Closures can be effected more simply through the application of terms and conditions of licensing.
2. The commission discussed the ideas proposed, and noted the intention to introduce MPA's (Para 7 of the Joint Communique of the 3<sup>rd</sup> BMFC, 1996)
  3. 13 March 1997, BP2 of the SSCM indicated the status of proposals for designation of MPA's and closed areas. BIOT Authorities considering for:  
MPA's, i) legislative models ii) Research proposals for baseline studies  
Closed Areas, i) practicality (enforcement) ii) choice of area.
  5. The 4<sup>th</sup> BMFC noted plans for designation of MPA's were still at an early stage whilst the Mauritian delegation suggested effecting the MPA's through licensing conditions rather than legislation.
  6. October 1997 : Conservation Policy statement indicated consideration of MPA's as a further measure to protect reef fisheries.

During 1997 the BIOT Authorities agreed to pursue a number of research proposals. Projects and Activities towards the implementation of MPA's and closed areas are listed below.

Projects and activities related to MPA's and closed areas in Chagos.

Project/Activity	Action Taken	Further Action Required
<b>MPA's : Legislative models</b>		
Review Legislative models	No legislation for the formation of MPA's was prepared in 1997, but the following are relevant. 1. Ordinance 3 of 1997 deals with regulation of activities conducted by/ from vessels in B.O.T 2. A draft ordinance for the control of visiting yachts-men was prepared	1. Appropriate legislation for designation of MPA's to be considered by B.O.T. Authorities
<b>MPA's : Research Projects</b>		
Appraisal of historical levels of activities by visitors	1. SFPO compiled a report in July 1997 on Visits by yachts including number of visits, duration of stay, location of anchoring	1. BritRep to continue maintaining records of visitors through immigration documentation, licence fees 3. SFPO to collect this data annually in order to update time-series.
Monitor Recreational Fishery	(1) This project relates mostly to Diego Garcia rather than MPA's - a pilot system has been established) 2. A logbook catch and effort sampling programme was tested for areas to be designated as MPA's	1. Evaluate success of logbook programme for yachtsmen. 2. Continue monitoring as appropriate (fishing by yachtsmen after designation as MPA's may be banned?)
Identify permanent anchoring sites	1. SFPO together with BritOps indicated its Boddam should be designated as the ONLY anchoring site for visiting yachts in Chagos (report of July 1997)	1. Deploy corner bouys to demarcate the anchorage 2. Consider the implications (if any) of marking a route to the anchorage
Baseline Underwater Visual Census (UVC) of fish stocks	1. 1996 Chagos expedition surveyed some areas at Salomon and Petros Banks	1. Increase baseline coverage as appropriate (Eva date requirements from Expedition report) 2. Maintain surveys following designation as MPA's
Habitat Mapping	1. 1996 Chagos Expedition obtained some satellite imagery	(1) Prepare detailed habitat maps (if required for MPA's - cost high)
<b>Closed areas : Research</b>		
Evaluate closed areas as a management tool	1. Catch, effort and biological data has often used to identify areas suitable for closure (e.g. Pitt Bank, certain areas on Great Chagos Bank)	1. Implement closures through Terms and conditions of licensing 2. Enforce closures for 3-5 years 3. Monitor catches after reopening area.
Use of closed fishing and Expedition data to evaluate effects of fishing	1. Chagos Expedition UVC data showed no stand roset and little fishing took place there, hence there is little scope to take this further. 2. UVC at fishing locations was discontinued as impractical due to the fishing death and remoteness of locations (fastyn).	

**Annex 2**  
**Work Programme and Terms of Reference for the post of**  
**BIOT Fisheries Officer (Diego Garcia).**

The principal duties of the British Indian Ocean Territory (BIOT) Fisheries Officer (Diego Garcia) will be to monitor the recreational fishery on Diego Garcia.

██████████ will, where appropriate, undertake the following specific tasks in fulfilment of his position as the BIOT Fisheries Officer (Diego Garcia):

A. Implement a system for the monitoring of the recreational fishery on Diego Garcia and outlying islands, with the aim of providing information for the subsequent development of an operational management plan for that fishery, as appropriate.

- 1 Monitor catch and effort data from the recreational fishery on Diego Garcia, updating the existing catch and effort data sheets used in the pilot study as appropriate, including, *inter alia* :
  - 1.1. Establish and implement a logbook monitoring system (census) for boat based activities and a stratified survey based sampling system (creel survey) for shore based activities to record catch and effort from the fishery. Supplement the boat based logbook census system with a stratified sampling system (creel survey) to verify the accuracy of logbook data and to obtain additional information on individuals fishing from the boats;
  - 1.2. Establish, in collaboration with the appropriate British and US Authorities, the best means of continuing the boat based census following the departure of the Fisheries Officer, including the distribution of data forms, their collection, collation and transmission to MRAG;
  - 1.3. Examine the potential for introducing a logbook system for monitoring shore based activities, and determine the best means to maintain this system following the departure of the Fisheries Officer, including the distribution of data forms, their collection, collation and transmission to MRAG;
  - 1.4. Establish a system for determining the total fishing effort in order to raise sampled data to the whole population for shore based activities (Frame Survey). Establish a routine (with MVR) for obtaining complete records of boat based activities in order to determine whether complete records of logbook returns have been obtained (if they are not, the analysis of the boat based activities must be adjusted accordingly);
  - 1.5. Liaise with MRAG IT Section to update the Recreational Fishery database to take account of any changes introduced to existing logsheet formats;
  - 1.6. Collate data forms, and enter data onto the Recreational Fishery database and undertake appropriate analyses of the data;
  - 1.7. Develop fish guides, as appropriate, to assist in the completion of logsheets by residents.
2. Undertake biological monitoring of the key species identified in the Diego Garcia Recreational fishery,
  - 2.1 Identify the principle species caught in the recreational fishery, and implement a

stratified length-frequency sampling system;

- 2.2 As appropriate to local circumstances, undertake biological studies, such as collection of information on length and weight, sex and maturity stage, gonad weights etc from the principle species caught in the recreational fishery;
  - 2.3. Collate data forms, and enter data onto the Recreational Fishery database and undertake appropriate analyses of the data. Ensure that length and biological data are matched to a specific event and specific fishing method in the relational database to enable detailed analyses;
  - 2.4. It is not anticipated that, unless the US Natural Resource Management Plan makes special provision for it, these activities will necessarily continue after the departure of the BIOT fisheries Officer. Nevertheless, it may be possible to establish a system for the recording of length frequency data for the most important species through the Marina, for example. This should be investigated.
3. Monitor catch and effort data from the recreational fishery by visitors to outlying islands, updating the existing catch and effort data sheets used in the pilot study as appropriate, including, *inter alia* :
    - 3.1. During BritOps, arrange to visit outlying islands at least once, and no more than twice during the 5 month period of the contract in order to ascertain numbers of visiting vessels and distribute logbooks;
    - 3.2. Establish a system with BritOps for the regular distribution, collection, and collation of logbooks, to be maintained after the end of the contract;
    - 3.3. Through immigration records maintained by the British authorities, update the appraisal of historical levels of activity by visiting yachtsmen. Develop a system for the regular collection of this data to enable sampled logbook data from yachtsmen to be raised to the estimated total population of yachts;
    - 3.4. Collate data forms, and enter data onto the Recreational Fishery database and undertake appropriate analyses of the data.
  4. Reporting
    - 4.1. Maintain paper records and a computer database of all information collected in accordance with duties 1, 2, and 3 above. Establish procedures for backing up data on a regular basis;
    - 4.2. Document the catch assessment systems introduced for shore based and boat based fisheries activities on Diego Garcia and the outlying islands;
    - 4.3. Produce brief monthly administrative reports indicating the status of activities, and a terminal report at the end of the contractual period detailing activities and procedures established to ensure the continuation of the monitoring systems;
    - 4.4. Produce a technical report at the end of the period spent monitoring the recreational fishery on Diego Garcia and outlying islands, detailing the analyses of information resulting from this work programme;

3. Other Duties, to be undertaken as directed by BIOT Director of Fisheries, or MRAG Ltd and in a manner appropriate to professional practice, but without compromising the functions

required under the primary duty (A), including, *inter alia* ;

1. Undertake a stratified survey of fringing reef and lagoon corals at Diego Garcia to determine and document the extent (if any) of coral bleaching by coral family/species. Clearly identify study locations to enable future replication of results. As far as possible, record fauna associated with the corals (This activity to be carried out within the limitations imposed relating to SCUBA diving and snorkelling at Diego Garcia. It is understood that a detailed UVC will not be possible unless special provision is made to enable diving);
2. During BritOps to outlying islands, undertake cursory examinations of corals to derive the extent of coral bleaching;
3. Should any foreign fishing vessel be brought into Diego Garcia for illegal fishing activities, assist the authorities in making a detailed inventory of the fishing gear and catch on board;
4. Record and investigate any noteworthy details relating to the marine and fisheries ecology of Diego Garcia;
5. As time permits, devise and, with prior reference to the BIOT Director of Fisheries and MRAG Ltd, undertake short term ecological studies of interest (for example, a comparative study of the marine flora and fauna in side and outside restricted fishing zones);
6. Any other activities that the BIOT Director of Fisheries or MRAG Ltd may from time to time deem appropriate;
7. Fully document and report on activities undertaken in duty (B).



**Annex 53**

United Nations communication relating to the Fish Stocks Agreement,  
23 February 2000

UNITED NATIONS  NATIONS UNIES

POSTAL ADDRESS—ADRESSE POSTALE UNITED NATIONS, N.Y. 10017  
CABLE ADDRESS—ADRESSE TELEGRAPHIQUE: UNATIONS NEWYORK

Reference: C.N.104.2000.TREATIES-1 (Depositary Notification)

*Handwritten:* 24/3

*Handwritten:* Gen 1761  
Misc 12(1995)  
Cm 3125  
Law  
Law of the Sea

AGREEMENT FOR THE IMPLEMENTATION OF THE PROVISIONS OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA OF 10 DECEMBER 1982 RELATING TO THE CONSERVATION AND MANAGEMENT OF STRADDLING FISH STOCKS AND HIGHLY MIGRATORY FISH STOCKS  
NEW YORK, 4 AUGUST 1995

MAURITIUS: COMMUNICATION RELATING TO THE COMMUNICATION MADE BY THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

The Secretary-General of the United Nations, acting in his capacity as depositary, communicates the following:

The above communication was received on 8 February 2000.

(Original: English)

"The Republic of Mauritius has taken note of the communication received by the Secretary-General of the United Nations from the Government of the United Kingdom of Great Britain and Northern Ireland on 30 July 1997 in respect of the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1992 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.

The Republic of Mauritius rejects as unfounded the claim by the United Kingdom of Great Britain and Northern Ireland of its sovereignty over the so-called British Indian Ocean Territory (Chagos Archipelago) and reaffirms its sovereignty and sovereign rights over the Chagos Archipelago which forms an integral part of the national territory of the Republic of Mauritius and over their surrounding maritime zones."

RECEIVED IN REGISTRY		
27 MAR 2000		
INDEX	FILE	ACTION TAKEN

*Handwritten:* Debbie Chanda (MSE)

PLEASE ENTER

*Handwritten:* - K220

23 February 2000

RETURN TO  
TREATY SECTION  
RHD, ROOM 47  
7TH FLOOR

ST. CHRISTOPHER HOUSE

Refer to depositary notification of C.N.346.1997.TREATIES-5 of 16 September 1997 (United Kingdom of Great Britain and Northern Ireland: Communication).

*Handwritten:* D. Bugin 24/3/2000

*Handwritten:* 23 MAR 2000

Attention: Treaty Services of Ministries of Foreign Affairs and of international organizations concerned.

*Handwritten:* Copied to: AF/Ruma Mandal/Susan McCarty Legal Adv/Louise Saville (TD)

**Annex 54**

Telegram from Wilde, Overseas Territories Department,  
28 November 2000

ZCZC  
LNPJAN 8973 GALNAN 5476  
RESTRICTED  
PP PTLOU  
FM GABOR TO FCOLN  
281104Z NOV  
GRS 613

RESTRICTED  
FM GABORONE  
TO PRIORITY FCO  
TELNO 149  
OF 281104Z NOVEMBER 00  
INFO PRIORITY PORT LOUIS, WASHINGTON, VICTORIA, UKMIS NEW YORK  
INFO PRIORITY MODUK

FROM WHITE (OTD) VISITING

SUBJECT: BIOT: MEETING WITH MAURITIAN FOREIGN MINISTER

#### Summary

1. Measured meeting covering the outcome of the judgment and its consequences for the Ilois and the Mauritians and for handling by UK, USA and Mauritius. Gayan makes strong pitch for Mauritian sovereignty over the territory and indicates a determination to pursue his case.

#### Detail

2. Lyall Grant (Director Africa) and I met Gayan, who was accompanied by Gunessee (MFA), here today. We explained that we were fulfilling a commitment to discuss the outcome of the High Court action with the Mauritians. Gayan said he welcomed this and asked if we were bringing any message for him from the Secretary of State. I said, in a non-committal way, that there was not a letter to hand over, but we were able to discuss the issue fully with him
3. I explained the outcome of the court case, outlining the main features of the judgment and the sense of the Judge's pronouncements on future control of movement into the territory. I told Gayan about the new ordinance.
4. Gayan said he had read the judgment. The time had come for there to be negotiation between UK and Mauritius on the sovereignty issue. He said the world had moved on since the days of the creation of the territory (which Mauritius did not recognise). He wanted the sovereignty issue to be resolved before the current lease expired and so wanted trilateral negotiations with the Americans and us.
5. Gayan said he has reviewed the past records referring to the creation of BIOT. He had been appalled by the way in which HMG had conducted parallel negotiation with the Mauritians and the US. The Mauritians had not been told key facts and so had been hoodwinked. The deal done then was in his view challengeable in international law. He was examining how such a

challenge might be mounted. He said there were helpful UN resolutions supporting the Mauritian arguments. But Gayan indicated he would prefer to negotiate on sovereignty with us in quote a friendly manner unquote.

6. I explained our position on sovereignty in standard terms. Gayan countered that we could not tell Mauritius unilaterally when we did not want the islands, this must be settled in negotiation. He preferred not to have to raise these problems in public and wanted to engage us on them.

7. Gayan asked about our meeting with Bancoult. I told him that the Ilois had outlined their hopes and aspirations and that we had a joint interest in them at least as far as any issue of possible compensation was concerned, given the terms of the 1982 agreement. Gayan said that agreement was challengeable too! He asked about the feasibility study, commenting that Bancoult had been encouraged by the work done. I explained that the first stage was indicative only and that much more detailed investigation was necessary before we could take a view on whether resettlement was feasible.

8. Gayan raised the Joint Fisheries Commission. He said he was reconsidering the Mauritian position. We did not comment.

Comment.

9. Gayan was measured and friendly throughout. But while emphasising the importance he attached to our bilateral relationship, he made clear his determination to use every means open to him, political, legal and through the media to pursue the Mauritian sovereignty claim. The threats were scarcely veiled. We can expect an active time on this issue.

10. If there is to be any written message to the Mauritians it should now include mention of this meeting. But it need not take a position on the negotiation of sovereignty.

WILDE

YYYY

GALNAN 5476

NNNN

**Annex 55**

Note from A.T. MacDermott,  
20 December 2000

BIOT

OK  
WTC 2/1  
8247  
He (Satcam) told me this. New  
last visit to him on 21 Dec at  
Lyall (Satcam): farewell lunch for him  
per 7

From: A T MacDermott, AD(S)  
Date: 20 December 2000

cc: Mr Snoxell, Port Louis  
Mr Lyall Grant  
Mr Wilkinson  
Ms Savill, OTD  
PS  
HD:

To: PS/Mr Hain

UND  
CRD  
News

**SUBJECT: MAURITIAN HIGH COMMISSIONER'S FAREWELL CALL ON MR HAIN**

1. I should record the main points which emerged from the meeting, mainly on BIOT.
2. Mr Hain opened by recalling his meeting during the SADC Conference in Gaborone with the Mauritian Foreign Minister, Mr Gayan. He had spoken to Mr Gayan of the need for dialogue rather than public position taking. We accepted the High Court judgement. We were not seeking to defend the past but to move forward. We recognised the Mauritian claim to sovereignty.
3. Sir Satcam Boolell said that habitable infrastructures were needed on two islands for a trial period to see if the Ilois could resettle. The UK should provide. He suggested a tripartite meeting between the UK, the US and Mauritius to discuss the issues. Mauritius wanted a say in control of the fisheries surrounding the islands.
4. Mr Hain reiterated the need for private dialogue. We would need to discuss the issue of self determination. Sir Satcam replied that the Ilois were Mauritian by birth. Self determination did not arise. Mr Hain said we would need to clarify the position in international law. He recognised the strength of Mauritian feeling but the UK also had treaty obligations.
5. Sir Satcam proposed a Mauritian Ministerial delegation to the UK. Mr Hain suggested that officials should talk as soon as possible to prepare the way. Sir Satcam closed by asking Mr Hain to look again at the high cost to overseas students of fees for UK higher education. Mr Hain referred to the Prime Minister's initiative to raise the number of scholarships.

**Annex 56**

Telegram from Cook concerning the Foreign Secretary's meeting with  
Foreign Minister Gayan on 25 January 2001, 26 January 2001



ZCZC

LNPJAN 0280 MAMIAN 7624

CONFIDENTIAL

PTLOU

FM FCOLN TO PTLOU

261423Z JAN

GRS 792

*John**Interesting to compare with mytelno 13*

CONFIDENTIAL

FM FCO

TO PRIORITY PORT LOUIS

TELNO 5

OF 261423Z JANUARY 01

INFO ROUTINE WASHINGTON, VICTORIA, UKMIS NEW YORK

FROM AD(S)

MIPT

SUBJECT: MAURITIUS/BIOT: FOREIGN SECRETARY'S MEETING WITH  
FOREIGN MINISTER GAYAN, 25 JANUARY 2001

SUMMARY

1. Discussion of BIOT, and Hizbollah activity in Mauritius.

DETAIL

BIOT: Sovereignty

2. Gayan expressed disappointment that there had been no progress since his meeting with Peter Hain in Gaborone in November. He hoped the two sides could "sort out this problem". His Government had stated publicly that they would allow the US to continue to use the islands for defence purposes, with security of tenure on terms negotiated bilaterally with the US. Gayan claimed that the previous US Administration had been happy with this approach, as had been confirmed during Mrs Albright's visit to Mauritius in December. The Foreign Secretary said that in previous contacts with us the US had stated quite clearly that they wanted no change to the current arrangements. He would discuss BIOT with the new US Administration when he visited Washington from 5-7 February.

3. Gayan said he had noticed a shift in HMG's position on sovereignty in recent months. Mauritius was unhappy that we had qualified our previous policy statement. The Foreign Secretary said there had been no shift in our policy position: we remained ready to cede the islands to Mauritius when they were no longer needed for defence purposes. We were not in that position now, nor were we likely to be in the foreseeable future. We had added the reference to the requirements of international law following our defeat in the Bancourt High Court case. The Ilois were now able to return to the outer islands, and a feasibility study on resettlement was under way. We did not ourselves see self-determination as a current issue, but we might have to reconsider that position in the event of future pressure from the UN Decolonisation Committee.

4. Gayan expressed disappointment. There might be implications for

the UK/Mauritius Fisheries Commission. He might have to revert to using megaphone diplomacy. The Foreign Secretary said he would regret such a move: this issue should not be allowed to affect our otherwise warm and friendly relations. Gayan asked whether two Governments could agree to take the issue to the ICJ. The Foreign Secretary replied that the GoM of course had the right to pursue the idea if it wished. But he was confident that the UK's case was robust. Gayan commented that the documents from the time, since made public, would weigh heavily against us. The Foreign Secretary replied that the documents related to the treatment of the Ilois, not to sovereignty.

5. In further discussion, the Foreign Secretary suggested that there might be scope for officials to get together to discuss important practical issues relating to possible resettlement, on the basis of an agreed formula protecting our respective positions on sovereignty. Gayan thought that such discussions might cover fisheries, mineral resources and tourism. The Foreign Secretary commented that tourism presented difficulties. We would not be building an international airport. We would also need to consider protection of BIOT's important and unique environment. Other issues might include the need for a sustainable water supply and a source of economic viability now that copra was no longer an option. Gayan agreed. He hoped that discussions on these issues could lead to joint decisions on the way ahead. The Foreign Secretary asked officials to propose in more detail the areas that might be discussed. But he could not agree that the discussions might result in "joint decisions".

#### BIOT: Nationality

6. Referring to Mr Battle's statement in the Adjournment Debate on 9 January, Gayan asked about our position on British nationality for the Ilois. Mauritian press reports had said that we had decided to offer it, and that most Ilois would want to accept that offer. The Foreign Secretary said that the press reporting had been inaccurate. We hoped that we would be able to offer British citizenship to the Ilois, but no formal decision had yet been taken. We would keep Gayan informed, and give him prior notice of any announcement. In reply to the Foreign Secretary's question, Gayan said that the GoM had not yet considered how any conferral of British citizenship to the Ilois might affect their Mauritian nationality.

#### Hizbollah activity in Mauritius

7. Gayan raised concerns about the activities of Hizbollah in Mauritius, and links with organisations based in Afghanistan and elsewhere. The Mauritians were worried about the implications for internal security. Did we have any intelligence that we might be able to share? The Foreign Secretary undertook to investigate and revert.

COOK

MAMIAN 7624

NNNN

**Annex 57**

Note from Ms. Savill of the Overseas Territories Department to  
Mr. Huckle and Mr. Wilkinson, 20 July 2001

[Redacted]

*John 31/7*

*slow (can't agree)*

*pa BIOT 31/7 OK*

*31/7*

Reference: OTI134/001/2001

From: Louise Savill, OTD  
Date: 20 July 2001  
cc: PS/PUS  
Mr Westmacott  
Mr Lyall Grant  
Mr Hendry, Deputy Legal Adviser  
Heads: News D, AD(S), HRPD, PRDD  
Mr Steel, BIOT Principal Legal Adviser  
Mr Watson, Assistant Legal Adviser  
HC Port Louis

*Mr Huckle*  
*Mr Wilkinson*  
*31/7 This has been exhaustively discussed with legal advisers AH.*  
*7 out mit, 1st as usual, routine!*

**BRITISH INDIAN OCEAN TERRITORY (BIOT): MAURITIAN FISHING VESSELS WITH ILOIS CREW MEMBERS**

ISSUE

1. Whether or not to amend the condition, currently included in all fishing licences, which requires the master of a fishing vessel to ensure that no member of his crew lands on any BIOT island without a permit.

TIMING

- A
2. Priority. We need to respond in a timely manner to a letter from Sheridans (solicitors) which suggests that the condition is unlawful insofar as it applies to Ilois.

[Redacted]

[REDACTED]

## PREFERRED OPTION

3. Not to amend the licence condition but to advise Sheridans and the Mauritian Government (see 'Handling the Mauritians', paras 11-12 below) that, subject to their observing the applicable BIOT laws (in particular environmental protection laws which restrict where they may land and what they may do when ashore), it will no longer be enforced in respect of any crew-members, whether Ilois or other Mauritians. AD(S), BHC Port Louis and Legal Advisers agree. News Department and PRDD have seen and agreed the press line.
4. Alternative options include:
  - (a) to maintain the licence condition and to enforce it.
  - (b) to maintain the licence condition but not to enforce it in respect of Ilois only, provided that the Ilois observe the applicable BIOT laws (as in the preferred option).
  - (c) to remove the licence condition from all current and future licences to Mauritian vessels (but again without prejudice to the enforcement of other BIOT laws).

## ARGUMENT

5. Judicial review proceedings were brought last year by a member of the Ilois community (represented by Sheridans) against the Secretary of State and the Commissioner for the British Indian Ocean Territory (BIOT). The proceedings challenged the validity of the 1971 BIOT Immigration Ordinance. Effectively the Applicant sought the right to return to and reside in the Territory. The judgment of the Divisional Court found in the Applicant's favour and a new BIOT Immigration Ordinance was enacted which exempted the Ilois from the general prohibition on entering the Territory. This exemption does not apply in relation to Diego Garcia.
6. Legal Advisers consider that the new Immigration Ordinance does not have the effect of making invalid the condition of the fishing licence requiring the master of a vessel to prevent any of his crew, even if they are Ilois, from landing in the Territory. But if we were challenged in court as to whether the application of that condition to Ilois was compatible with the Divisional Court's judgment, or was reasonable or proportionate in light of that judgment, Legal Advisers believe that we would not get a sympathetic reception. The risk of an adverse judgment and the damaging publicity this would attract argue against alternative option (a). (See para 8 of attachment B).
7. Alternative option (b) is likely to be objectionable to the Mauritian Government in the context of their claim to sovereignty over BIOT because it gives the Ilois a preferential status. The vast majority of Ilois are Mauritian citizens as well as British Dependent Territories citizens, and the Mauritian Government will view such a distinction between

[REDACTED]  
[REDACTED]

the Ilois and other Mauritians as a further denial of the territorial integrity of Mauritius and as an encouragement of claims by the Ilois for "self-determination".

8. Alternative option (c) minimises the risk of confrontation with the Mauritian Government. But its effect would be to abandon, formally, our control over the access of Mauritian fishermen to BIOT and to concede that they may enter the Territory at will. This could significantly weaken our position in rebutting the Mauritian Government's claim to sovereignty. Moreover, by maintaining the licence condition, we retain greater flexibility in our response to any misconduct by Mauritian fishermen when ashore eg demonstrations asserting Mauritian sovereignty. It might be easier to deal with this under the licensing regime (by refusing a licence the following year) than by invoking criminal sanctions.
9. The preferred option should prevent us being taken to court; limits the damage to our bilateral relations with Mauritius as far as is reasonably practicable; and allows us to continue to maintain notional control over access to the territory. It also takes into account of what we believe to be historic practice of crew members of the Mauritian fishing vessels, namely brief visits to the islands. Legal Advisers confirm that our preferred option, of maintaining the licence condition without enforcing it, would be acceptable practice. But it is not without disadvantages. It carries a risk that Ilois might use the Mauritian fishing vessels as their transport to start a premature and unregulated resettlement on the outer islands. It also increases the chance that Mauritians will use the vessels to go ashore in order to make political protests. But both Possibilities exist already.
10. Whatever relaxation of the licence conditions we may offer, we must insist on the observance of various other BIOT laws, especially those protecting BIOT's environmental, eg The Strict Nature Reserve Regulations 1998. Failure to do so would attract criticism from the concerned conservation organisations.

#### HANDLING THE MAURITIANS

11. We cannot avoid some fall-out with the Mauritian Government. It is not in our interest to give the Mauritians cause to raise the tempo to their sovereignty claim; we should aim to minimise damage. We should, therefore, advise them in advance of the line we will take so that they do not hear it second hand from statements by Ilois in the Mauritian press.
12. We should explain to the Mauritians that we are aware that fishermen from Mauritian fishing vessels do land periodically on some of the Territory's islands. We do not propose to change the condition of licence but neither do we want to give the impression that we are trying to block the will of the Divisional Court (in the judgment it delivered in

[REDACTED]

Hence, we will not attempt to enforce the condition insofar as it applies to crew members of licensed Mauritian fishing vessels.

### BACKGROUND

13. On detachment of the Chagos islands to form the BIOT in the 1960s, HMG gave an undertaking to grant Mauritians "fishing rights". We interpret this as the granting of free licences for historic fishing. A small number of Mauritian vessels fish under this scheme every year in BIOT waters. Anecdotal evidence suggests that some of the crew (who fish from separate, small dories, returning to the mother vessel at night) do land temporarily on the islands and take coconuts, and sometimes coconut crabs. This year is the first time BIOT's fisheries patrol vessel has actually made an inspection of a licensed Mauritian fishing vessel and caught some of the crew on land.
14. The granting of free licences has never meant unconditional fishing and we have, historically, attached many conditions mainly related to the good management and conservation of the fishery. One such condition relates to permissible methods of fishing and fishing gear. The letter from Sheridans claims that some Ilois had fishing tackle confiscated. This is true, but they were caught using proscribed gear.
15. In their letter Sheridans also claim that certain Ilois crew members were threatened with fines of up to £200,000 if they landed on the islands. Our enquiries do not support this account of events. Our Senior Fisheries Protection Officer claims that he only warned the master of the vessel about the possible penalties for allowing crew to land. This would be the correct procedure for enforcing a condition of licence on the holder of the licence.


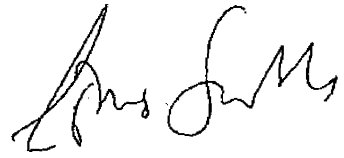
### PARLIAMENT AND MEDIA

16. Our preferred option should be sufficient to avoid being taken to court by Sheridans. If we can satisfy Sheridans, this issue is most unlikely to attract any *adverse* Parliamentary or media interest in the UK, though MPs like Tam Dalyell and Jeremy Corbyn are likely to take a close interest in the decision. (A court hearing will certainly attract disobliging Parliamentary and media interest as the Ilois cause has many sympathisers.)
17. On the other hand any option will be replayed widely in the Mauritian press. A draft line explaining the decision (based on the preferred option) is attached.

### RESOURCE IMPLICATIONS

18. None, unless the BIOT Government is taken to court. Court costs are likely to run into tens of thousands of pounds.

[REDACTED]

Louise Savill  
Atlantic and Oceans Section  
OTD

020 7270 2890



**Annex 58**

Record of Mauritius parliamentary question,  
13 November 2001

Print a lot of 'editing' has gone on since this exchange!

BA to see

C.T. G.V.

P/W

DR 19/11

Debate No. 29 of 13.11.01

3

D29/AF/P01/1

## ORAL ANSWERS TO QUESTIONS

### CHAGOS ARCHIPELAGO – MAURITIUS SOVEREIGNTY

The Leader of the Opposition (Dr. N. Ramgoolam) (*By Private Notice*) asked the Acting Prime Minister and Minister of Defence and Home Affairs whether, in regard to Mauritius' sovereignty claim over the Chagos Archipelago and the plight of the Chagossiens, he will state –

- (a) the progress made since September 2000;
- (b) what representations have been made to the United Kingdom Government on behalf of the Chagossiens, and
- (c) what measures have been taken by Government following the *note verbale* from the British High Commission in the wake of demonstrations by the Chagossiens calling on the Government to honour its obligations under the Vienna Convention on Diplomatic Relations.

**The Ag. Prime Minister (Mr P. Bérenger):** Mr Speaker, Sir, since September 2000 Government has not missed any opportunity to reassert the sovereignty of Mauritius over the Chagos Archipelago, including Diego Garcia.

I wish to draw the attention of the House to the latest demonstration of Government's unrelenting pursuit of this assertion of sovereignty when the Rt. hon. Prime Minister declared in his statement delivered last Sunday during the general debate of the 56<sup>th</sup> session of the United Nations General Assembly, I quote –

D29/IF/P01/2

“We continue to claim our sovereignty over the Chagos Archipelago which was excised by the United Kingdom from the then Colony of Mauritius in violation of international law and UN General Assembly Resolution 1514. We are convinced that the time for the UK to engage in talks for the early retrocession of the Archipelago to Mauritian sovereignty is long overdue inasmuch as the problems left over back from colonial days cannot remain unresolved.”

Mauritius also raised the issue at the recent OAU Summit in Lusaka.

As regards part (b) as the House is aware, the judgement of the High Court of the United Kingdom on 03 November 2000, quashed the Immigration Ordinance of 1971 which was made by the Commissioner of the so-called British Indian Ocean Territory (BIOT). Subsequently another measure, an Ordinance No. 4 of 2000, was made on the same day allowing the former inhabitants of the Chagos Archipelago and their descendants (including their grandchildren) to return to, and reside in, the islands of Chagos Archipelago, except Diego Garcia. Some time later, the UK Government decided to allow Mauritian fishermen to land on the islands of the Archipelago, except Diego Garcia, for periods of rest and relaxation.

In the light of the above, substantial preparations had been made in view of the meeting between hon. Jack Straw, British Foreign Secretary and myself, scheduled for last September in London to review the most recent developments. This meeting would have been followed by another meeting between the Rt. hon. Prime Minister and his British counterpart at the Commonwealth Heads of Government meeting that was to be held in Australia. However, those meetings have had to be postponed following the terrorist attacks in the United States on 11 September last.

My meeting with the U.K. Foreign Secretary, hon. Jack Straw, is being rescheduled.

The Commonwealth Heads of Government meeting which was to be held last October has been rescheduled to March 2002 and will afford us another opportunity to pursue consultations and exchange views on this issue at the highest level of Government.

With regard to the members of the Ilois community, I wish to remind the House that Government has again not missed any opportunity to

D29/IF/P01/3

demonstrate its solidarity both at home and internationally. I wish to again quote from the statement of the Rt. hon. Prime Minister at the 56<sup>th</sup> session of the General Assembly Sunday last. I quote --

“We are also concerned by the plight of all those Mauritians, commonly known as *Ilois*, who were forcibly and in outright violation of their fundamental rights, removed from the islands forming the Archipelago by the then colonial power. We support their legitimate claim for all appropriate remedies.”

Locally Government has proceeded with the setting up of the Ilois Welfare Fund and the rehabilitation of the two social centres at Pointe aux Sables and Tombeau Bay managed by the Fund.

I am informed that the Commissioner of Police received a delegation of the Ilois comprising Mr Olivier Bancoult and their legal representatives on 08 November 2001. He got their full collaboration and they agreed that they would refrain from doing anything that would cause inconvenience to the normal functioning of the U.K. High Commission.

As regards part (c), Mr Speaker, the demonstrations in front of the British High Commission in Port Louis, I wish to assure the House that Government has taken all appropriate measures arising from its responsibilities under article 22 of the Vienna Convention on Diplomatic Relations. It is acknowledged that initially the demonstrations were slightly rowdy, but after discussion between Olivier Bancoult, myself and the Police, the situation improved markedly. I wish to place on record my appreciation to Mr Bancoult for his cooperation.

Yesterday, I convened a meeting between the High Commissioner and his Deputy on the one hand and Mr Olivier Bancoult and Mrs Talate on the other accompanied by their lawyers, in an attempt to reconcile their views.

I am confident that with goodwill from all parties, a lasting solution will be found to this long-standing problem.

D29/TF/P01/4

**Dr. Ramgoolam:** I thank the Ag. Prime Minister for the details that he has given. As he knows successive Governments and the main Opposition parties have always tried to speak with one voice as far as the Chagos Archipelago is concerned and I hope this will continue. In a reply to a PQ in March 2001, the Minister of Foreign Affairs had said that he was writing a letter to Robin Cook. I am going back a bit, but I need to know what response did Mr Cook give to that letter?

**The Ag. Prime Minister:** I can confirm that there has been an exchange of correspondence between the Mauritian Foreign Minister and the two successive Foreign Secretaries in London: Mr Robin Cook and Mr Jack Straw. I would add that all this is rather behind us. A new situation has been created by the London Supreme Court judgment and then by the decision of the U.K. Government to allow the Mauritian crew on fishing vessel to come and go on all the islands except Diego Garcia.

## UNREVISED

DR/D29/P02/1  
(PNQ CONT'D)

**(The Ag. Prime Minister):** We consider that a new situation has been created and, as I said, a lot of groundwork was done in preparation of discussions between myself and Mr Jack Straw in that new context to be followed by discussions between the two Prime Ministers. There is, we consider, a historical window of opportunities that has opened with that judgment and that decision of the UK Government. We are handling that very carefully, but I am convinced that the possibility of a breakthrough has been created by that judgment and that decision. Unfortunately, there have been the tragic events of 11 September, but we will pick up where we left and I am confident that we will progress.

**Dr. Ramgoolam:** Mr Speaker, Sir, when there was an exchange of views between Mr Robin Cook and myself, he had more or less looked sympathetically at our proposals. And he had informed us that he will talk to the United States Government, be it on an informal basis so that the Chagossians could go back to some of the islands, including Peros Banos and Solomon Islands because they are not needed directly, they are not used as a base. Can I ask the Ag. Prime Minister whether there has been any follow-up on this or are we still at the same point?

**The Ag. Prime Minister:** Of course, this has been completely superseded by the judgment of the Supreme Court, that is, the whole point. This is the new situation that has been created under the Ordinance that was prepared in 1971, as I said earlier on, by the Commissioner of the so-called BIOT. Neither the descendants nor the children of the Ilois or anybody could come and go on any of the islands. The judgment of the Supreme Court quashed that Ordinance. But the UK Government had prepared itself for that and, on the same day, proclaimed another Ordinance that allowed the Ilois and their descendants, including their children, to come and go freely on all the islands except Diego Garcia. And, as I said, some time later, the UK Government also decided that Mauritians on fishing vessels could come and go freely on all the islands except Diego Garcia. So, what has been referred to is now superseded. It is a new situation that has been created and one that we intend to exploit, but very carefully, without rushing into anything. But we know exactly what we mean to propose to the UK Government. We have well prepared the ground and I am very confident.

## UNREVISED

DR/D29/P02/2  
(PNQ CONT'D)

**Dr. Ramgoolam:** In fact, I said so in my last PNQ to the Rt. hon. Prime Minister that this judgment is a very good judgment in our favour. But I wanted to know whether there has been - since this new situation has arisen - anybody who has gone, be it Mauritian or Chagossien, to any of the islands.

**The Ag. Prime Minister:** In fact, we know that there are plenty of tourists and ocean goers. There are plenty of tourists, little sailing boats and so on on those islands, but no Mauritians or Ilois as far as I am concerned. Preparations were being made at the request of the Ilois community, the organisation headed by Olivier Bancoult. It had been agreed between the UK Government and the Ilois that the UK Government would organise a historical visit by the Ilois community, and this was being done until again the tragic events of 11 September, but it is still ongoing. In the course of the meeting which I had yesterday with the UK High Commissioner, it was confirmed that it is still ongoing, that arrangements are being made for that historical visit by the Ilois to the islands. But we have other ideas, of course. The Government of Mauritius, as I said, has new ideas and believes that the window of opportunities created by the judgment and the decision should be fully exploited.

**Dr. Ramgoolam:** Can I ask the Ag. Prime Minister who decided that he should go and meet Mr Jack Straw and not the Foreign Minister or the Prime Minister? What was the reason for that?

**The Ag. Prime Minister:** We work as a team. As the Leader of the Opposition knows, I have taken a very special interest in the Chagos issue and the Ilois issue for very many years. We work as a team. There is the Prime Minister, there is the Deputy Prime Minister, who very often acts as Foreign Minister, and the Foreign Minister. So, we prepared all this as a team. Both the Foreign Minister and myself met the UK High Commissioner on numerous occasions here to prepare the ground for that meeting to be followed by other meetings. So, we work as a team; this was well prepared and we are going to keep at it and, as I said, although the tragic events of 11 September, *les choses sont un peu bouleversées*, I am still very optimistic.

## UNREVISED

DR/D29/P02/3  
(PNQ CONT'D)

**Dr. Ramgoolam:** The Ag. Prime Minister would agree that even though that the whole Cabinet works as a team, it would have been more proper for the Foreign Minister to talk to Mr Jack Straw and the Prime Minister to talk to the Prime Minister unless they wanted to speak to the real boss who knows the subject very well and not the others. It could well be that this is the case.

*(Interruptions)*

As the Ag. Prime Minister is probably aware, we had started talking to an international lawyer and then the Foreign Minister had said that they had also secured the help and the assistance of an international expert, a lawyer from India. Does he know who that expert is?

**The Ag. Prime Minister:** We have received advice from overseas which will be useful, but we are fully equipped. The Mauritian side is fully equipped and ready for the discussions that will take place in London first and then at the Commonwealth Heads of Government meeting if not before at Prime Ministerial level. One can be led to hope that not only will I be meeting the new Foreign Secretary in London, but that the two Prime Ministers of the two countries might meet even before the Commonwealth Heads of Government if things move in the right direction.

**Dr. Ramgoolam:** The Rt. hon. Prime Minister had said at one point on television that he might take a boat and go there and the Foreign Minister said that he might take CNN to accompany the Prime Minister. Is that being envisaged?

**The Ag. Prime Minister:** This was not a joke, Mr Speaker, Sir. This was very serious. At one point .....

**Dr. Boolell:** It was a bluff!

**The Ag. Prime Minister:** This was not a bluff at all.

*(Interruptions)*



UNREVISED

DR/D29/P02/4  
(PNQ CONT'D)

**Mr Speaker:** Order!

**The Ag. Prime Minister:** I wish Members of the Opposition would follow the leadership of their leader for once and behave themselves on such crucial issues. This was neither a bluff nor a joke, Mr Speaker, Sir. At one point, we were in a total deadlock; and I hope that neither the Opposition nor the Government will agree forever with the deadlock on that fundamental issue. So, when the Prime Minister said that, he was serious, but, as I said, a new situation has been created by the judgment of the Supreme Court and by the Government of the UK as I said earlier on.

I must say, Mr Speaker, Sir, I understand the frustration, the indignation and the sufferings of the Ilois. We understand that fully and I understand their frustration that at a time when UK is associating itself with the US in the name of Human Rights, they are still in their misery, they are still in the situation they are in. I can understand them, but I must say that I am impressed by the decision of the UK Government to move forward following the judgment. In spite of the tragic events of 11 September and since, I am impressed that London is going on with preparations for that trip by the Ilois community to the Chagos Archipelago and other measures. So, I am optimistic in the light of the attitude adopted by the UK High Commissioner here and by what I hear from London. Because, as I said, there has been a lot of groundwork done; there has been a lot of exchanges through High Commissioners here and in London and this leads me and the Prime Minister to be very optimistic.

D29/P03/mt/1

## UNREVISED

PNQ (contd)

**Dr. Ramgoolam:** We also associate ourselves with the plight of the Chagossiens, because they obviously feel frustrated after the judgement has been given. They did a lot of sacrifice to go to London and have a judgement, but as far as they are concerned they feel that they are in the same situation.

Again in the same atmosphere that we should speak with one voice can I ask the Ag. Prime Minister whether it was a good thing - just to tread carefully, I wanted to pass that remark - that if a meeting has taken place in his office, between some representatives of the Chagossiens and the British Government that does not put us in a position as if we accept the authority of the British Government that we have the Chagossiens to negotiate with them. It's just a word of caution. I hope the Ag. Prime Minister takes this on board.

**The Ag. Prime Minister:** I thank the hon. Leader of the Opposition for the word of caution, but it is not warranted. I'll reassure him that every time mention was made of the BIOT, I stated our position that we don't recognize anything called the BIOT, and that whatever is discussed, whatever I accept as documents or anything has no bearing at all on our sovereignty claim. So, the fact that I invited the High Commissioner and Deputy High Commissioner on the one hand and the Ilois Community and their lawyers on the other, will not in any way have an impact on our claim for sovereignty. Day and night, all the time, we are very, very careful on that and we will keep on. The point was to get them together; I am happy that the mood was good. The situation was quite tense on both sides. So, the Ilois put forward a certain number of points, which have been considered by the High Commissioner, transmitted to London and we will wait for reaction from London. But, all I can say is that it was my duty to try and come to a breakthrough; we are not yet there, but I will keep trying.

**Mr Duval:** Mr Speaker, Sir, concerning the proposed meeting of the Ag. Prime Minister with Mr Jack Straw, which I understand has been rescheduled or postponed, can he tell us whether he has a date for the new meeting or whether it has been postponed indefinitely?

## PNQ (CONTD.)

**The Ag. Prime Minister:** A date has been proposed and is being worked upon. Things have not yet been finalised. I must say that, at our end here also, there are problems for finding dates these days. *C'est une valse constante* of Prime Ministers, of Foreign Ministers and it is not easy to plan international meetings or bilateral meetings these days. But, a date has been suggested and is being worked upon.

**Mr Duval:** Notwithstanding the strong claim of Mauritius on the islands, may I ask the Ag. Prime Minister, given that it has been a year almost now since the High Court Judgement in the UK, whether the Government has considered giving practical assistance to the Chagossiens to return to the Chagos Island, i.e. by providing a ship of some sort for them to go and land back on their own island?

**The Ag. Prime Minister:** As I said, Mr Speaker, Sir, a new situation has been created and the UK Government has offered itself to organise a visit by the Illois community to the other islands and that was and is still being discussed. As far as we are concerned, we are not going to be rushed into anything. I repeat, a new situation has been created, we have new ideas, we are going to put them across *de vive voix*. Already the point has been put across through High Commissioners. London knows what are the new ideas that we have, but there is nothing like personal chemistry, like personal contact. So, I very much look forward to meeting the Foreign Secretary, Jack Straw, putting our new ideas forward, suggesting how this window of opportunities should be fully utilised. And, yes, I am optimistic, but I repeat, we are all aware that the tragic events of 11 September, *avant tout ont bouleversé toute la situation* across the world, but in that part of the world especially. So, Mr Speaker, Sir, we have to be very, very careful. We are not going to rush into things and see this window of opportunities close before our eyes. We are going to be very careful, we are going to keep at it and I know that we will succeed.

**Mr Duval:** Can I ask the Ag. Prime Minister whether he has expressed his strong indignation at the length of time it has taken the High Commissioner to meet these poor people, whom they presumably recognise as their citizens now, and who have been sitting in front of the High Commission for about a week?

D29/P03/mt/3

UNREVISED

pnq (contd.)

**The Ag. Prime Minister:** The Illois community knows where my sympathy lies. I did all that was necessary to encourage them, but also to have a fruitful meeting between the High Commissioner, his Deputy and the Illois. I am glad to say that I succeeded in doing that. I hope that we succeed also concretely as far as the requests of the illois are concerned. We will keep on working at that and indignation is shared, but sometimes it doesn't help. In that case, we are fully with the illois community, they are aware of it and we are doing all we can to help them.

**Mr Dulloo:** I have two questions. If I may first, we have heard that the meeting was held under the aegis of the Ag. Prime Minister between the representatives of the Chagossiens and the British Government. May the House be informed of the representations made? I heard that about ten demands were made by the Chagossiens and that the Ag. Prime Minister acted as mediator.

**The Ag. Prime Minister:** I won't use the term mediator, I would rather use the term facilitator, a friend trying to bring solutions. Now, the ten requests made by the Illois community are contained in a letter which they sent to the UK Government, dated 10 October 2001. The ten requests *sont du domaine public*. They were in the press and so on, and I have no problem circulating a copy of that letter because *c'est du domaine public*. Of course, we did not discuss all the points, but some of those points. We also discussed other points too. Now, it would not be proper to disclose representations made, after a meeting yesterday, where points were put forward and new points as well. I must say that I have immense admiration for a young man like Olivier Bancoult. When one remembers that he was an ordinary Illois and now he speaks fluent English, he argues his points; it's very, very impressive. And, yesterday, Olivier Bancoult and the Illois came with new suggestions, new requests. It is proper to give time to the British side to consider them and to react, but we will keep the House informed in the days to come.

D29/P03/mt/4

## UNREVISED

pnq (contd)

**Mr Dulloo:** The second question, Mr Speaker, Sir, if I may, is that Diego Garcia has been referred to just now. It is being used as a base as we know and Foreign Minister, hon. Anil Gayan, publicly declared that he would be asking the British Government to inform us regularly, if not daily, on the use to which the base of Diego Garcia is being put these days. Has this been done and have we been informed about what use is being made of Diego Garcia?

**The Ag. Prime Minister:** Well, of course, the Foreign Minister having said that, *poursuit la chose*. But, I don't think that in military matters we can expect to get all the details of the military action taking place as from Diego Garcia. Let us say that we watch carefully, we would wish to be fully informed, but the question relates more to sovereignty and the fate of the Illois than to the military dimension of things. As far as this issue is concerned, the Chagos Archipelgo issue, we all know that there are three dimensions. There is sovereignty dimension, there is the human dimension, that is, the fate of the Illois community, and thirdly, the military dimension, the existence and activities of the base. So, we look very carefully at the three dimensions *en permanence*.

*xxxx/xxx*

*mr/d/29p04.01*

*(P.N.Q. ctd....)*

**Dr. David:** Mr Speaker, Sir, this is a very crucial issue and as has been said, we have to speak with one voice on issues like Diégo Garcia and the whole Archipelago. My question to the Ag. Prime Minister is: will he explain and dispel the contradiction between Port Louis and Réduit on the issue of Diégo Garcia?

**The Ag. Prime Minister:** First of all, I am glad to hear that we should speak with one voice. I hope, should the time come for action, that we will also act as one nation. I hope that that time does not come. I hope that we do find a solution. I am optimistic, but as I said when two Members made a dissonant voice heard when they called what the Rt. hon. Prime Minister has said 'a bluff'; this was not a bluff. I hope that the need for action, the time for action does not come, that we find a solution before and I am optimistic. But we should not only talk, but also act as one nation on that issue. Now, there is one Government, the Government speaks with one voice. I think it would not be proper for me to comment on anything which the President says- *à chacun sa sensibilité*. There is one Government, there is one policy and we leave it then *aux personnalités d'exprimer leurs sensibilités de telle ou telle façon*. I would not comment on anything that the President of the Republic says on the issue.

**Dr. Ramgoolam:** Can I ask the Ag. Prime Minister whether, in view of the fact that we have agreed on the need to speak as one people on this, I take it that we have kept all our options open, including the Independent International Court if the need arises.

**The Ag. Prime Minister:** We have kept all our options open and I can tell the Leader of the Opposition that, when the time comes after I have discussed with the Foreign Secretary, Jack Straw, may be, after also the Prime Minister has discussed with the Prime Minister, Mr Tony Blair, he will be fully briefed as Leader of the Opposition. *Il sera mis dans le secret non pas des Dieux mais des gouvernants*. He will be fully briefed on the issue and will be given all the information. He can rest assured; the country can rest assured. *Nous sommes décidés à réussir*. Secondly, we will take every precaution and thirdly, we will circulate as much information when the time comes as required.

**Annex 59**

Fisheries Conservation and Management Ordinance 2007



5/07

**THE FISHERIES (CONSERVATION AND MANAGEMENT) ORDINANCE  
2007**

Pursuant to section 1 of the Fisheries (Conservation and Management) Ordinance 2007, I hereby appoint the first day of January 2008 as the date that Ordinance shall come into effect.

Dated the 21<sup>st</sup> day of December 2007

  
.....  
Commissioner





## THE BRITISH INDIAN OCEAN TERRITORY.

### THE FISHERIES (CONSERVATION AND MANAGEMENT) ORDINANCE 2007

#### Ordinance No. 5 of 2007.

An Ordinance to consolidate, with amendments, existing provisions relating to the regulation, conservation and management of the fishing waters of the British Indian Ocean Territory and to provide for matters connected therewith or incidental thereto.

#### Arrangement of sections.

Section		Page.
1.	Short title and commencement.	2.
2.	Interpretation.	2.
3.	The fishing waters of the Territory.	4.
4.	Director of Fisheries and Fisheries Protection Officers.	4.
5.	Prohibited fishing and fishing methods.	5.
6.	Possession of prohibited fishing gear.	6.
7.	Fishing Licences.	6.
8.	Notification of fish on board fishing boats.	8.
9.	Stowage of gear.	9.
10.	Transshipment.	9.
11.	Exercise of Director's powers.	10.
12.	General enforcement powers of Fisheries Protection Officers.	11.
13.	Disposal of detained or seized boats, etc.	13.
14.	Security for release of seized or detained boat, etc.	14.
15.	Fisheries Protection Officers' immunity from process.	15.
16.	Obstruction of Fisheries Protection Officers.	16.
17.	Offences, penalties, evidence and proceedings, etc.	16.
18.	Revocation of licences of repeated offenders.	18.
19.	Fixed penalty notices and procedure.	18.
20.	Non-payment of fines, etc: detention and forfeiture of boat.	20.
21.	Regulations.	20.
22.	Saving for laws regulating access to Territory, etc.	22.
23.	Repeal and savings.	22.

Enacted by the Commissioner for the British Indian Ocean Territory

21 December 2007

Commissioner



# THE BRITISH INDIAN OCEAN TERRITORY

## Ordinance No. 5 of 2007

An Ordinance to consolidate, with amendments, existing provisions relating to the regulation, conservation and management of the fishing waters of the British Indian Ocean Territory and to provide for matters connected therewith or incidental thereto.

Short title and commencement.

1. This Ordinance may be cited as the Fisheries (Conservation and Management) Ordinance 2007 and shall come into operation on such date as the Commissioner may appoint by notice which shall be published in the *Gazette*.

Interpretation.

2. (1) In this Ordinance, unless the contrary intention appears -

"the Director" means the Director of Fisheries appointed under section 4(1);

"fish" means any marine animal (other than a bird but including shellfish), irrespective of whether it is fresh or cured, and any marine plant; and references to fish include references to any part of a fish;

"a Fisheries Protection Officer" means any person declared by section 4(5) to be such an Officer and includes the Director;

"fishing" means -

(a) the catching or taking of fish;

(b) any activity which can reasonably be expected to result in the catching or taking of fish;

or

(c) any operation at sea in support of or in preparation for any activity mentioned in paragraph (a) or paragraph (b),

and, for the avoidance of doubt, includes exploring or prospecting for the presence of fish and the collecting or taking by any means of sea cucumbers (all species of *Holothuria*) or molluscs;

"fishing boat" has the meaning assigned to that term in subsection (2);

"a fishing licence" means a licence granted under section 7;

"the fishing waters" means the fishing waters of the Territory, as defined in section 3;

"the Fisheries Conservation and Management Zone" means the zone of that name which was established by the Proclamation made by the Commissioner on 1 October 1991 (Proclamation No.1 of 1991) and



whose extent is defined in that Proclamation (as it may be amended from time to time by further such Proclamation);

"the internal waters of the Territory" means the sea-waters on the landward side of the baselines from which the territorial sea of the Territory is measured;

"a licence" means a fishing licence or a transshipment licence;

"the master", in relation to a fishing boat, includes any person for the time being in command or in charge of the boat and any person in charge of fishing operations on board the boat;

"prescribed" means prescribed by or under regulations made under section 21;

"shark" means all species of shark (elasmobranchii taxon)

"shellfish" includes crustaceans and molluscs of any kind, any (or any part of any) brood, ware, half-ware or spat of shellfish, any spawn of shellfish and the shell (or any part of the shell) of any shellfish;

"a transshipment licence" means a licence granted under section 10 and includes a fishing licence operating as a transshipment licence by virtue of section 10(4); and

"transshipment", in relation to fish, means the passing of the fish from one boat to another, whether or not it was first caught or taken by the boat from which it is passed.

(2) (a) In this ordinance, unless the contrary intention appears, the term "fishing boat" means, subject to paragraphs (b) and (c), any vessel of whatever size and in whatever way propelled which is for the time being employed in fishing or in the processing, storage or transport of fish or in any operations (including the transshipment of fish) ancillary to any of the foregoing; and, for the avoidance of doubt but subject as aforesaid, the term includes any vessel, of whatever size and in whatever way propelled, which is for the time being operating as an independent support vessel in support of one or more other vessels that are themselves engaged in fishing.

(b) The term "fishing boat" does not, in this Ordinance, include a vessel (such as, but not limited to, a net tender) whose principal use is in support of, and is integral to, the fishing operations of a larger vessel (being itself a fishing boat) and which, when not being so used, is normally stored on board that larger vessel as part of its fishing gear; but the term does include any vessel, whether or not normally stowed as aforesaid, which is itself employed in the catching or taking of fish.

(c) For the purposes of section 7(11), the term "fishing boat" has the meaning provided in that subsection.

(3) Unless the contrary intention appears, any provision of this ordinance, or of any regulations made under section 21, that confers



powers on a Fisheries Protection Officer or on a person acting under his direction in relation to a fishing boat that is within the fishing waters, or in relation to a person or thing connected therewith, shall be construed as conferring those powers also in relation to a fishing boat that is outside the fishing waters, or in relation to a person or thing connected therewith, in any circumstances in which, in international law, those powers may properly be exercised as an incident of the right of hot pursuit for an offence or suspected offence against any provision of this ordinance or any such regulations.

The fishing waters of the Territory.

3. The fishing waters of the Territory comprise -

- (a) the internal waters of the Territory;
- (b) the territorial sea of the Territory; and
- (c) the Fisheries Conservation and Management Zone.

Director of Fisheries and Fisheries Protection Officers.

4. (1) There shall be a Director of Fisheries for the Territory who shall be appointed by the Commissioner.

(2) The Director has charge of the administration of this Ordinance and of any regulations made under section 21 and, in particular and without prejudice to the generality of the foregoing, is responsible for -

- (a) the conservation of fish stocks;
- (b) the assessment of fish stocks and the collection of data (including statistics) and other information relevant thereto;
- (c) the development and management of fisheries;
- (d) the monitoring, surveillance and control of fishing and of operations ancillary to fishing;
- (e) the regulation of the conduct of fishing and of operations ancillary to fishing;
- (f) the grant, suspension, revocation and variation of licences under this Ordinance;
- (g) the collection of fees for licences; and
- (h) the making of such reports to the Commissioner as he may require.

(3) This Ordinance and any regulations made under section 21 shall be enforced by Fisheries Protection Officers who, for the purposes of their functions, have the powers conferred on them by this Ordinance and by or under any regulations made under section 21.

(4) In the exercise of their function Fisheries Protection Officers shall be subject to the direction of the Director:



Provided that in acting as a public prosecutor in relation to any proceeding arising under this Ordinance or under any regulations made under section 21 a Fisheries Protection Officer shall be subject to the direction of the Principal Legal Adviser.

(5) The following persons shall be Fisheries Protection Officers:

- (a) every person appointed as such by Commissioner;
- (b) every Peace Officer;
- (c) every person for the time being appointed to be an Imports and Exports Control Officer for the purposes of the Imports and Exports Control Ordinance 1984;
- (d) all commissioned officers of Her Majesty's ships; and
- (e) any person for the time being in command or in charge of any aircraft or hovercraft of the Royal Navy, the Army or the Royal Air Force.

Prohibited  
fishing and  
fishing  
methods.

5. (1) Any person who within the fishing waters or within the Territory-

- (a) uses or permits to be used any explosive, poison or other noxious substance for the purpose of killing, stunning or disabling fish with a view to its being caught or taken or to rendering it more easily caught or taken; or
- (b) carries or has in his possession or control any explosive, poison or other noxious substance which is intended for any of the purposes mentioned in paragraph (a); or
- (c) collects, takes by any means, or has in his possession any sea cucumber (which expression includes all species of Holothuria) or mollusc;

is guilty of an offence; and where a contravention of this subsection is committed on or from a fishing boat, the owner, master and charterer of the boat is each guilty of an offence.

(2) Any explosive, poison or other noxious substance which is found on board any fishing boat in the fishing waters shall be presumed, unless the contrary is proved, to be intended for a purpose mentioned in subsection (1)(a).

(3) Any person who lands, tranships, sells, buys, receives or is found in possession of fish which has been caught or taken by the use of an explosive, poison or other noxious substance in contravention of subsection (1)(a) and who, at the time when he did so or was so found, knew or had reasonable cause to believe it to have been so caught or taken is guilty of an offence; and where a contravention of this subsection is committed on or from a fishing boat or by any



member of the crew of a fishing boat, the master, the owner and the charterer of the boat is each guilty of an offence.

(4) In any proceedings for an offence under subsection (3) a certificate signed by a Fisheries Protection Officer stating the cause or manner of the death of, or of any injury suffered by, any fish shall be accepted as prima facie evidence of that matter, and any certificate purporting to be so signed shall be received in evidence as such unless credible evidence to the contrary is adduced.

(5) A person who is convicted of an offence under this section is liable to imprisonment for 6 months, or a fine of £50,000 or to both such imprisonment and fine.

Possession of prohibited fishing gear.

6. (1)(a) Any person who uses any prohibited fishing gear for fishing within the fishing waters is guilty of an offence.

(b) Any person who is found in possession other than on a fishing boat of any prohibited fishing gear, whether or not with the intention to use it within the fishing waters, is guilty of an offence.

(2) The master, the owner and the charterer of any fishing boat on which there is found, within the fishing waters, any prohibited fishing gear is each guilty of an offence.

(3) In this section "prohibited fishing gear" means -

(a) any net whose mesh size is smaller than the prescribed minimum size for nets of that type;

(b) any other type of fishing gear which does not conform to the standards prescribed for that type of gear;

(c) any fishing gear which is prohibited by regulations made under section 21.

(d) any net which, for the purpose of fishing, is set or operated otherwise than by a fishing boat unless it is so set or operated in accordance with a permit issued by the Commissioner's Representative or a Fisheries Protection Officer;

(e) any trap, including (without prejudice to the generality of that term) any pot, barrier or fence;

(f) any gear for grappling or wounding, including (without prejudice to the generality of those terms) any harpoon, spear or arrow;

(g) in relation to fishing otherwise than by a fishing boat, any line unless the use of that line satisfies the conditions specified (in relation to fishing by a fishing boat) in paragraphs (a) to (d) of section 7(10);

(h) any diving equipment or underwater swimming equipment unless the person in possession of that equipment has a permit to use it issued by the Commissioner; and

(i) any wire trace line.



(4) A permit issued for the purposes of sub-sections (3)(d) or (h) may be unconditional or may be made subject to such conditions as the Commissioner or the officer issuing it thinks fit.

(5) The Director of Fisheries may impose, or authorise the imposition of, fees for the issue of permits for the purpose of subsection (3)(d) and, without prejudice to the generality of section 43 of the Interpretation and General Provisions Ordinance 1993, different fees may be imposed for different permits or for different categories of permits.

(6) Sub-section (3)(d) does not apply to the use of nets for fishing under arrangements, approved for the purposes of this paragraph, made by the Morale, Welfare and Recreation organisation of the United States Forces ("MWR") and if all of the following conditions are satisfied: -

- (a) the nets used are hand-held cast nets;
- (b) they are used only for fishing for bait fish; and
- (c) they are used only in the waters of Diego Garcia and its environs and are not used in areas of actively growing coral.

(7) Arrangements made by MWR are approved for the purposes of sub-section (6) if they provide, to the satisfaction of the Director of Fisheries, for MWR to collect, and to make available to any Fisheries Protection officer on request and to the Director at such intervals as may from time to time be notified to MWR by or on behalf of the Director, accurate data (in such form as may be so notified to MWR) giving the following information: -

- (a) the total catch, in weight, of the major species of fish caught on each occasion when nets are used as specified in sub-section (6);
- (b) the number of nets so used on each such occasion; and
- (c) the locations in which nets are so used on each such occasion.

(8) Where, in any proceedings for an offence under sub-section (2), it is proved that prohibited fishing gear was found on a fishing boat within the fishing waters, the onus of proof that no person had used or intended to use that gear for fishing within the fishing waters shall lie on the accused person.

(9) (a) A person who is convicted of an offence under sub-sections 1(a) or 2 is liable to a fine of £50,000.

(b) A person who is convicted of an offence under sub-sections 1(b) is liable to a fine of £5,000.

Fishing  
Licences.

7. (1) Fishing within the fishing waters is prohibited unless carried out in accordance with a licence (a "fishing licence") granted by the Director under this section.



(2)(i) Where sub-section (1) is contravened by fishing by a fishing boat, the master, the owner and charterer of the boat is each guilty of an offence and is liable, on conviction, to a fine of £500,000.

(ii) Where sub-section (1) is contravened by a person fishing other than by a fishing boat such person shall be liable upon conviction to a fine of £5,000.

(3) (i) Every fishing licence for fishing by a fishing boat shall be granted in respect of a single fishing boat specified in it and may be granted to the master, the owner or the charterer of the boat.

(ii) Every fishing licence for fishing other than by a fishing boat shall be granted in respect of the person specified in it.

(iii) No fishing licence may permit fishing for marine mammals.

(4) The authority to fish in the fishing waters that is conferred by a fishing licence may be unlimited or may be limited by reference to such matters as the Director thinks fit, including (but not confined to)-

(a) the area within which fishing is authorised;

(b) the period, times or particular voyages during which fishing is authorised;

(c) the descriptions, quantities, sizes and presentation of the fish that may be caught or taken or, conversely, that may not be caught or taken, whether as by-catch or otherwise; and

(d) the method of fishing and the type or construction of the fishing gear to be used.

(5) Within any limitation imposed under subsection (4) and subject to any regulations made under section 21, a fishing licence may be unconditional or may be made subject to such conditions as the Director thinks fit, including (but not confined to) conditions as to -

(a) the landing of any fish caught or taken;

(b) the use to which any fish caught or taken may be put;

(c) the marking of the licensed fishing boat in accordance with accepted international practice, or as directed by a Fisheries Protection Officer, including the display of its assigned international radio call sign;

(d) the installation on the licensed fishing boat of any equipment specified in the condition, including equipment for monitoring the position or operation of the boat;





(e) the records of fishing operations to be kept on board the licensed fishing boat;

(f) the records of fish caught to be kept and maintained by a person licensed to fish other than by a fishing boat.

(6) (i) Where a condition to which a fishing licence is subject is contravened in respect of fishing by a fishing boat, the master, the owner and the charterer of the fishing boat in respect of which the licence was granted is each guilty of an offence and is liable, on conviction, to a fine of £200,000.

(ii) Where a condition to which a fishing licence is subject is contravened by a person fishing otherwise than by a fishing boat such person shall be liable upon conviction, to a fine of £5,000.

(7) Fees may be charged for fishing licences in accordance with regulations made under section 21.

(8) The master, the owner or the charterer of a fishing boat in respect of which he intends to apply for a fishing licence and each person applying for a licence to fish other than by a fishing boat shall, before so applying, supply to the Director such information as the Director may require or as may be prescribed by or under regulations made under section 21; and a person who, for the purpose of obtaining a fishing licence or in purported compliance with any such requirement or prescription, supplies information which he knows to be false or misleading in any material particular or recklessly supplies information which is so false or misleading is guilty of an offence and is liable, on conviction, to a fine of £50,000.

(9) The Director may at any time suspend or revoke a fishing licence or vary it in any respect; but no part of any fee that was charged for the licence shall, in any such case, be refunded unless the Director considers that it is appropriate, in all the circumstances of the case, to make such a refund.

(10) Subsection (1) does not apply to fishing, by persons who are lawfully present in the Territory, including but not limited to United States personnel and United Kingdom personnel lawfully present in Diego Garcia, if the following conditions are satisfied: -

(a) the fishing is, or is to be, for a reasonable amount for personal consumption within 3 days by the person fishing, and not for sale, barter or other profit;

(b) the fishing is, or is to be, carried out by an attended line (whether or not with a rod);

(c) there is, or there is to be, at any one time no more than two such lines in use under the control of any one person, each line having no more than three hooks attached to it (or such other lesser number of hooks as may, for that occasion, have been specified to that person by a Fisheries Protection Officer);

(d) the fishing is not, or is not to be, carried out in any area of the Territory which is specified, by a notice signed by the Commissioner and published in the Gazette, to be an excepted area for the purposes of this subsection; and

(e) any shark or other large game fish caught while fishing is released live into the fishing waters, save that "game fish" for these purposes does not include species of Tuna and Wahu whenever such fish are intended for the personal consumption of the person fishing and result from fishing in accordance with the other provisions of section 7(10).



(11)(a) The exception to subsection (1) that is provided by subsection (10) does not apply to any fishing carried out by a fishing boat (other than one based in and operating out of Diego Garcia in circumstances where the persons fishing from that boat have paid, or have contracted to pay, for the right to do so or to be on board the boat); and any boat that is being used in such circumstances is deemed to be a fishing boat for the purposes of that subsection.

(b) No fish caught by fishing in accordance with the provisions of subsection 10 may be frozen, and the burden of proving that frozen fish was not caught within the fishing waters of the Territory or was caught from a licensed fishing boat shall lie on the person in possession of such frozen fish.

(12) (a) Subsection (1) does not apply to fishing, by persons who are lawfully present in the Territory, if such fishing is part of a fishing tournament, the limitations and conditions for which have been arranged or approved in writing by the Commissioner's Representative not less than seven days before the tournament.

(b) No such tournament may last more than one day.

(13) The foregoing provisions of this section are without prejudice to -

(a) any prohibition, restriction, condition or requirement imposed by or under a regulation made under section 21; and

(b) any other law for the time being in force in the Territory with respect to the protection and preservation of wildlife or with respect to the conservation of the natural resources of the Territory or with respect to the regulation of activities within the waters of the Territory or with respect to visitors and visiting vessels.

Notification of fish on board fishing boats.

8. (1) The master of a fishing boat that has fish on board shall -

(a) before the boat enters the fishing waters; and

(b) before the boat leaves an area of the fishing waters in which it is licensed to fish,

notify a Fisheries Protection Officer of the quantities, sizes, descriptions and presentation of the fish on board.

(2) A master who, without reasonable excuse, contravenes subsection (1) or who, in pursuance of that subsection, gives a notification which he knows to be false or misleading is guilty of an offence and is liable, on conviction, to a fine of £50,000.

(3) The giving of a notification under this section is not a defence to a prosecution for an offence under section 17(8).



wage of

9. (1) At any time when a fishing boat is in any area of the fishing waters and either -

- (a) it is not authorised by a fishing licence to fish in that area; or
- (b) it is so authorised to fish only for certain descriptions of fish in that area,

its fishing gear, or so much of it as is not required for the fishing which it is authorised to carry out, shall be stowed in such manner as is prescribed or, if no manner is prescribed, in such manner that it is not readily available for use for fishing.

(2) If subsection (1) is contravened, the master of the fishing boat in question is guilty of an offence and is liable, on conviction, to a fine of £100,000.

Transshipment.

10. (1) The transshipment of fish from a fishing boat within the fishing waters or the transport from the territorial sea of the Territory or the internal waters of the Territory by any fishing boat of fish transhipped from another fishing boat is prohibited unless it is carried out in accordance with a licence (a "transshipment licence") granted by the Director under this section in respect of every fishing boat concerned.

(2) Where subsection (1) is contravened, the master, the owner and the charterer of each boat which took part in the contravention is each guilty of an offence and is liable, on conviction, to a fine of £500,000.

(3) Every transshipment licence shall be granted in respect of a single fishing boat specified in it and may be granted to the owner or the charterer of the boat.

(4) If (but only if) it purports to do so, a fishing licence may also operate as a transshipment licence and may accordingly include, in addition to conditions or other provisions relating to fishing by the fishing boat specified in it, such conditions or other provisions relating to the transshipment or transport of fish as are authorised by this section.

(5) The authority to carry out the transshipment or transport of fish that is conferred by a transshipment licence may be unlimited or may be limited by reference to such matters as the Director thinks fit, including (but not confined to) -

- (a) the area within which fish may be transhipped;
- (b) the periods or times within which fish may be transhipped or may be transported by a fishing boat authorised by the licence to do so;
- (c) the descriptions and quantities of fish that may be transported by a fishing boat authorised by the licence to do so; and



(d) the number of times that fish may be transported by a fishing boat authorised by the licence to do so.

(6) Within any limitation imposed under subsection (5) and subject to any regulations made under section 21, a transshipment licence may be unconditional or may be made subject to such conditions as the Director thinks fit, including (but not confined to) conditions as to the treatment of transhipped fish on board the fishing boat to which it has been passed.

(7) Where a condition to which a transshipment licence is subject is contravened, the master, the owner and the charterer of the fishing boat in respect of which the licence was granted is each guilty of an offence and is liable, on conviction, to a fine of £100,000.

(8) Fees may be charged for transshipment licences in accordance with regulations made under section 21.

(9) The Director may require the master, the owner or the charterer of a fishing boat in respect of which a transshipment licence has been granted, or any person who is for the time being designated to the Director, under regulations made under section 21, as the agent of the owner or charterer in respect of that boat, to provide him with such information, relevant to the licence or to the operation of the boat, as he may direct; and any person to whom such a requirement is addressed who fails without reasonable excuse to comply with it is guilty of an offence and is liable, on conviction, to a fine of £20,000.

(10) Any person who, for the purpose of obtaining a transshipment licence or in purported compliance with a requirement under subsection (9), provides information which he knows is false or misleading in any material particular or recklessly supplies information which is so false or misleading is guilty of an offence and is liable, on conviction, to a fine of £50,000.

(11) The Director may at any time suspend or revoke a transshipment licence or vary it in any respect; but no part of the fee that was charged for the licence shall, in any such case, be refunded unless the Director considers that it is appropriate, in all the circumstances of the case, to make such a refund.

Exercise of  
Director's  
powers.

11. (1) The powers vested in the Director by this Ordinance or by or under regulations made under section 21 may, subject to any such regulations and subject to subsection (3), be exercised by him in his absolute discretion to such extent, in such manner and in such cases as he considers necessary or expedient for the regulation of fishing or of the transshipment of fish, for the conservation or management of fisheries or for the economic benefit of the Territory.

(2) Without prejudice to the generality of subsection (1) but subject as provided in that subsection, the Director may, in exercising his powers as aforesaid, make different provision or impose different requirements (including provision or requirements as to fees) for different boats or boats of different descriptions and may impose different limitations on or attach different conditions to licences granted in respect of different boats or boats of different description,



and he may in particular exercise his powers as aforesaid for the purpose of limiting the number of boats, or boats of any particular description, that may engage in fishing, transshipping fish or transporting fish within the fishing waters; and the references in this subsection to the description of a boat include references to the country in which is registered.

(3) In the exercise of his powers and duties under this Ordinance or under any regulations made under section 21, the Director shall be subject to the direction of the Commissioner, who, in giving him any such direction, shall enjoy the same discretion as is vested by this section in the Director:

Provided that in acting as a public prosecutor in relation to any proceedings arising under this Ordinance or under any regulations made under section 21 the Director shall be subject to the direction of the Principal Legal Adviser.

(4) The exercise of the Director's power to grant licences shall be sufficiently signified if signified under the hand of a person authorised by the Director in writing to signify on his behalf.

General  
enforcement  
powers of  
Fisheries  
Protection  
Officers.

12. (1) For the purpose of enforcing the provisions of this Ordinance and of any regulations made under section 21, a Fisheries Protection Officer and any person acting under his direction may exercise the following powers with respect to any person whom he believes to have committed an offence in contravention of any provision of this Ordinance, and with respect to any fishing boat within the fishing waters or with respect to any boat within the fishing waters which he believes to be, or to have been, employed as a fishing boat within those waters: -

- (a) he may stop the boat;
- (b) he may require such person, or in respect of a boat the master of the fishing boat to cease fishing and take back on board the boat's fishing gear;
- (c) he may require such a master to facilitate the boarding of the boat by all appropriate means;
- (d) he may go on board the boat and take with him such other persons as he may require to assist him in the exercise of his powers;
- (e) he may require any person (including the master or any member of the crew of a boat) to produce, and he may examine and take copies of, any document relating to the person, the boat or to any person that is in that person's possession or control, including (without prejudice to the generality of the foregoing) any certificate of registry, licence, official logbook, official paper, article of agreement, passport, or record of fish caught or taken;
- (f) he may muster the crew of the boat;



(g) he may require the master of the boat to appear and give an explanation of any matter that he may put to the master concerning the boat or concerning any such person or any such document as is mentioned in paragraph (e);

(h) he may make any search, examination or enquiry which he considers necessary to establish whether there has been an contravention of any provision of this Ordinance or of any regulations made under section 21;

(i) he may take, or require the master to take, the boat (together with the crew and any other person on board) to such place within the Territory as he may appoint for the purpose of enabling any such search, examination or enquiry to be carried out;

(j) where he suspects any person or master or member of the crew of a fishing boat of having committed an offence under this Ordinance or under any regulations made under section 21, he may, without warrant, summons or other process, take the suspected offender and take, or require the master to take, the boat (together with the crew and any other person on board) to such place within the Territory as he may appoint, and he shall then bring the suspected offender before a competent court; and, subject to section 13 and to any order made by the court, he may cause the suspected offender, the master, the crew and any other such person as aforesaid, and also the boat, to be detained in the Territory until the suspected offence has been adjudicated upon;

(k) in the case of a boat which, in the exercise of his powers under this Ordinance or under any regulations made under section 21, he has taken or caused to be taken to any place in the Territory or has caused to be detained in the Territory or has seized, he may take such steps as he considers necessary, while having regard to the safety of the boat, to immobilise it for the purpose of preventing it from departing from that place before the completion of the search, examination or enquiry for which it was taken there or, as the case may be, before it is released from detention or seizure under the provisions of this Ordinance or by order of a court;

(l) in any case where he suspects that an offence under section 6(1), 6(2), 7(2), section 7(6), section 10(2) or section 10(7) has been committed, he may -

(i) seize any fishing gear, equipment or boat which he believes to have been involved in the commission of that offence;

(ii) seize the equipment and fishing and other gear of any such person or boat, and also any instruments, appliances, stores and cargo;

(iii) seize any fish which he believes to have been caught or taken or transhipped or transported in the commission of that offence or any fish products produced from any



such fish; and

(iv) seize, or take copies of, any documents which he believes to be relevant to that offence.

(2) In relation to any action which, under paragraph (i) or paragraph (j) of subsection (1), a Fisheries Protection Officer may take, or may require to be taken, in respect of a fishing boat, the references in that paragraph to the boat include references to its fishing or other gear, to its instruments and appliances, to its stores and cargo and to any fish or fish products on board it.

(3) In exercising the powers conferred on him by subsection (1), a Fisheries Protection Officer or any person acting under his direction may use such force as is reasonably necessary.

(4) The powers conferred by this section may be exercised irrespective of whether any person or fishing boat in respect of which, or in respect of whose operations or suspected operations, they fall to be exercised is, at the time when they fall to be exercised, engaged in fishing or in operations ancillary to fishing.

(5) Upon any person, including, but not limited to the master or a member of the crew of a fishing boat, refusing or failing to comply with any order or direction given by a Fisheries Protection Officer in the exercise of his powers under this or any other section of this Ordinance or obstructing such an officer in relation to the exercise of his said powers, and upon such officer reporting such refusal, failure or obstruction to the Director, any licence held by such person, or held by some other person in respect of the fishing boat of which such person is master or a member of the crew shall forthwith be revoked, and the holder of such licence shall not be entitled to any refund of fees paid in respect of such a revoked licence.

Disposal of  
detained or  
seized boats,  
etc.

13. (1) Where, in exercise of a power conferred by section 12 or by any regulation made under section 21 or in pursuance of a requirement imposed in the exercise of such a power, a boat is seized or is taken to a place within the Territory and there detained, then, if no proceedings for an offence under this ordinance or under such regulations, being an offence alleged to have been committed in connection with that boat, have been instituted within 14 days after the boat is brought to Diego Garcia following the seizure or, as the case may be, within 14 days after the arrival of the boat at that place and if the master, the owner or the charterer or the agent of the owner or the charterer so demands, the boat, together with any person on board it and any thing seized with it or on board it at the time when it was seized or was so taken, shall be released.

(2) Where any thing is seized under section 12(1)(i), (ii), (iii) or (iv) and the boat concerned (that is to say, the boat from which it was seized or to which the court is satisfied that it belongs) is not itself either seized under section 12(1)(i) or taken by a Fisheries Protection Officer or a person acting under his direction to a place within the Territory under section 12(1)(j), then, unless the master of that boat has, within the specified period, taken his boat to the appointed place within the Territory in pursuance of a requirement



laid on him under section 12(1)(j) or, if he is not subject to such a requirement, unless he has, within the specified period, otherwise taken it to Diego Garcia or such other place within the Territory as a Fisheries Protection Officer or a person acting as aforesaid may appoint and has there reported its arrival to a Fisheries Protection Officer, the thing seized may, subject to the following provisions of this section, be ordered by a court to be forfeited to the Crown and shall then be disposed of as the Commissioner may direct.

(3) A court may not make an order for forfeiture under subsection (2) save on application made by or with the authority of the Principal Legal Adviser.

(4) Where any thing has been seized in the circumstances referred to in subsection (2) and, within the specified period, the fishing boat concerned has been taken to a place within the Territory as specified in that subsection, then, if no proceedings in respect of the suspected offence in connection with which the seizure was made have been instituted within 14 days after the arrival of the boat at that place and if the master, the owner or the charterer of the boat or the agent of the owner or the charterer so demands, the thing shall be released.

(5) In this section "the specified period" means the period of 14 days after the seizure of the thing in question or such longer period as a court may allow in any particular case.

(6) Notwithstanding any other provision of this Ordinance, where any perishable goods (that is to say, fish or fish products or other goods which are subject to decay unless kept in storage facilities specially designed or adapted for that purpose) have been seized under any provision of this Ordinance and -

(a) before the elapse of any period after which, under any provision of this Ordinance, those goods must, on demand, be released; or

(b) before any such demand is made; or

(c) before the conclusion of any proceedings pending which those goods are being held,

a court is satisfied that, because of the deteriorating condition of the goods, it is no longer practicable to keep them, the court may order them to be destroyed or otherwise disposed of; and no compensation therefor shall be payable to the owner of the goods or to any other person claiming an interest in them.

Security for  
release of  
seized or  
detained boat,  
etc.

14. (1) Where a fishing boat is seized or detained under this Ordinance or under any regulations made under section 21 in connection with a suspected offence under this Ordinance or under any such regulations and proceedings for that offence are instituted against the master, the owner or the charterer of the boat or the agent of the owner or the charterer, the master, the owner or the charterer may, at any time before the conclusion of those proceedings, apply to the court which is, or will be, seised of the proceedings for the release





of the boat on the provision of security in accordance with this section.

(2) If, on an application under subsection (1), the court is satisfied that adequate security has been given to the Crown as specified in subsection (3), it may order the release of the boat.

(3) The security which is to be given to the Crown for the purposes of subsection (2) is security for the aggregate of -

(a) the maximum fine that may be imposed on the defendant for the offence with which he is charged;

(b) a sum representing the value (as estimated by the court) of anything that may in due course be ordered under section 17(3) to be forfeited to the Crown; and

(c) such sum by way of costs and expenses as the court estimates may in due course be ordered by the court to be paid to the Crown under section 17(6),

or for such lesser aggregate sum as the prosecution agrees to and the court approves.

(4) If, on an application under subsection (1), the court is not satisfied as mentioned in subsection (2), it may order the release of the boat on the execution by one or more suitable persons approved by it of a bond, in the prescribed form (or in such form as it may specially approve) and conditioned in accordance with subsection (5), in an amount corresponding to the aggregate of the sums specified in paragraphs (a), (b) and (c) of subsection (3) or in such lesser amount as the prosecution agrees to and the court may fix having regard to any special circumstances of the case; but the order for release shall not have effect until the bond is executed to the satisfaction of the court.

(5) The condition of a bond executed for the purposes of subsection (4) shall be that if -

(a) at the conclusion of the proceedings, the defendant is not convicted of the offence with which he was charged; or

(b) having been convicted of that offence, he pays in full and within 14 days (or such longer period as the court may, on application by him, allow) the fine imposed on him by the court, the sum specified in subsection (3)(b) (or such lesser sum as the court may allow, having regard to such order for forfeiture as has in fact been made) and the amount of any costs and expenses ordered by the court to be paid to the Crown,

the bond shall then be of no effect, but that it shall otherwise, on the expiry of the said 14 days (or such longer period as aforesaid), be of full effect and enforceable.

(6) Without prejudice to any remedy available for the



enforcement of any fine imposed, or any other order made, by the court, the sum for which a bond is executed for the purposes of this section is, when the bond has become enforceable, due to the Crown as a civil debt owed by the person, or owed jointly and severally by the persons, who executed the bond, and is recoverable as such.

(7) In this section references to the release of a boat that has been seized or detained include references to the release of any person on board it and any thing seized with it or on board it at the time when it was seized or detained.

Fisheries  
Protection  
Officers'  
immunity form  
process.

15. No civil suit or criminal process shall be brought against any Fisheries Protection officer, or against any person acting under the direction of a Fisheries Protection Officer, in respect of any act performed by him, in good faith and with reasonable cause, in the exercise or purported exercise of his functions under this Ordinance or under any regulations made under section 21.

Obstruction of  
Fisheries  
Protection  
Officers.

16. Without prejudice to any other provision in that behalf contained in this Ordinance or in any regulations made under section 21, any person who wilfully obstructs a Fisheries Protection Officer, or any person acting under the direction of a Fisheries Protection Officer, in the exercise of his functions under this ordinance or under such regulation or who, without reasonable cause (the onus of proof of which lies on him), refuses or neglects to comply with any order, direction or requirement lawfully given to him or laid on him by a Fisheries Protection Officer, or by any person acting as aforesaid, or to answer any question reasonably put to him by a Fisheries Protection Officer, or by any person acting aforesaid, or who prevents another person from so complying or so answering is guilty of an offence and is liable, on conviction, to a fine of £100,000.

Offences,  
penalties,  
evidence and  
proceedings,  
etc.

17. (1) Any person who commits a contravention of any provision of this Ordinance or of any regulations made under section 21 (being a contravention which is not, by any such provision other than this subsection, specifically declared to be an offence) commits an offence under this subsection and is liable, on conviction, to a fine of £100,000.

(2) Without prejudice to section 319 of the Penal Code, any person who attempts to commit an offence under this Ordinance or under any regulations made under section 21 commits an offence under this subsection and is liable, on conviction, to the same fine as if he had committed the attempted offence.

(3) Without prejudice to any provision of this Ordinance authorising the imposition of a fine in any such case, where a person is convicted of any offence under this ordinance or under any regulations made under section 21 (being an offence in respect of the use or operation of a fishing boat), the court may, in addition to imposing a fine but subject to subsection (4), order that any fishing or other gear, or instruments or appliances, on board the boat (whether or not used in the commission of the offence), and any fish or fish products on board the boat (whether or not the offence related thereto), shall be forfeited to the Crown; and anything so forfeited shall then be disposed of as the Commissioner may direct.



(4) A court may not make an order for forfeiture under subsection (3) save on application made by or with the authority of the Principal Legal Adviser.

(5) Notwithstanding any provision of law limiting the time within which proceedings may be commenced, proceedings for an offence under this Ordinance or under any regulations made under section 21 may be commenced at any time after the commission of that offence.

(6) Notwithstanding section 194(1) of the Criminal Procedure Code 1986, the Magistrates' Court, on convicting any person of an offence under this Ordinance or under any regulations made under section 21, has jurisdiction to impose on him any fine to which he is liable under this Ordinance or under those regulations for that offence; and notwithstanding section 226(1) of that Code, any court may, in such a case, order that person to pay to the Crown such costs and expenses incurred by the Crown in preparation for or otherwise in connection with the proceedings as it thinks proper (including the expenses incurred, whether before or after the commencement of the proceedings, in the exercise of any of the powers vested in a Fisheries Protection Officer).

(7) Every Fisheries Protection Officer shall be *ex officio* a public prosecutor in proceedings for offences under this Ordinance or under any regulations made under section 21.

(8) Without prejudice to any liability for an offence under section 7(2) or under section 10, the master of a fishing boat on which there is found fish that has been caught or taken within the fishing waters otherwise than in accordance with a fishing licence or that has been transhipped to the boat within the fishing waters otherwise than in accordance with a transhipment licence is guilty of an offence and is liable, on conviction, to a fine of £200,000; and in any proceedings in any such case, whether for an offence under this subsection or for an offence under section 7(2) or section 10 or under regulations made under section 21, it shall be sufficient for the prosecution to prove that the fish was found on the boat and the onus of proving -

(a) that the fish was not caught or taken within the fishing waters; or, alternatively,

(b) that it was caught or taken in accordance with a fishing licence; or, alternatively,

(c) that it was transhipped to that boat outside the fishing waters or in accordance with a transhipment licence,

shall then lie on the accused.

(9) A certificate signed by the Director or by any person authorised by him to sign such a certificate -

(a) as to whether or not, at any material time specified in the certificate, a fishing boat so specified was licensed under this Ordinance; or



(b) as to the nature of any such licence; or

(c) as to any limitations imposed on, or conditions attached to, any such licence;

(d) as to who was the person to whom any such licence was granted,

shall, if tendered in evidence in any proceedings under this Ordinance or under any regulations made under section 21, be sufficient evidence of that matter unless the contrary is proved.

(10) Any certificate which purports to be such a certificate as is mentioned in subsection (9) shall, in any such proceeding as aforesaid, be received in evidence as such, without proof of signature or of authorisation to sign, unless credible evidence to the contrary is adduced; and a facsimile copy of such a certificate shall be received in evidence as if it were the original certificate.

Revocation of licences of repeated offenders.

18. (1) Where any person has once been convicted of any offence to which this section applies and is, within the period of five years following the date of that conviction, convicted of the like or any other such offence committed after that date, then, subject to subsection (3), any licence which he then holds is thereupon revoked and he shall, for the period of three years following the date of that subsequent conviction, be disqualified from being granted any further licence.

(2) Where a licence is revoked in accordance with subsection (1), no part of any fee that was charged for the licence shall be refunded unless the Director considers that it is appropriate, in all the circumstances of the case, to make such a refund.

(3) If any person whose licence is revoked in accordance with subsection (1) applies to the Director within 30 days of the conviction by virtue of which it is revoked or within such longer period as the Director may allow, the Director, in his discretion and having regard to all the circumstances of the case, may restore the licence, with effect from such date and with such variations and subject to such conditions as he thinks fit, and may remove, or reduce the duration of, or vary in such other respect as he thinks fit, the disqualification imposed by that subsection.

(4) The offences to which this section applies are any offences under this Ordinance (or under any Ordinance repealed by this Ordinance) or under any regulations made (or deemed to be made) under section 21.

Fixed penalty notices and procedure

19. (1) Where, on any occasion, a Fisheries Protection Officer finds a person who he has reason to believe is committing or has on that occasion committed an offence under this Ordinance or under any regulations made under section 21, he may give that person a fixed penalty notice in respect of that offence.



(2) In this section "fixed penalty notice" means a notice offering the opportunity of the discharge of any liability to be convicted of the offence to which the notice relates by payment of a fixed penalty in accordance with this section.

(3) A fixed penalty notice must –

- (a) give such particulars of the circumstances alleged to constitute the offence to which it relates as are necessary for giving reasonable information about the alleged offence;
- (b) be issued from an authorised sequentially numbered official pad of notices in the form prescribed in the schedule;
- (c) state the amount of the fixed penalty;
- (d) state that the fixed penalty may be paid forthwith to the Fisheries Protection Officer,

and a copy of the provisions of this section shall be attached to the notice.

(4) The fixed penalty for an offence is -

- (a) £5000 for an offence relating to fishing from a fishing boat and £200 for an offence relating to a person fishing other than from a fishing boat or relating to a person fishing from a fishing boat based in and operating out of Diego Garcia in circumstances where the persons fishing from that boat have paid, or have contracted to pay, for the right to do so or to be on board the boat; or
- (b) one-half of the maximum fine to which a person committing the offence would be liable on conviction of that offence by the Magistrates' Court,

whichever is the less.

(5) Where a fixed penalty notice has been given to a person no proceedings may be brought against him for the offence if he has forthwith paid the penalty to the Fisheries Protection Officer.

(6) A Fisheries Protection Officer shall issue to the recipient an official receipt for every payment made to him in respect of a fixed penalty and every Fisheries Protection Officer shall account to the Commissioner for each fixed penalty notice form and receipt form issued to him and for all payments received by him.

(7) For the avoidance of doubt, nothing in this section obliges an officer to issue a fixed penalty notice when he decides that the alleged offender should be prosecuted for the alleged offence.

(8) Where the fixed penalty notice relates to the unlawful possession of prohibited fishing gear, in addition to the payment of the penalty, the recipient shall surrender to the officer the prohibited fishing gear for destruction.

Non-payment of  
fines, etc:  
detention and  
forfeiture of

20. (1) When any fine is imposed on the master, the owner or the charterer of a fishing boat for an offence under this Ordinance or under any regulations made under section 21, or where any sum is ordered by a court to be paid by him to the Crown by way of costs or expenses incurred in connection with the proceedings for that offence,



then, if no security therefor has been given, or bond for the payment thereof has been executed, under section 14, or if the court considers that any such security or bond is inadequate to secure the payment of the sums due from him in consequence of his conviction (including the value of anything ordered to be forfeited to the Crown that is not already being detained under this Ordinance), it may order that, in default of payment forthwith of all such sums, he shall give security (or additional security) therefor to the satisfaction of the court; and, subject to subsection (2), his fishing boat may then be detained (or continue to be detained) in such place within the Territory as the court may order until all such sums are paid (and anything ordered to be forfeited but not already detained has been surrendered to the court) or until security is given as aforesaid.

(2) If any such fine as is referred to in subsection (1) or any such sum by way of costs and expenses as is there referred to remains unpaid for more than 30 days (or such longer period as the court may allow) after it was imposed or was ordered to be paid, the court may, subject to subsection (3), order that the fishing boat concerned shall be forfeited to the Crown; and it shall then be disposed of as the Commissioner may direct.

(3) A court may not make an order for forfeiture under subsection (2) save on application made by or with the authority of the Principal Legal Adviser.

(4) An order for the forfeiture of a fishing boat under this section may extend to such of its fishing and other gear, its instruments and appliances, its stores and cargo and any fish and fish products on board it as the court may direct.

Regulations.

21. (1) The Commissioner may make such regulations as he considers necessary for the purposes of this Ordinance.

(2) Without prejudice to the generality of subsection (1), regulations made by the Commissioner may provide for or may authorise the Director to provide for or to determine -

(a) anything which is to be, or which may be, prescribed under this Ordinance;

(b) the forms to be used for the purposes of this Ordinance;

(c) all questions relating to the procedures for applying for licences;

(d) all questions relating to the procedures for granting licences;

(e) the conditions subject to which licences are to be, or may be, granted;

(f) the fees to be charged for licences and the method of computing such fees;



(g) the equipment to be carried on board fishing boats;

(h) the reports and notifications to be made, and the records and logs to be kept, in respect of fishing boats or in respect of fishing or otherwise for the purposes of this ordinance or for the purposes of any regulations made under this section (and the procedures relating thereto);

(i) the designation, by applicants for licences or by licensees, of authorised agents, and the authority to be attributed to, and the obligations and liabilities to be assumed by or imposed on, such agents;

(j) the place or places where persons who are to be designated as authorised agents may reside or have their place of business;

(k) the execution, by applicants for licences or by licensees or by other persons, of bonds (or the provision by them of other forms of security) for securing compliance with obligations arising under a licence or otherwise arising under the provisions of this Ordinance or of any regulations made under this section;

(l) the placing on board fishing boats of Fisheries Protection Officers or of observers, and the facilities and conditions to be accorded to them while on board;

(m) the conferment on Fisheries Protection Officers, or persons acting under their direction, of such powers, additional or supplementary to those conferred by this Ordinance, as the Commissioner considers necessary or expedient for the regulation of fishing boats or of fishing or otherwise for the purposes of this Ordinance or for the purposes of any regulations made under this section.

(3) Regulations made under this section may make different provision for (and the Director, in exercising an authority conferred by such regulations to make provision for any matter or to determine any matter, may make different provision for or a different determination in respect of) different parts of the fishing waters or different boats or boats of different descriptions (including descriptions which differ by reference to the countries in which the boats are registered) or different licences or different descriptions of licences.

(4) Regulations made under this section may provide that the contravention of any provision thereof shall constitute an offence, and may prescribe, as the penalty for any such offence, a fine not exceeding £100,000.

Saving for laws  
regulating  
access to  
Territory, etc.

22. For the avoidance of doubt, nothing in this Ordinance shall be construed as in any way derogating from the provisions of the British Indian Ocean Territory (Immigration) Order 2004, the British Indian Ocean Territory Waters (Regulation of Activities) Ordinance 1997, or



Repeal and  
savings.

the Visitors and Visiting Vessels Ordinance 2006.

23. (1) The Fisheries (Conservation and Management) Ordinance 1998 ("the 1998 Ordinance") is repealed.

(2) Without prejudice to section 21(1) or section 22(2) of the Interpretation and General Provisions Ordinance 1993, the repeal of the 1998 Ordinance does not affect the continuing operation, according to its tenor, of any licence granted or other instrument made under or for the purposes of that ordinance; and any such instrument shall thereafter be deemed to have been granted or made under the relevant enabling provision of this Ordinance or, as the case may require, for the purposes of this Ordinance, and any reference therein to a particular provision of the 1998 Ordinance shall thereafter be construed as if it were a reference to the corresponding provision of this Ordinance.

(3) Notwithstanding subsection (1) and without prejudice to subsection 21(1) of the Interpretation and General Provisions Ordinance 1993, proceedings may be instituted after the commencement of this Ordinance for an offence alleged to have been committed before that commencement under any provision repealed by subsection (1), and any such proceedings shall be dealt with for all purposes as if this ordinance had not been enacted and the repealed provision remained in force; and any proceedings that were instituted before the commencement of this ordinance by virtue of any provision repealed by subsection (1) may be continued thereafter and may likewise be dealt with for all purposes as if this Ordinance had not been enacted and the repealed provision remained in force.

## **THE SCHEDULE**





**BRITISH INDIAN OCEAN TERRITORY**

**Section 19 The Fisheries (Conservation and Management)  
Ordinance 2007**

**FIXED PENALTY NOTICE**

Notice official number .....

1. **To**(Here set out name and details of recipient)

2. **Circumstances constituting offence.**

It is alleged that you have committed an offence under section .....of the Fisheries (Conservation and Management) Ordinance 2007/regulation ..... of the Fishing Regulations 2007.

The circumstances alleged to constitute that offence are as follows:  
(Here set out sufficient particulars of the offence alleged, including date and approximate time, to give the recipient reasonable information about what he is alleged to have done)

3. You have the opportunity to discharge any liability to be convicted of the above offence if you immediately pay the fixed penalty which is specified in paragraph 4 below to the Officer who gave you this notice. If you fail to do so you may be detained and prosecuted for the offence.

4. **Fixed penalty (insert £5000/£200 or half the maximum penalty for offence, whichever is the least amount)**

(Date of Notice)

.....  
.....  
(Signature and name of officer  
issuing notice)



## Section 19 The Fisheries (Conservation and Management) Ordinance 2007.

Fixed penalty  
notices and  
procedure

19. (1) Where, on any occasion, a Fisheries Protection Officer finds a person who he has reason to believe is committing or has on that occasion committed an offence under this Ordinance or under any regulations made under section 21, he may give that person a fixed penalty notice in respect of that offence.

(2) In this section "fixed penalty notice" means a notice offering the opportunity of the discharge of any liability to be convicted of the offence to which the notice relates by payment of a fixed penalty in accordance with this section.

(3) A fixed penalty notice must –

(a) give such particulars of the circumstances alleged to constitute the offence to which it relates as are necessary for giving reasonable information about the alleged offence;

(b) be issued from an authorised sequentially numbered official pad of notices in the form prescribed in the schedule;

(c) state the amount of the fixed penalty;

(d) state that the fixed penalty may be paid forthwith to the Fisheries Protection Officer,

and a copy of the provisions of this section shall be attached to the notice.

(4) The fixed penalty for an offence is-

(a) £5000 for an offence relating to fishing from a fishing boat, and £200 for an offence relating to a person fishing other than from a fishing boat or relating to a person fishing from a fishing boat based in and operating out of Diego Garcia in circumstances where the persons fishing from that boat have paid, or have contracted to pay, for the right to do so or to be on board the boat; or

(b) one-half of the maximum fine to which a person committing the offence would be liable on conviction of that offence by the Magistrates' Court,

whichever is the less.

(5) Where a fixed penalty notice has been given to a person (in this section referred to as "the recipient") under section 53, no proceedings may be brought against him for the offence if he has forthwith paid the penalty to the Fisheries Protection Officer.

(6) A Fisheries Protection Officer shall issue a to the recipient an official receipt for every payment made to him in respect of a fixed penalty and every Fisheries Protection Officer shall account to the Commissioner for each fixed penalty notice form and receipt form issued to him and for all payments received by him.

(7) For the avoidance of doubt, nothing in this section obliges an officer to issue a fixed penalty notice when he decides that the alleged offender should be prosecuted for the alleged offence.

(8) Where the fixed penalty notice relates to the unlawful possession of prohibited fishing gear, in addition to the payment of the penalty, the recipient shall surrender to the officer the prohibited fishing gear for destruction.

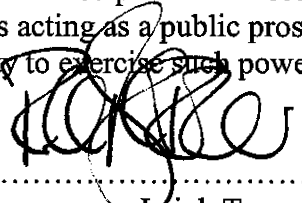


## BRITISH INDIAN OCEAN TERRITORY

Pursuant to sections 3 and 4 of the Courts Ordinance 1983 I DECLARE that The Terrorism Act 2000 and the Terrorism Act 2006 and any subsequent amendments or replacements thereof together with the Parts of the enactments referred to therein as they from time to time apply in England form part of the law of the Territory subject to the following modifications, adaptations, qualifications and exceptions as local circumstances render necessary:-

1. All references in the said legislation referring or intended to refer to a High Court judge and to the High Court generally shall be construed as referring to a Magistrate and to the Magistrates' Court respectively, and the powers to be exercised by a High Court judge or in the High Court shall consequently be exercised by a Magistrate in the Magistrates' Court.
2. All references in the said legislation to powers given to the Secretary of State to authorise any search or other action shall be construed as referring to the Commissioner who shall have authority to exercise such powers in the Territory.
3. All references in the said legislation to powers given to the Director of Public Prosecutions to consent to any prosecution or to take any other action shall be construed as referring to the Principal Legal Adviser who shall have authority to exercise such powers in the Territory.
4. All offences under the said legislation shall be triable in the Magistrates' Court unless the Principal Legal Adviser makes a declaration in writing that the particular circumstances of an offence are such that the offence should be tried in the Supreme Court.
5. Notwithstanding section 194(1) of the Criminal Procedure Code 1986, the Magistrates' Court, on convicting any person of an offence under the said legislation has jurisdiction to impose upon him any sentence of imprisonment or fine to which he is liable under the said legislation.
6. All references in the said legislation to powers given to a police officer of the rank of superintendent or above or to any other senior police officer shall be construed as referring to such person as is at the time authorised pursuant to section 75(1) of the Criminal Procedure Code 1986 to be, or is acting as a public prosecutor for the Territory, and such person shall have authority to exercise such powers in the Territory.

Dated this 21 day of *June* 2007

  
.....  
Leigh Turner  
Commissioner

**Annex 60**

Email from John Murton to Joanne Yeadon recording a meeting between the British High Commissioner and Prime Minister Ramgoolam, 22 October 2009

(R) (P)

**Joanne Yeadon (Conf)**

---

**From:** John Murton (UKBA International Group) (Conf)  
**Sent:** 22 October 2009 13:21  
**To:** Joanne Yeadon (Conf)  
**Cc:** Andrew Allen (Conf); Colin Roberts (Conf); Rebecca Davies (Conf); Sarah Riley (Conf); Jennifer Townson (Conf); Ewan Ormiston \* (Protect)  
**Subject:** [REDACTED]: BIOT: Meeting with PM Ramgoolam

Dear Joanne,

As discussed just now, I met PM Ramgoolam this afternoon to raise a number of issues, including BIOT.

I went through the background to the anticipated BIOT Marine Protected Area (MPA) consultation, setting out how the issue had been raised at two rounds of bilateral talks (and flagged up in the latest communique) and more recently with Minister Boolell and, last week, with Mahen Kundasamy (Mauritian HC) in London. I noted we were now closing in on the launch of the consultation and that drafts were going up to SoS. I outlined the thrust of the drafts. And I drew the PM's attention to the fact that, whilst we remained sure of our sovereignty, the consultation would contain a re-iteration of the 1982 commitment to cede the islands of BIOT to the Mauritian Government when the archipelago as a whole was no longer needed for defence purposes. I also noted that, if SoS agreed to the draft consultation, an element of it would be carried out in Mauritius.

We discussed the political calendar in both countries. We agreed that it was for the best if GoM could find its way to being positive about the consultation, were it to be signed off by SoS. We observed that:

- any consultation would be genuine and would not reflect a pre-existing decision on a course of action;
- consultation in Mauritius would be constructive and reflective of Mauritius' unique position v-a-v BIOT;
- HMG and GoM appeared to share a common desire to further the preservation of the unique environment (terrestrial and marine) in BIOT;
- a successful marine conservation effort would be of economic benefit to Mauritius through the positive impact on regional fisheries and Port Louis' role as a 'seafood hub';
- when the islands were eventually ceded to Mauritius, they would be of greater benefit if their unique environmental value had been maintained;
- the idea of an MPA dovetailed well with concepts such as 'Maurice: Ile Durable' and Mauritius' recently announced new 'Brand' "Mauritius: c'est un plaisir" - one strand of which would be environment-themed, with the tagline 'Mauritius nurtures'.

In short, the PM could see the advantages in coming out in support of the consultation. This would, however, require some political footwork locally. He had to be able to present this as something jointly developed. The references in the bilateral communique would help, but could the announcement of the consultation wait until after the proposed bilateral meetings at CHOGM end-November? I replied that I thought it unlikely but would ask (you subsequently confirmed by telephone that this did not look feasible).

Seen from here, we should give further thought to presentation and handling in Mauritius. PM Ramgoolam seemed to 'get' and appeared keen to work on communication strategies. Delaying any announcement till after CHOGM would, of course, be of enormous assistance to Ramgoolam (and thus to the wider positive reception of the MPA idea locally). But assuming this isn't possible, we should give thought to how we could replicate some of positives that the CHOGM bilateral might have yielded GoM. If SoS agrees to the draft consultation documents, could he also be persuaded to telephone Minister Boolell or PM Ramgoolam a week or so ahead of their publication in order to discuss the matter and so help optics here? Whilst recognising this had to be a UK consultation, the PM was keen to explore other communication strategies e.g. a joint statement by the two SoS.

I reassured Ramgoolam that, if SoS approved the draft consultation, it would not be made public until my return to Mauritius, thereby giving us another chance to discuss face-to-face before any consultation hit the streets (assuming SoS agrees the drafts). I am likely to meet the PM's Chief of Staff (former Mauritian Ambassador in Washington) tomorrow to discuss further.

John

**John Murton**  
British High Commissioner, Mauritius  
British Ambassador, Madagascar and Comoros  
7th Floor, Les Cascades Building, Edith Cavell St, Port Louis, Mauritius

**Annex 61**

Letter to the Sunday Times from the Mauritian High Commissioner,  
30 December 2009



MAURITIUS HIGH COMMISSION

32/33 ELVASTON PLACE  
LONDON SW7 5NW  
Tel. No. : 020 7581 0294/5  
Fax No. : 020 7823 8437  
020 7584 9859  
Email : londonmhc@btinternet.com

Our Ref: MHCL/886/1/D3

Your Ref:

30 December, 2009

Dear Editor in Chief,

I wish to refer to an article entitled *"Brown can build his green legacy on coral reefs"* which appeared in the issue of the Sunday Times of 27 December 2009 and wish to deplore the fact that the article purports to suggest to your readers that there are only two obstacles in the way of the establishment of the Marine Protected Area (MPA) around the Chagos Archipelago, namely:-

- (a) *"the claim of the Chagossians – coconut farmers descended from Mauritian French (sic) stock who were shamefully evicted by the Military in the 1970's;*
- (b) *"... What to do about a tuna fishery that pays the treasury about £1 million a year."*

The article utterly fails to refer to the illegal excision of the Chagos Archipelago from the territory of Mauritius prior to Mauritius being granted independence by the UK Government, an act which has been condemned by the international community at various multilateral fora on the ground that it was in breach of international law.

The right of Mauritius to enjoy its sovereignty over the Chagos Archipelago and the failure of the promoters of the MPA project to meaningfully address this issue in the MPA project document are, in the opinion of the Government of Mauritius, deplorable omissions in your article. There can be no legitimacy to the

MPA project without that issue being addressed to the satisfaction of the Government of Mauritius.

The Government of Mauritius requests that you bring the above facts to the attention of your readers in your esteemed paper.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Abhimanu Kundasamy', with a long horizontal stroke extending to the right.

**Abhimanu Kundasamy**  
**High Commissioner**

**Mr John Witherow**  
**Editor in Chief**  
**The Sunday Times**  
**1 Pennington Street,**  
**London E9B 1ST**

**Fax No. 0207 782 5420**



## **Annex 62**

Background Paper prepared for the British/Seychelles Fisheries Commission (2010)

**British/Seychelles Fisheries Commission  
Twenty-second Scientific Sub Committee Meeting, 12-13 October 2010**

**Background Paper UK03**

**British Indian Ocean Territory (Chagos archipelago) - Fisheries Conservation and  
Management Zone  
The inshore fishery in 2009**

**P. Nugent, J. McDonagh, C.C. Mees**

<b>1</b>	<b>Introduction .....</b>	<b>3</b>
1.1.	<b>Licence details .....</b>	<b>3</b>
1.2.	<b>Annual logbook fishery statistics for the BIOT (Chagos) inshore fishery 4</b>	
	<b>Total catch and effort in 2009 .....</b>	<b>4</b>
	<b>Distribution of landed catch and effort .....</b>	<b>5</b>
	<b>Catch rate information.....</b>	<b>6</b>
	<b>Total catch in 2009 compared to estimated yields.....</b>	<b>9</b>
	<b>Species composition .....</b>	<b>9</b>
	<b>Biological Data .....</b>	<b>13</b>
	<b>Comparison of 2009 and historical data .....</b>	<b>14</b>
1.3.	<b>Summary Conclusions of the 2009 Analyses .....</b>	<b>18</b>
<b>2</b>	<b>Management of the fishery .....</b>	<b>18</b>
2.1.	<b>The current management strategy.....</b>	<b>18</b>
	<b>Keys to Tables and Figures .....</b>	<b>19</b>
	<b>Annex 1: Terms and Conditions of the Inshore fishing licence in 2009.....</b>	<b>20</b>

**Not to be cited without permission of the authors**

This paper is presented for consideration by the Scientific Sub-committee of the British/Seychelles Fisheries Commission. It contains unpublished data, analyses and conclusions which may be subject to change. Data contained in this paper should not be cited or used for purposes other than the work of the British/Seychelles Fisheries Commission and its Scientific Sub-Committee, without the permission of the originators/owners of the data.

MRAG Ltd, 18 Queen Street, London, W1J 5PN, UK.

## List of Tables

Table 1: Licensing details during 2009. ....	3
Table 2: Details of catch and effort by vessel and location reported for the Chagos Inshore fishery in 2009.....	4
Table 3: Observer estimates of discards of potentially toxic fish species by the Talbot IV .....	5
Table 4: Observer estimates of undersize fish species (<30 cm) by the Talbot IV.....	5
Table 5: Catch rates by habitat recorded in logbook data for 2006 for the Talbot IV. ....	7
Table 6: CPUE (kg/man-days) for the Etelis and the Talbot V.....	9
Table 7: 2009 catch as a proportion of the estimated yield for bank and drop off by location for all vessels. ....	9
Table 8: Catch by location by family and individual species from logbook records during 2009 for all vessels. ....	11
Table 9: Summary of length frequency data: Main species (N>50) .....	13
Table 10: Summary of length frequency data: Other species (N<50).....	13
Table 11: Detailed Length Frequency for <i>L. mahsena</i> .....	13
Table 12 Detailed Length Frequency for <i>L. rubrioperculatus</i> .....	14
Table 13: A summary of landed catches by fishing location for the period 1991-2009, all vessel data combined. The proportion of banks catches is indicated in parentheses. (Total catch data for 2001 is correct but data by location was not available; No fishing occurred in 2005 and 2008). ....	16

## List of Figures

<b>Figure 1:</b> Catch and effort by dories operating from Talbot IV only by fishing location on the Great Chagos Bank (CH2, NCH, NEL, WCH) and other locations (CEN, NEL, PIT, SPK, UNK) during 2009. ....	5
Figure 2 Catch per unit effort (CPUE) by fishing location for dories operating from Talbot IV during 2009.....	6
Figure 3: Catch landed by stratum (banks) and location during 2009 by the Talbot IV.....	7
Figure 4: Catch landed by stratum (drop off) and location during 2009 by the Talbot IV. ....	7
Figure 5: Catch landed by stratum (mixed) and location during 2009 by the Talbot IV.....	7
Figure 6 The Chagos Archipelago, indicating the statistical sectors and average daily dory catch rate information relative to the anchoring position of the mother-vessel (Talbot IV) in 2009. ....	8
Figure 7: Catch composition (%) during 2009, by family and species for all vessels. ....	12
Figure 8: Catch composition (kg) by family and location during 2009 for all vessels. ....	12
Figure 9: Total landed catch per annum by family, 1991-2009 for all vessels. ....	14
Figure 10: Dory catch rates (kg/man-day) by location for the period 1991-2009 (bars), with the overall mean catch rate overlaid (line). This relates to all vessels as the Etelis and Talbot V were treated as single dories for this analysis.....	17

## 1 Introduction

The inshore fishery in the British Indian Ocean Territory (BIOT, Chagos Archipelago) is targeted at demersal species, principally lutjanids (snappers), lethrinids (emperors) and serranids (groupers) occurring on the banks and around the five atolls of the Chagos Archipelago. Many of the species exploited are high value for export markets. Mauritian mother-ship dory ventures historically have exploited the fishery, and operate in the Fisheries Conservation and Management Zone (FCMZ) strictly under licence, usually between 1 April and 31 October, but in 2009 the season was extended to accommodate the changing nature of the fishery. In recent years, natural attrition of old vessels has seen the number of mother-vessels decline, but a smaller vessel fishing with hydraulic lifting gear has been introduced and licensed in the past and also for 2009. In 2005 and 2008 no vessels took up fishing licences, and only one vessel fished in 2006 and in 2007.

Mauritian vessels have fished in the zone for a number of years, and historical data has been reviewed in previous background papers to the Commission and reports to the BIOT Authorities. A logbook system has operated since 1991, and, since 1994, information on the fishery has been supplemented through an observer programme, initially jointly with the Mauritians. Logbook data do not record any biological information on key indicator species in the fishery. Analysis of length frequency and biological data enables the calculation of certain 'Biological Reference Points' that are indicators of the status of the fishery. In addition to enabling these stock assessments, observer data also provides verification of logbook data and generates further additional information not available from logbooks. During 2009 there was an inshore observer programme. Analyses of available fishery data occur annually and in the light of these, the BIOT (Chagos Archipelago) inshore fisheries management strategy and operational management plan are reviewed and updated as appropriate.

This paper provides details of logbook analyses of the 2009 inshore fishery in BIOT. Management of the inshore fishery is discussed.

### 1.1. Licence details

Historically, inshore fishing licences have been issued to Mauritian flagged vessels free of charge. Since 2006 there have been licence applications for Mauritian owned but externally flagged (Madagascar / Comoros) vessels, and for vessels still flagged in Mauritius. For the externally flagged vessels a licence fee has been applied based on the duration of the licence, irrespective of catch. Licence applications were received in 2008 but none were taken up.

Of the three licensed vessels in 2009, only Talbot IV is a mothership-dory fishing venture (Table 1). Both Etelis and Talbot V fish without dories and may or may not use hydraulic lifting gear for deploying the lines (depending on conditions). The mode of operation of these smaller vessels thus differs significantly from the mothership-dory ventures previously typical of the Mauritian banks fishery.

**Table 1:** Licensing details during 2009.

Licence	Vessel Name	Valid From	Valid To	Licence Utilised	Days In BIOT	Observer days
INF071	Talbot IV	21/10/09	29/11/09	Yes	40	40
INF070	Talbot V	13/06/09	12/07/09	Yes	15	0
INF069	Etelis	15/10/09	05/12/09	Yes	42	0
INF072	Etelis	06/12/09	28/12/09	Yes	12	0

## 1.2. Annual logbook fishery statistics for the BIOT (Chagos) inshore fishery

### *Total catch and effort in 2009*

Background Paper UK03 to the 21<sup>st</sup> Scientific Sub Committee of the British Seychelles Fisheries Commission (October 2009) provided details of the inshore fishery during 2008 and the beginning of 2009 and highlighted a number of issues that could not be addressed due to a lack of an observer programme. Amongst them was the fact that vessel logbooks were incorrectly completed by the Talbot IV that year, losing species composition information. That has been the case for the Talbot IV during 2009 and in addition to inadequate species definition; total catches by vessel recorded in logbooks do not add up to the sum of species catches. The discrepancy is less than 1% (0.65%) (species catches are 1.051 tonnes greater than the dory catch totals reported). However rather than adjust data in corresponding tables up or down for consistency, the two different values are given as it is not clear which the correct value is (Table 2, Table 8). Furthermore, catches landed directly by crew fishing from the mother-vessel have not been reported for 2009. As there was an observer programme this year it has been possible to verify the accuracy of logbook recording this year for the Talbot IV. Typically in the past, logbooks have recorded total catch and effort reasonably accurately when compared to observer data, but have not recorded full species composition details.

The vessels Etelis and Talbot V failed to correctly log the location of their catches. The observer was not on board either of these vessels during the period spent within the BIOT FCMZ.

Logbook returns relate to the entire time spent within the BIOT FCMZ by the fishing vessels. During this period, 161.906 tonnes of fish were landed (Table 2).

**Table 2:** Details of catch and effort by vessel and location reported for the Chagos Inshore fishery in 2009.

Location	Vessel	Dory Catch (kg)	Mother-Vessel Catch (kg)	Total (kg)	Total Catch by bank (kg)	Total Effort by bank (Man days)
<b>a. Great Chagos Bank</b>						
CEN	Talbot IV	1962	0	1962	1962	54
CH2	Talbot IV	5375	0	5375	5375	108
NCH	Talbot IV	19131	0	19131	19131	270
NEL	Talbot IV	38007	0	38007	38007	589.5
SEC	Etelis	16	0	16	16	
WCH	Talbot IV	6080	0	6080	6080	108
<b>b. Other banks</b>						
PIT	Talbot IV	1592	0	1592	19274	54
PIT	Etelis	17682	0	17682		
SPK	Talbot IV	1529	0	1529	1529	81
UNK	Talbot V	8176	0	8176	70532	342
UNK	Talbot IV	3358	0	3358		
UNK	Etelis	58998	0	58998		
<b>Total</b>		<b>99550</b>	<b>161906</b>	<b>0</b>	<b>161906</b>	<b>2092.5</b>

Note 1: It was not possible to separate the effort of the Etelis by location; hence man days by the Etelis have only been included in the total figure for effort.

The observer programme has provided data relating to discards and undersized fish. Discards include potentially ciguatoxic fish, undersized fish, and bycatch species such as sharks which now must be landed whole or discarded as it is no longer permitted to remove the fins. No sharks were recorded in the landed catch. The quantity of discarded fish varies according to the habitat type and targeted species. Table 3 indicates that up to an additional 3.1 tonnes of fish may have been caught and discarded during 2009 by the Talbot IV.

**Table 3:** Observer estimates of discards of potentially toxic fish species by the Talbot IV

Vessel	Potentially Toxic Fish Species				Total (kg)
	<i>Lutjanus bohar / gibbus</i>	Carangids	<i>C. argus</i>	<i>A. leucogrammicus</i>	
Talbot IV	2400	500	100	100	3100

It was noted during the observer programme that 1.25 tonnes of undersized fish were also caught by the Talbot IV (Table 4). It was noted by the observer that these fish were retained and added to the landed catch for sale on shore. These fish ranged in size between 19 and 30 cm.

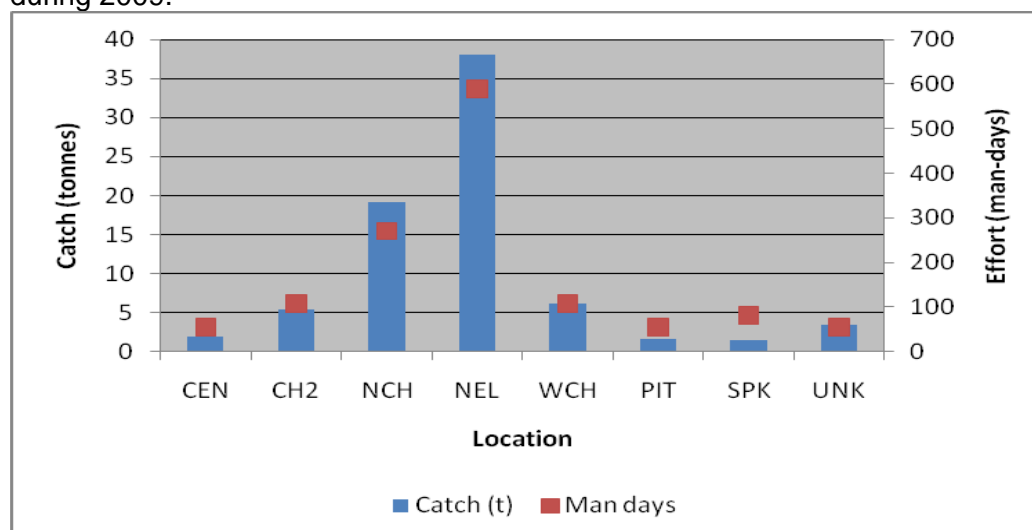
**Table 4:** Observer estimates of undersize fish species (<30 cm) by the Talbot IV

Vessel	Undersize Fish Species				Total (kg)
	<i>L. rubrioperculatus</i>	<i>L. mahsena</i>	<i>V. albimarginata</i>	<i>V. louti</i>	
Talbot IV	900	100	100	50	1250

### ***Distribution of landed catch and effort***

As noted previously, logbook data for Etelis and Talbot V was incorrectly completed and it was only possible to determine fishing effort by location for dories from the Talbot IV in 2009. By location, 45.91% of fishing activity of dories from Talbot IV (man-days) occurred on the Great Chagos Bank, with 57.1% of the catch being derived from there (Figure 1 and Table 2). Most activity was targeted towards the north of the Great Chagos Bank. Speakers bank and Centurion bank were the most targeted of the other locations.

**Figure 1:** Catch and effort by dories operating from Talbot IV only by fishing location on the Great Chagos Bank (CH2, NCH, NEL, WCH) and other locations (CEN, NEL, PIT, SPK, UNK) during 2009.

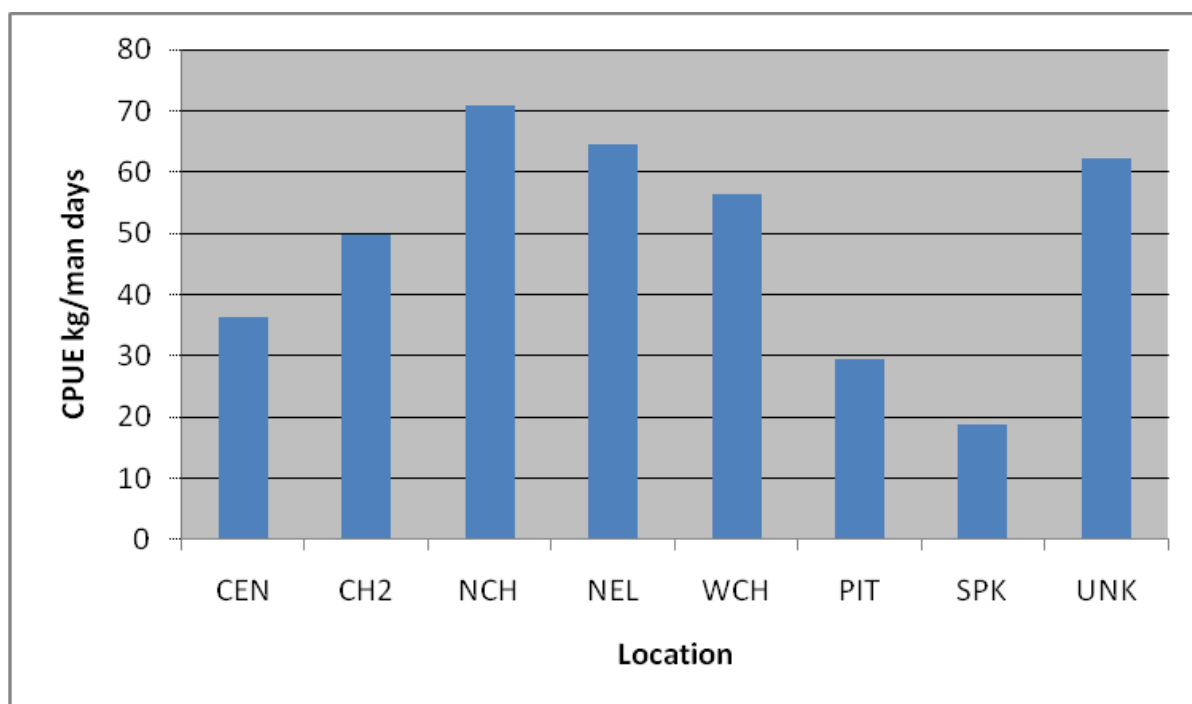


### Catch rate information

For Talbot IV for which fishing effort data has been derived, the mean catch rate over all locations and strata for the entire fishing period in 2009 was 61.3 kg per man day typical of the overall catch rates observed for Talbot IV between 2002 and 2004 from the banks. Higher catch rates in 2000 and 2001 (approximately 70 kg per man-day) were attributed to fishing on a spawning aggregation (and the highest ever recorded catch rates occurred in 2006, 80 kg per man-day). Due to the observer programme this year it was possible to ascertain that no fishing occurred on spawning aggregations despite high catch rates recorded at Northern Chagos and Nelson Island in particular (Figure 2).

By location (Figure 2 and Table 2), overall catch rates for Talbot IV varied between 18.88 and 70.86 kg per man-day at Speakers Bank and Northern Chagos respectively. Variation in catch rates by location may be attributed to a number of factors including depth and habitat fished, the vessel fishing, frequency of fishing at that location and geographic variation in catch rates unrelated to fishing pressure. Figure 6 illustrates the spatial distribution of fishing and catch rates throughout the Chagos. While the majority of the fishing effort has remained focussed on the Great Chagos Banks a geographical shift in fishing effort on the other banks has occurred. Historically fishing effort on the minor banks has been focussed on the northern banks however in 2009 what fishing effort was expended outside of the Great Chagos Banks was predominately expended on the southern banks. This assessment must be taken with qualification as there was considerable effort recorded at an unknown location (Figure 2). It should also be noted that CPUE data in Figure 2, Figure 3, Figure 4, Figure 5 and Figure 6 only refers to the Talbot IV as there was insufficient information to calculate CPUE by location for the Etelis and the Talbot V for 2009.

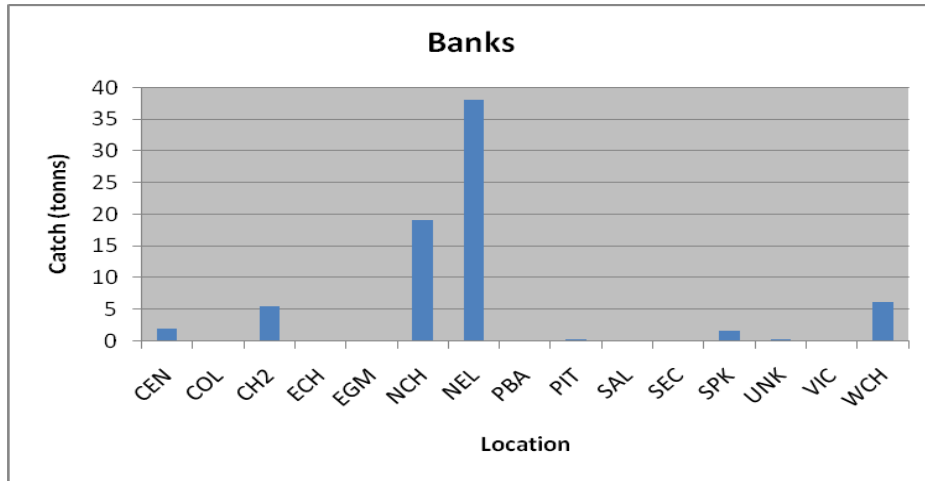
**Figure 2** Catch per unit effort (CPUE) by fishing location for dories operating from Talbot IV during 2009.



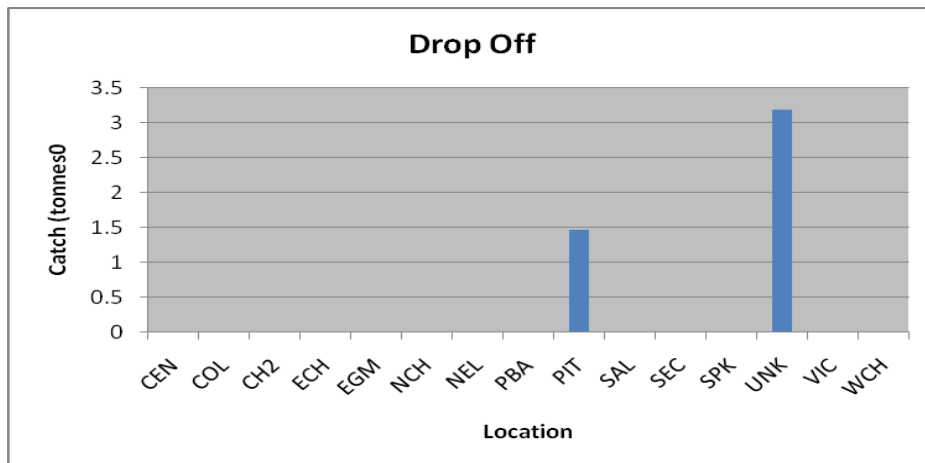
**Table 5:** Catch rates by habitat recorded in logbook data for 2006 for the Talbot IV.

Vessel	Habitat	% of Vessel Catch	% of Vessel Man days
Talbot IV	BNK	99.6%	99.5%
	DRO	0.0%	0.0%
	MIX	0.4%	0.5%

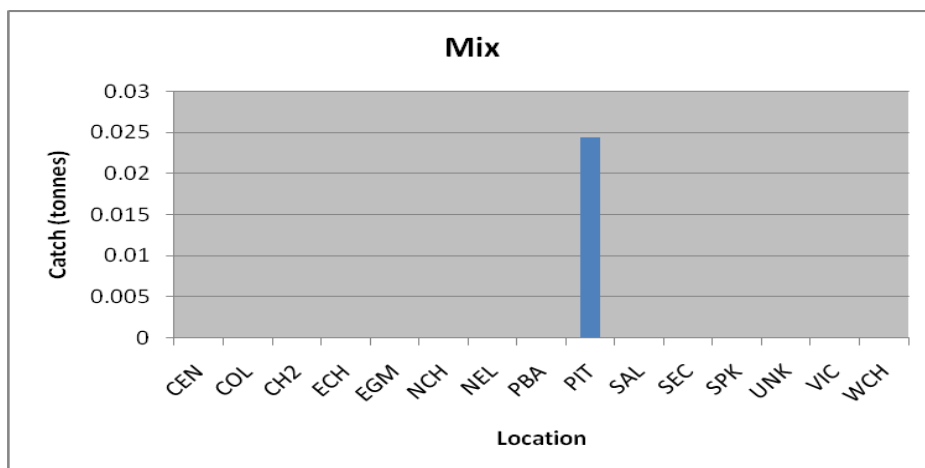
**Figure 3:** Catch landed by stratum (banks) and location during 2009 by the Talbot IV.



**Figure 4:** Catch landed by stratum (drop off) and location during 2009 by the Talbot IV.

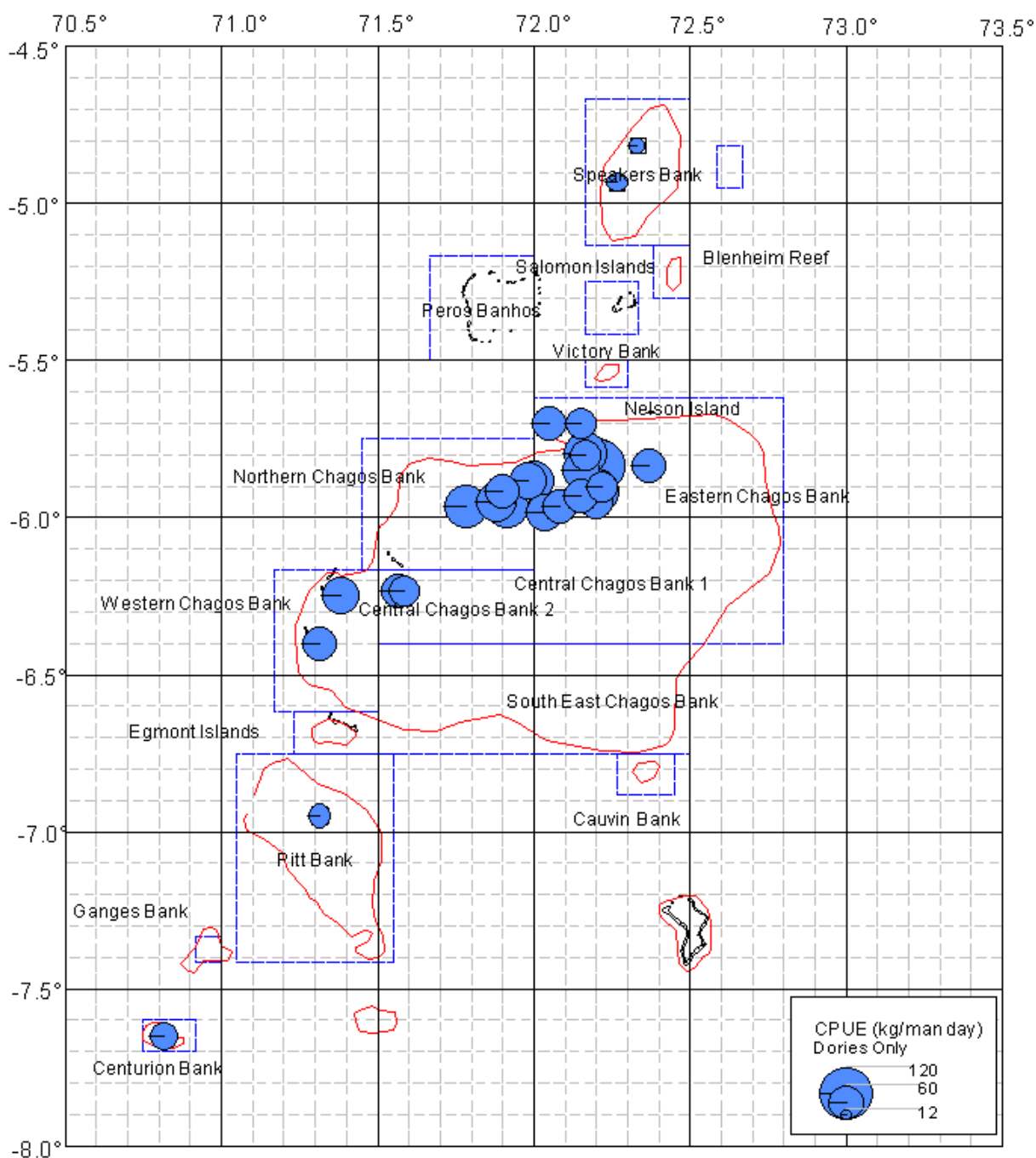


**Figure 5:** Catch landed by stratum (mixed) and location during 2009 by the Talbot IV.





**Figure 6** The Chagos Archipelago, indicating the statistical sectors and average daily dory catch rate information relative to the anchoring position of the mother-vessel (Talbot IV) in 2009.



Due to all catches by the Talbot V being logged as being at an unknown location and 76.92% of catches by the Etelis being similarly logged it was not feasible to produce a graphic illustrating CPUE by location for these vessels.

It was possible to calculate the overall CPUE for the Etelis and the Talbot V (Table 6). Due to differences in operating systems the Talbot IV CPUE is not directly comparable to these two vessels. As was described in Background Paper UK03 2009 weather conditions during the period when the Talbot V was operating in the BIOT FCMZ were unfavourable for fishing with the operator reporting ‘the weather was very rough and the wind and current caused the vessel to drift at more than two knots, rendering the fishing operation very difficult and counterproductive’. No such difficulties were reported by the Etelis which would explain the considerable difference in CPUE between the two vessels (Table 6).

**Table 6:** CPUE (kg/man-days) for the Etelis and the Talbot V.

Vessel	Days Fishing	Man Days	Catch (kg)	CPUE (kg/man-day)
Talbot V	16	288	8176	28.39
Etelis	54	486	76696	157.81

**Total catch in 2009 compared to estimated yields**

The reported total catch from all of Chagos during 2009 was well within sustainable limits and represented 8.93% of the potential yield from all bank areas and from overall locations and habitats the catch represented 14.69% the potential yield. By location, catch as a proportion of yield was low, the highest being at Central Chagos 2 (71.67%). No evidence for depletion was found at any location (Table 7).

**Table 7:** 2009 catch as a proportion of the estimated yield for bank and drop off by location for all vessels.

Location	Proportion of est. yield		
	Drop	Bank	Total
CHAGOS BANK (TOTAL)	0.01%	11.36%	9.27%
South East Chagos Bank	0.15%		0.15%
Central Chagos 2	0.00%	71.67%	71.67%
Northern Chagos	0.00%	14.24%	14.24%
Nelson Island	0.00%	32.18%	32.18%
Western Chagos Bank	0.00%	9.18%	9.18%
OTHER BANKS (TOTAL)	79.30%	3.21%	25.84%
Pitt Bank	50.38%	1.23%	11.70%
Speakers Bank	0.00%	2.72%	2.72%
Centurion bank	0.00%	67.66%	67.66%
TOTAL	34.93%	8.93%	14.69%

Note 1: The most conservative estimates of yield have been applied (i.e. 0.1 t/km<sup>2</sup> for the banks). No fishing occurred on the drop off in 2007.

Note 2: Catches in Pitt Bank recorded as MIX assumed to be all from the bank.

Note 3: Catches that were recorded at an unknown location were included in the calculations for Chagos Bank total, drop off total and the grand total.

Note 4: It has been assumed that all catches by the Talbot V and the Etelis have occurred on the drop off due to gear configuration that is used on these vessels.

**Species composition**

Logbooks record only certain commonly caught species of the lutjanid, serranid and lethrind families, and aggregate other species within them. Certain other species groups are also recorded (Table 8). As noted above this year the logbooks have again been incorrectly completed, and all catches were attributed to the few named species in the logbook, with few miscellaneous catches in each family category with the exception of serranids.

The landed species composition is related to the fishing stratum, depth fished and location, and the pricing strategy on board the vessel. In 2009 Talbot IV targeted the shallow banks along with the drop offs and mixed habitat (Table 5). Lutjanids predominate (53.33%) followed by lethrind (36.19%), whilst serranids represented only a small proportion of the catch (9.85%) (Figure 7). From shallow waters *Lutjanus bohar* and *Lutjanus gibbus* may have been caught, but these are also the most commonly discarded species as they are regarded as potentially ciguatoxic in Mauritius though these species were not recorded as discards by the observer this year. *Pristipomoides filamentosus* was reported to be the single most important species in the catch (50.73%). This is historically atypical of the shallow banks fishery as this species is predominately found on the drop offs. It is important to note that the location was recorded as unknown for 74.72% of the total catch of this species and the habitat was also unrecorded. All

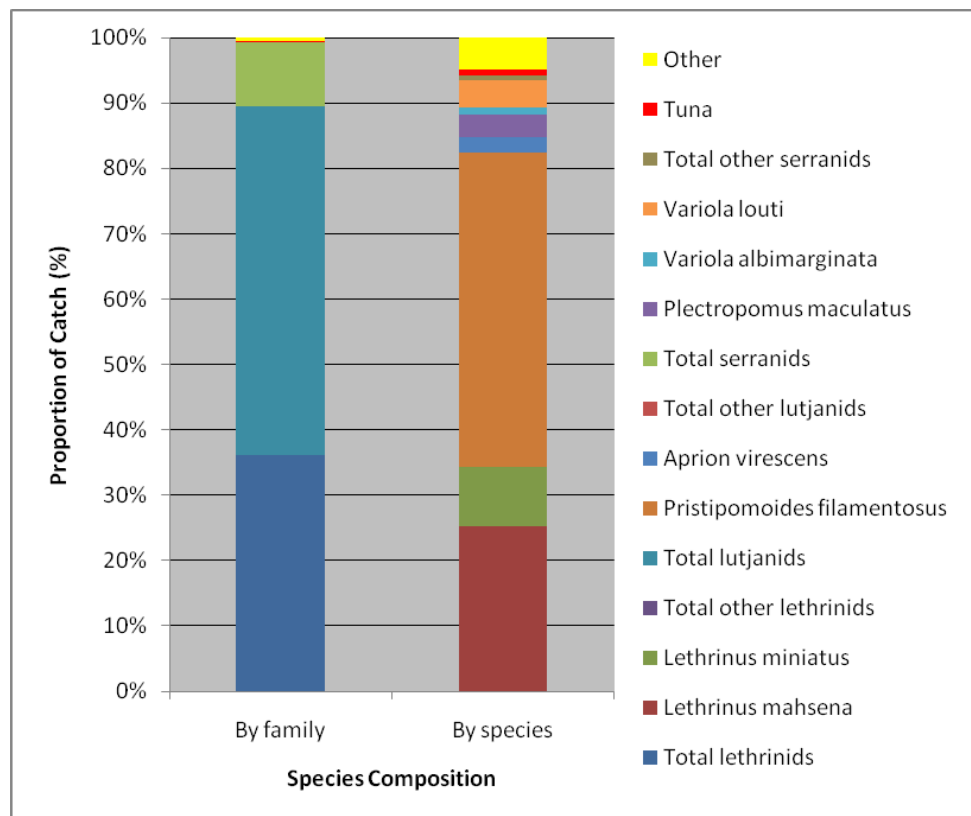
catch logged as unknown was taken by the Talbot V and the Etelis.

In addition the data in Table 8 which was collected through the logbooks additional information was provided by the operators of the Etelis that stated that 95% of the total catch was composed of *Etelis Carbunculus* and *E. Coruscan* species. On the Great Chagos Bank 95% of the catch consisted of *E. Carbunculus*. While on other banks the catch was composed of *E. Carbunculus*, *E. Coruscan*, *Pristipomoides Filamentosus*, *Polysteganus Baisaci* and *Epinephelus Morua*.

**Table 8:** Catch by location by family and individual species from logbook records during 2009 for all vessels.

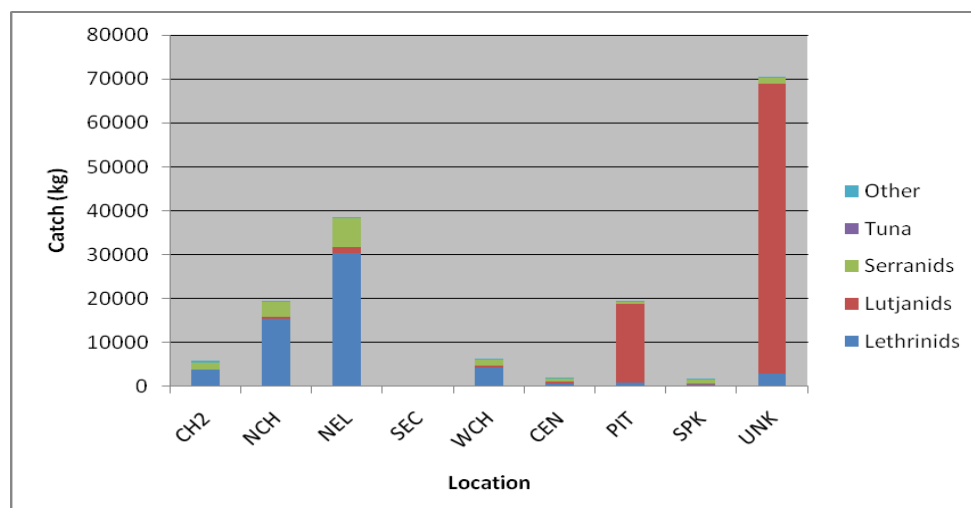
Location	Lethrinids				Lutjanids				Serranids					Tuna	Other	Total
	Lethrinus mahsena	Lethrinus miniatus	Other	Total	Pristipomoides filamentosus	Aprion virescens	Other	Total	Plectropomus maculatus	Variola albimarginata	Variola loutii	Other	Total			
<b>a. Great Chagos Bank</b>																
CH2	3425	310	0	3735	0	191	0	191	1076	107	273	119	1575	25	265	<b>5791</b>
NCH	11985	3307	0	15292	0	666	0	666	948	350	2031	25	3354	0	28	<b>19340</b>
NEL	23572	6901	0	30473	0	1353	0	1353	2464	626	3406	8	6504	0	27	<b>38357</b>
SEC	6	0	0	6	0	10	0	10	0	0	0	0	0	0	0	<b>16</b>
WCH	1727	2589	0	4316	0	319	0	319	457	383	535	56	1431	7	55	<b>6128</b>
<b>b. Other banks</b>																
CEN	186	555	0	741	0	480	0	480	4	38	300	119	461	25	265	<b>1972</b>
PIT	242	727	0	969	17670	68	0	17738	30	194	175	144	543	9	15	<b>19274</b>
SPK	232	232	0	464	0	173	0	173	218	135	346	236	935	0	22	<b>1594</b>
UNK	2177	684	124	2985	65000	979	0	65979	459	91	344	359	1253	0	268	<b>70485</b>
<b>Total</b>	<b>43552</b>	<b>15305</b>	<b>124</b>	<b>58981</b>	<b>82670</b>	<b>4239</b>	<b>0</b>	<b>86909</b>	<b>5656</b>	<b>1924</b>	<b>7410</b>	<b>1066</b>	<b>16056</b>	<b>66</b>	<b>945</b>	<b>162957</b>

**Figure 7:** Catch composition (%) during 2009, by family and species for all vessels.



Species composition varied by location (Table 8, Figure 8). However due to the incomplete logbook completion by the Talbot V and the Etelis in relation to their location of catches it was not possible to get a complete picture of catch by location. The catches by these two vessels represent the large value for unknown location in Figure 8. At most locations the distribution was similar to that observed overall, but of particular note is Speakers Bank where serranids predominated. *Plectropomus maculatus* and *Variola loutii* were reported to be the main species caught, however it was reported by the observer that the main serranid species caught were *V. loutii* and *P. leopardus*. In the past at Peros Banhos observers reported high catches of Camouflage Rockcod, *Epinephelus polyphkadion* taken from a spawning aggregation, and at Speakers Bank serranids have also previously dominated the catch, suggesting a possible spawning aggregation. This year however it was reported by the observer that no fishing on spawning aggregations occurred.

**Figure 8:** Catch composition (kg) by family and location during 2009 for all vessels.



### Biological Data

During the observer programme biological data was collected from catches by the Talbot IV. Table 9 and Table 10 show the summary of length frequency data for the major and minor species respectively.

**Table 9:** Summary of length frequency data: Main species (N>50)

Family	Species	Number Sampled	Mean Length (cm)	Minimum Length (cm)	Maximum Length (cm)	Standard Deviation
Serranidae	<i>Variola louti</i>	1229	36.7	20	54	6.4
	<i>Variola albimarginata</i>	588	29	20	43	3.3
	<i>Plectropomus leopardus</i>	282	54	26	90	15.0
Lethrinidae	<i>Lethrinus conchylatus</i>	56	42.2	32	49	3.5
	<i>Lethrinus rubrioperculatus</i>	3026	29.7	19	38	3.1
	<i>Lethrinus mahsena</i>	4944	36.6	20	53	6.3

**Table 10:** Summary of length frequency data: Other species (N<50).

Family	Species	Number Sampled	Mean Length (cm)	Minimum Length (cm)	Maximum Length (cm)	Standard Deviation
Lutjanidae	<i>Aprion virescens</i>	19	55.5	44	70	7.6
Serranidae	<i>Epinephelus fasciatus</i>	14	26.9	23	29	2.1
	<i>Epinephelus polyphekadion</i>	30	51.9	35	69	8.4
Lethrinidae	<i>Gymnocranius robinsoni</i>	8	35.5	26	43	5
	<i>Lethrinus elongatus</i>	2	76.5	76	77	0.5

Detailed length frequency data by area was also collected for the following major species caught by the Talbot IV: *Lethrinus mahsena* (Table 11) and *L. rubrioperculatus* (Table 12).

**Table 11:** Detailed Length Frequency for *L. mahsena*

Area	Number	L. min (cm)	L. av (cm)	St. Dev (cm)	L. max (cm)
NEL	2832	20	36.2	6.3	53
NCH	1768	22	36.9	6.4	52
CH2	152	25	40.0	5.7	50
WCH	93	24	35.9	4.9	47
SPK	50	25	36.5	6.0	50
PIT	49	26	34.9	5.1	50
TOTAL	4944	20	36.6	6.3	53

**Table 12** Detailed Length Frequency for *L. rubrioperculatus*

Area	Number	L. min (cm)	L. av (cm)	St. Dev (cm)	L. max (cm)
NEL	1437	22	30.7	2.8	38
NCH	1004	21	29	2.9	36
WCH	205	21	29.6	3.3	36
PIT	139	19	26.1	3.7	38
CH2	88	23	30.3	3	37
SPK	77	22	28.5	2.3	35
GEN	75	23	27.5	1.8	30
TOTAL	3026	19	29.7	3.1	38

Following the completion of fishing biological data was received from the operators of the Etelis regarding the catch. For *E. carbunculus* and *E. Coruscan* caught on the Great Chagos Bank the average length was 80 cm and average weight 8.5 kg with a maximum weight of 12 kg. For catches of these two species on other banks the average length was found to be 65 cm and the average weight 4.5kg.

There was no biological information supplied for the Talbot V.

**Comparison of 2009 and historical data**

Logbook records began in 1991 and until 1998 catches fluctuated between 200-300 tonnes per year (Figure 9). However, fishing effort in 1998 and 1999 was considerably less than previous years (Table 13), and correspondingly lower catches were achieved. Since 2000 gross fishing effort has tended to decline, with fewer boats entering the fishery, and there was only one vessel in both 2006 and 2007. In most years lethriniids dominate the catch, except when *Pristipomoides* species on the drop off are targeted and lutjanids predominate (1995-6 and 1998 and 2003). 2009 differed from a typical year due to a higher proportion of lutjanids catches and lower proportion of lethriniids.

**Figure 9:** Total landed catch per annum by family, 1991-2009 for all vessels.

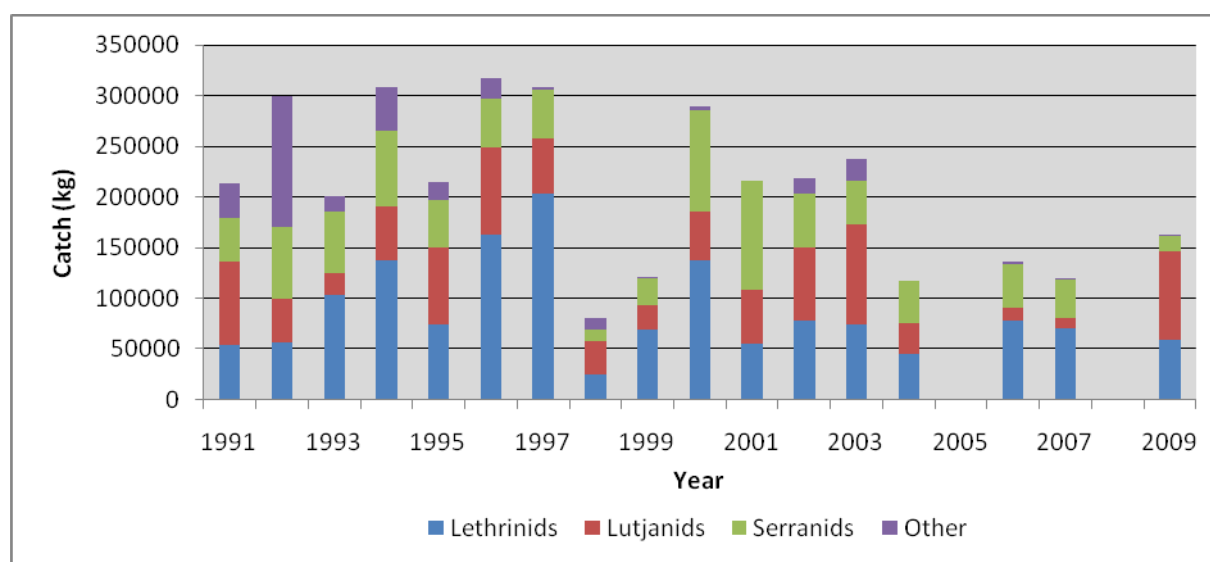


Figure 10 compares observed catch rates by location in 2009 with those recorded from logbook analyses since 1991. Catch rates are an index of abundance. Falling catch rates at any location

indicate that the abundance of fish has decreased over time. The overall catch rate in 2006 was the highest recorded, particularly notable as handlines only were used, whilst in some years catch rates were elevated by the use of hydraulic reels (2000 and 2001). The overall catch rate this year was high relative to historic levels and more comparable to years such as 2000 and 2001. Like these years in 2009 this elevated catch rate is due to the presence of two vessels operating with hydraulic reels.

By location, whilst there are fluctuations, no individual location shows a continuously decreasing trend indicating depletion for the predominant fishing locations.

As noted above, catch rates are a function of depth, location, habitat and gear fished. It would be expected that environmental effects would also result in location specific differences in abundance, and certain commonly fished locations (e.g. northern Great Chagos Bank) maintain high catch rates despite higher fishing pressure. Certain other locations have commonly lower catch rates (e.g. Pitt bank) and this was also the case this year.

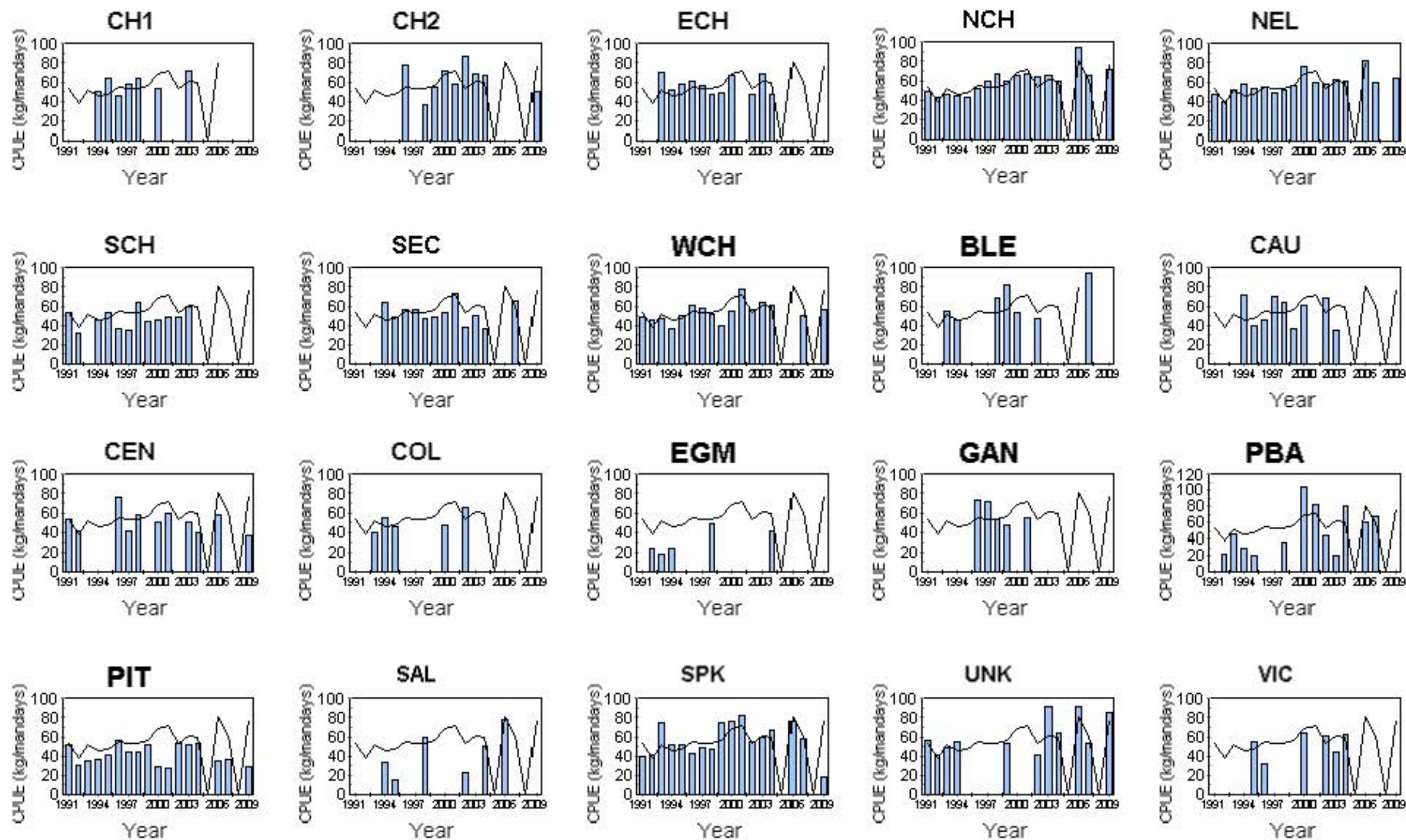
As reported above, catches from the inshore fishery are generally well within sustainable limits. Catch rate data similarly do not indicate overfishing.



**Table 13:** A summary of landed catches by fishing location for the period 1991-2009, all vessel data combined. The proportion of banks catches is indicated in parentheses. (Total catch data for 2001 is correct but data by location was not available; No fishing occurred in 2005 and 2008).

Location	Catch (Tonnes)																		
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
CHAGOS BANK (TOTAL)	58.8	255.6	122.8 (100)	202.1 (90)	166.0 (44)	232.1 (66)	234.1 (84)	57.9 (80)	56.8 (81)	177.9 (91)		144.7 (67)	180.9 (51)	77.8 (84)	0.0 (0)	80.5 (97)		0.0 (0)	68.6 (100)
Central Chagos Bank 1		13.9		5.5 (100)	6.6 (38)	2.6 (0)	11.5 (68)	7.2 (100)		5.5 (87)			3.9 -						
Central Chagos Bank 2						4.3 (100)		2.6 (79)	2.6 (71)	7.4 (71)		9.3 (43)	20.3 (70)	7.9 (92)					5.4 (100)
Eastern Chagos Bank			6.3 (100)	16.7 (85)	38.7 (32)	38.8 (48)	25.6 (68)	11.8 (93)	4.6 (55)	7.5 (69)		19.1 (76)	39.8 (30)	2.8 (57)					
Northern Chagos Bank	28.2	101.2	47.6 (99)	61.2 (89)	30.0 (50)	41.1 (59)	65.1 (90)	8.9 (33)	21.5 (94)	69.6 (97)		53.3 (62)	38.7 (69)	25.7 (89)		36.0 (100)	33.7 (100)		19.1 (100)
Nelson Island	11.5	71.1	32.8 (100)	60.0 (82)	29.4 (59)	31.0 (81)	45.9 (98)	4.2 (89)	10.4 (100)	54.8 (98)		28.9 (80)	34.1 (79)	18.7 (85)		44.5 (94)	27.5 (100)		38.0 (100)
Southern Chagos Bank	11.3	1.8		14.3 (100)	17.6 (44)	62.1 (44)	30.5 (69)	3.6 (100)	3.2 (100)	4.1 (61)		10.4 (68)	3.2 (7)						
South East Chagos Bank				27.5 (100)	13.6 (41)	17.1 (80)	13.8 (81)	8.7 (89)	7.0 (87)	10.4 (64)		6.1 (51)	17.1 (18)	4.1 (78)			3.5 (100)		0.0 (0)
Western Chagos Bank	7.7	67.6	36.1 (100)	16.9 (100)	30.1 (41)	35.0 (69)	41.8 (82)	11.0 (74)	7.5 (23)	18.6 (86)		17.8 (68)	23.8 (34)	18.6 (77)			2.7 (100)		6.1 (100)
OTHER BANKS (TOTAL)	22.5	47.1	74.7 (90)	100.0 (92)	51.5 (60)	87.3 (39)	60.6 (71)	21.6 (78)	53.7 (85)	111.1 (95)		74.1 (69)	56.2 (73)	45.8 (77)	0.0 (0)	55.6 (97)	50.7 (100)	0.0 (0)	22.8 (98.2)
Blenheim Reef			4.8 (100)	2.3 (100)				1.0 -	3.8 -	2.6 (66)		2.7 (34)					2.6 (100)		
Cauvin Bank				15.7 (100)	2.1 (38)	8.0 (26)	4.0 (41)	3.6 (100)	1.7 -	3.0 (31)		3.8 (5)	6.0 (26)						
Centurion Bank	2.9	2.4				10.6 (0)	2.4 (38)	3.4 (100)		2.4 (64)				2.1 (87)		3.2 (96)			2.0 (100)
Colvocresses Reef			3.5 (100)	2.8 (72)	1.2 (0)					2.5 (100)		3.8 (20)	5.4 (41)						
Egmont Islands		1.1	0.8 (100)	2.6 (100)				0.6 -						2.2 (32)					
Ganges Bank						8.2 (0)	4.1 (0)	3.1 (100)	2.3 (75)										
Peros Banhos		20.8	18.0 (76)	23.3 (76)	7.2 (44)			0.5 (100)		49.8 (100)		26.0 (76)	1.0 (99)	10.9 (100)		9.5 (99)	7.3 (100)		
Pitt Bank	11.7	10.7	5.1 (100)	21.5 (100)	7.4 (92)	55.4 (45)	26.5 (67)	7.3 (76)	24.8 (91)	4.5 (82)		3.0 (43)	10.9 (65)	8.9 (44)		0.9 (100)	1.0 (100)		19.3 (100)
Salomon Islands			1.7 (0)	0.8 (13)				0.8 -				2.6 (49)		0.9 (29)		2.2 (96)			
Speakers Bank	7.9	12.1	42.6 (92)	30.1 (100)	24.1 (65)	3.3 (43)	23.6 (96)	0.5 (71)	21.0 (100)	42.9 (100)		26.5 (89)	21.1 (85)	20.4 (88)		35.0 (96)	37.0 (100)		1.5 (100)
Victory Bank					8.8 (47)	1.8 (0)		0.9 (50)		3.4 (100)		3.5 (48)	2.3 (99)	0.4 -					
Unknown	217.9	2.4	2.2 (100)	2.8 (100)					11.8 (98)			2.2 (100)	9.5 (95)	3.8 (77)		4.9 (100)	2.9 (100)		70.5 (94.6)
TOTAL	299.2	305.2	199.7 (96)	304.9 (91)	217.5 (48)	319.5 (60)	294.8 (82)	79.5 (79)	122.2 (84)	289.0 (93)	218.8 (79)	218.8 (68)	237.1 (56)	127.5 (81)	0.0 (0)	136.1 (97)	118.2 (100)	0.0 (0)	161.9 (99.1)

**Figure 10:** Dory catch rates (kg/man-day) by location for the period 1991-2009 (bars), with the overall mean catch rate overlaid (line). This relates to all vessels as the Etelis and Talbot V were treated as single dories for this analysis.



### **1.3. Summary Conclusions of the 2009 Analyses**

The decline in the Mauritian mothership-dory fishing fleet over time and now intermittent fishing activity (there was none in 2005 or 2008) mean that currently the BIOT inshore fishery is not heavily exploited. This observation is supported by the evidence of the combined catch, catch as a proportion of yield, and catch rate data reported here for 2009. This is true for both the banks and smaller locations less frequently fished. The analyses presented this year do not highlight the need for changes to management of the fishery on biological grounds.

During 2009 an inshore observer programme occurred. In addition to verifying catch and effort, the principal issues were:

- Spawning aggregations: High serranid catches at Peros Banhos have been indicative of spawning aggregations in the past. However there was no recorded fishing at this location in 2009. There were high catches of serranids at Northern Chagos and Nelson Island though it was noted in the observer program that fishing did not occur within spawning aggregations.
- Sharks and discards: No shark by catch was recorded in the logbooks, in line with the shark regulations. There was no shark by-catch noted in the observer programme.

## **2 Management of the fishery**

### **2.1. The current management strategy**

The inshore fishery management objectives, strategy and operational plan of the BIOT Authorities have previously been described in background papers to the Commission (see particularly BP\_UK\_02, 1998). Effort controls are the principal management instrument in BIOT (Chagos Archipelago), implemented through limited licensing, closed seasons, and restricted fishing areas. The present analysis of the fisheries does not indicate that changes to management on biological grounds are required, and no changes are recommended. The currently applied terms and conditions of licensing are indicated in Annex 1.

The major threat to the inshore fishery at the current time is from illegal, unregulated and unreported fishing activities. Illegally operating vessels do not comply with the inshore fishery management regulations. IUU activities are reported in BPUK02.

## Keys to Tables and Figures

### Fishing Locations

#### *Great Chagos Bank*

CH1 Central Chagos 1  
CH2 Central Chagos 2  
ECH Eastern Chagos  
NCH Northern Chagos  
NEL Nelson Island  
SCH Southern Chagos  
SEC South east Chagos  
WCH Western Chagos

#### *Other Banks*

BLE Blenheim reef  
CAU Cauvin Bank  
CEN Centurion Bank  
COL Colvocresces reef  
EGM Egmont Islands  
GAN Ganges Bank  
PBA Peros Banhos  
PIT Pitt Bank  
SAL Salomon Island  
SPK Speakers Bank  
VIC Victory Bank  
UNK Unknown

## Annex 1: Terms and Conditions of the Inshore fishing licence in 2009.

### TERMS AND CONDITIONS OF LICENSING

The following are the terms and conditions subject to which this licence is granted. The master, owner and charterer of the vessel in respect of which the licence is granted shall.

### COMPLIANCE WITH LEGISLATION

Comply with the Fisheries (Conservation and Management) Ordinance 1991 and the Fishing Regulations 1993 as amended from time to time.

### COMPLIANCE WITH ADMINISTRATION DOCUMENTATION AND GUIDANCE

Comply with any requirement imposed by or under the Inshore Fisheries Administration Documentation and Guidance issued by or on behalf of the Director of Fisheries, as amended from time to time.

### VESSEL REPORTING

- Submit radio fishing operations reports in the prescribed format and schedule to the BIOT Fisheries Protection Vessel and/or the BIOT Director of Fisheries, and maintain a log of all such communications;
- Complete Inshore Fishing Logbooks in English on a daily basis and on the prescribed forms and certify that this information is true, complete and accurate;
- Provide biological and other details of fish taken on board during fishing operations when required to do so by the Director of Fisheries and in a manner agreed with the fishing master; and
- Notify the BIOT Director of Fisheries immediately if the licence will not be utilised.

### FISHERIES PROTECTION OFFICERS AND OBSERVERS

Allow and assist any person identified as a Fisheries Protection Officer or as a Fisheries Observer to:

- Board the vessel for scientific, compliance, monitoring or other functions;
- Embark and disembark at a place and time agreed to;
- Have full access to and use of all information, facilities and equipment on board which the observer may determine is necessary to carry out his or her duties, including inter alia the fish on board, for their inspection, measurement or removal of samples, vessel records and logs, reasonable access to navigation equipment, charts and communications equipment, and any other information related to fishing;
- Not assault or obstruct (or cause or permit any member of his crew to assault or obstruct) a Fisheries Protection Officer or Fisheries Observer in the performance of his or her duties; and
- Provide the Fisheries Protection Officer or Fisheries Observer, while on board the vessel, with officer level accommodation, and food and medical facilities at no cost to the Fisheries Protection Officer, Fisheries Observer or the BIOT Fisheries Authorities;

### AGENTS

Appoint and maintain an agent, in a country agreed by the Director of Fisheries, who shall have authority to receive and respond to any legal process. It shall be deemed that any communication, information, document, request or response to or from that agent has the full knowledge and approval of the owners and operators.

### TRANSIT

Ensure that while the fishing vessel is navigating through ("transiting") the BIOT fishing waters during periods when the vessel is not licensed to fish, or through closed areas, all fishing gear on board is stowed or secured in such a manner that it is not readily available to use for fishing.

### FISHERIES INSPECTION

- Ensure that he and his crew immediately comply with every reasonable instruction and direction given by an authorised Fisheries Protection Officer or Fisheries Observer, including to stop, to move to a prescribed location, to facilitate safe boarding and inspection of the vessel, its licence, inshore fishing gear and equipment, records, fish and fish products;
- Assist in any action by an authorised Fisheries Protection Officer or Fisheries Observer and neither assault, obstruct, delay, intimidate or interfere in the performance of his or her duties nor cause or permit any member of his crew so to do;
- Ensure that the HF radio frequency currently used for communications with the BIOT Fisheries Protection Vessel is monitored during the specified time schedule;
- Ensure the continuous monitoring of the international maritime distress and calling frequency 2182 kHz (HF) and the international safety and calling frequency 156.8 MHz (channel 16, VHF-FM);
- Ensure that a current copy of the International Code of Signals is on board at all times; and
- Ensure that his vessel has identification marks in accordance with the FAO approved Standard Specifications for the Marking and Identification of Fishing Vessels.

### LICENCE

Ensure that this licence is prominently displayed in the bridge of the vessel, except that if the vessel has put to sea prior to receipt of this licence a record shall be kept of the Inshore Fishing Licence Number, which shall be produced to an authorised officer or communicated through radio on demand;

### FISHING METHODS

- Refrain from capturing or attempting to capture fish by any fishing method other than:
- Hook and line (including handline, trolling, bottom set long line);
- Hand held cast nets strictly for the purpose of catching fish bait; and
- Ensure that no steel wire is used on fishing lines (only monofilament nylon line is to be used);

### FISHING AREAS

Ensure that there is no fishing within lagoons from his vessel or by himself or any member of his crew;

### LANDING

Ensure that neither he or any member of his crew lands on any island whatsoever within BIOT for any purpose, unless he or that crew member is in possession of a permit, or his name is endorsed on a permit, issued under the Immigration Ordinance 1971.

### CLOSED AREAS

Ensure that the vessel does not operate in any closed area as may be specified from time to time by the Director of Fisheries in writing or through radio communications with the authorities in the Territory; and specifically in the area enclosed by the following points:

05°10'S, 071°50'E  
05°10'S, 072°00'E  
05°20'S, 071°50'E  
05°20'S, 072°00'E

### FISH SPECIES

- Ensure that all fishing gear is deployed in a manner that targets only inshore water species and those species that are generally caught incidentally thereto; and
- 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 inshore fishing operations.

### CONSERVATION

Ensure that neither he nor any member of his crew, otherwise than in the proper course of fishing as authorised by this licence, takes, damages or otherwise interferes with any wild life (as defined in the Protection and Preservation of Wild Life Ordinance 1970, as from time to time amended) within BIOT (including its fishing waters) and in particular that he and every such member complies with that Ordinance (as so amended), with any Regulations or other instrument made there under as for the time being in force and with any other law for the time being in force in BIOT regulating the protection or preservation of wild life in BIOT.

### SHARKS

- the removal of shark fins is not permitted;
- the transshipment of shark fins is prohibited
- the release of all sharks is recommended
- all sharks retained must be recorded in BIOT logbooks
- when entering the zone, any shark or shark products on board must be reported to the Fisheries Patrol Vessel.

### WARNING

Failure to comply with any of the terms and conditions applied to this licence is an offence under the Fisheries (Conservation and Management) Ordinance 1991 and may result in the withdrawal of the licence and further restrictions in relation to the issue of licences for future fishing activities in the British Indian Ocean Territory.

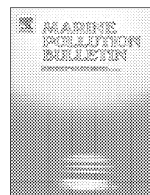
### **Annex 63**

H. Koldewey, D. Curnick, S. Harding, L. Harrison, M. Gollock, 'Potential benefits to fisheries and biodiversity of the Chagos Archipelago/British Indian Ocean Territory as a no-take marine reserve', *60 Marine Pollution Bulletin* 1906 (2010)



Contents lists available at ScienceDirect

## Marine Pollution Bulletin

journal homepage: [www.elsevier.com/locate/marpolbul](http://www.elsevier.com/locate/marpolbul)

## Review

## Potential benefits to fisheries and biodiversity of the Chagos Archipelago/British Indian Ocean Territory as a no-take marine reserve

Heather J. Koldewey<sup>a,\*</sup>, David Curnick<sup>a</sup>, Simon Harding<sup>a</sup>, Lucy R. Harrison<sup>b</sup>, Matthew Gollock<sup>a</sup>

<sup>a</sup> Zoological Society of London, Regents Park, London, UK

<sup>b</sup> IUCN Shark Specialist Group, Simon Fraser University, Canada

## ARTICLE INFO

## Keywords:

Marine biodiversity  
Conservation  
Tuna  
Elasmobranch  
No take  
Pelagic MPAs  
Bycatch

## ABSTRACT

On 1st April 2010, the British Government announced designation of the British Indian Ocean Territory – or Chagos Archipelago – as the world's largest marine protected area (MPA). This near pristine ocean ecosystem now represents 16% of the world's fully protected coral reef, 60% of the world's no-take protected areas and an uncontaminated reference site for ecological studies. In addition these gains for biodiversity conservation, the Chagos/BIOT MPA also offers subsidiary opportunities to act as a fisheries management tool for the western Indian Ocean, considering its size and location. While the benefits of MPAs for coral-reef dwelling species are established, there is uncertainty about their effects on pelagic migratory species. This paper reviews the increasing body of evidence to demonstrate that positive, measurable reserve effects exist for pelagic populations and that migratory species can benefit from no-take marine reserves.

© 2010 Elsevier Ltd. All rights reserved.

## 1. Introduction

The main threat to biodiversity loss in the marine environment is exploitation which results in species population declines and extinctions, habitat degradation, and ecosystem changes (Essington et al., 2006; Heithaus et al., 2008; Hutchings and Baum, 2005; Jackson et al., 2001; Myers and Worm 2003; Thurstan et al., 2010). International policy commitments now aim to reduce this loss, supported by the development of threat indicators that can monitor environmental concerns related to fisheries (Dulvy et al., 2006). Overexploitation of apex predators has dramatically influenced biological communities by triggering cascading effects down food webs, leading to decreases in diversity and/or productivity, loss of ecosystem services and, in some instances, ecosystem collapse (Agardy, 2000; Jackson et al., 2001; Worm et al., 2002; Ferretti et al., 2010; Pinnegar et al., 2000; Myers et al., 2007). The majority of these studies relate to coastal ecosystems and currently there is insufficient evidence available to make an empirical assessment as to whether similar events are occurring within the pelagic realm (Worm et al., 2003). However, widespread shifts in the species targeted by some pelagic fisheries towards lower trophic-level species suggest that changes in ecosystem structure have occurred (Verity et al., 2002). An ecosystem-based approach to fisheries management is now thought necessary to understand

the overall impacts of fishing (Botsford et al., 1997; Chuenpagdee et al., 2003).

The Chagos Archipelago – also known as the British Indian Ocean Territory, BIOT, and subsequently referred to as Chagos/BIOT – is one of the UK's fourteen overseas territories. The archipelago comprises of about 55 islands located in the centre of the Indian Ocean, has the greatest marine biodiversity in the UK and its territories (Sheppard, 2000a), and is of considerable importance to global biodiversity (Procter and Fleming, 1999). UK government committees have previously highlighted their concerns about the lack of attention to, and co-ordination of, environmental initiatives in the UK overseas territories, with 39 recorded terrestrial extinctions and the continued threat of extinction of around 240 other species (House of Commons Environmental Audit Committee, 2008; House of Commons Foreign Affairs Committee, 2008).

The remoteness of Chagos/BIOT combined with very low levels of anthropogenic disturbance – the only human presence is a US military base on Diego Garcia – has resulted in some of the cleanest seas and healthiest reef systems in the world (Everaarts et al., 1999). The archipelago contains about 50% of the healthy reefs remaining in the Indian Ocean, including the world's largest atoll of living coral (the Great Chagos Bank), and endemic coral and fish species that include the Chagos clownfish (*Amphiprion chagosensis*) and brain coral (*Ctenella chagius*) (Sheppard, 2000a,b). It acts as a vital stepping-stone that links the reefs of the east and western Indian Ocean (Sheppard et al., 2009) and is regionally important as a breeding ground for 17 species of seabirds, with 10 of the islands having received formal designation as Important Bird Areas (Hilton and Cuthbert, 2010; McGowan et al., 2008). The archipelago is also

\* Corresponding author. Address: Conservation Programmes, Zoological Society of London, Regents Park, London NW1 4RY, UK. Tel.: +44 (0) 207 449 6480; fax: +44 (0) 207 483 4436.

E-mail address: [heather.koldewey@zsl.org](mailto:heather.koldewey@zsl.org) (H.J. Koldewey).

a globally significant breeding site for hawksbill (*Eretmochelys imbricata*) and green (*Chelonia mydas*) turtles (Mortimer and Day, 1999). Furthermore, the deep oceanic waters around the Chagos/BIOT, out to the 200-mile exclusive economic zone (EEZ), include an exceptional diversity of undersea geological features including submarine mountains, mid-ocean ridges, trenches deeper than 6000 m, and a broad abyssal plain (Williamson, 2009).

In November 2009, the United Kingdom Foreign and Commonwealth Office (FCO) began a four month public consultation on whether to establish a marine protected area (MPA) in Chagos/BIOT (Foreign and Commonwealth Office, 2009). Whilst specific objectives were not given, comment was requested on the anticipated benefits related to conservation, climate change, scientific research and sustainable development. Three options for a possible MPA management framework were presented: (i) a full no-take MPA to the 200 nm EEZ; (ii) a no-take marine reserve that allowed certain forms of pelagic fishery, and (iii) a no-take marine reserve for the vulnerable reef systems only. On the 1st April 2010, the British government declared their support for the first of these options; “an MPA in the British Indian Ocean Territory [which] will include a “no-take” marine reserve where commercial fishing will be banned” (<http://www.fco.gov.uk/en/news/latest-news/?view=News&id=22014096>). The British government recognised in this declaration that “The territory offers great scope for research in all fields of oceanography, biodiversity and many aspects of climate change, which are core research issues for UK science”. To date, the management framework has yet to be defined, although there are no plans to issue any new commercial fishing licenses once the existing ones expire at the end of October 2010 (FCO, pers. comm.).

The current extent, distribution, size and spacing of MPAs globally are vastly inadequate, particularly for no-take areas, and especially in light of past, ongoing and expected future impacts on the oceans. There are only a limited number of sites around the world where establishing a large no-take MPA is practical (Nelson and Bradner, 2010) and the Chagos/BIOT MPA – which encompasses the EEZ and covers 210,000 square miles – doubles the coverage of the world’s oceans that are currently strictly protected (Wood et al., 2008). This is particularly important considering currently only 0.08% of the world’s oceans are no-take protected areas and international commitments have set global marine protection targets between 10% and 30% (CBD, 2009; United Nations, 2002; Wood et al., 2008).

This paper reviews the evidence that was compiled to assess the benefits of establishing a full no-take MPA during the FCO consultation, particularly closing the tuna fisheries to the 200-mile EEZ. This evidence now provides valuable guidance for the implementation of the Chagos/BIOT MPA and how pelagic MPAs can increasingly function as a marine conservation tool.

## 2. Fisheries in the Indian Ocean – putting Chagos/BIOT in context

The Food and Agriculture Organisation of the United Nations (FAO) has acknowledged that the maximum wild-capture fisheries potential from the world’s oceans has probably been reached (FAO, 2009). In recent years, the Indian Ocean has produced approximately 10% of the almost 93 million tons of annual global fish production, with the western Indian Ocean producing about 50% of the Indian Ocean landings (FAO, 2009). Offshore fisheries operating in the western Indian Ocean (such as those that have been licensed in Chagos/BIOT) are large-scale industrial fisheries with a high level of technology and investment. Industrial fishers tend to be distant water fishing fleets from Asia and Europe that target a wide range of migratory fish, such as tuna, kingfish, bonito, and mackerel, most of which are sold in the export market (FAO, 2009). Approximately

1 million tons of oceanic tuna and tuna-like species, with a processed value of £2–3 billion, are harvested each year from the western Indian Ocean (FAO, 2009).

The western Indian Ocean is also the region where the population status of exploited fish stocks is least known or least certain (Kimani et al., 2009; van der Elst et al., 2005), however recent reports indicate that overall catches continue to dramatically increase (FAO, 2009). Landings of species especially vulnerable to population decline as a result of fisheries, such as sharks and rays, have been steadily rising in both the eastern and western Indian Ocean since the 1950s (Camhi et al., 2009; FAO, 2009). Furthermore, much of the region (not including Chagos/BIOT) suffers from pervasive illegal fishing, severe anthropogenic impacts, and lacks coordination to regulate and monitor international fishing companies (FAO, 2009).

There is general pessimism in the international community about the inability or reluctance of regional fisheries management organisations (RMFOs) to make practical management decisions (FAO, 2009). Chagos/BIOT falls under the remit of the Indian Ocean Tuna Commission (IOTC), the RMFO responsible for the management and governance of tuna fisheries in the Indian Ocean. In 2009, a panel composed of IOTC members, independent reviewers (legal and scientific) and an observer from a non-government organisation completed a review of the performance of the IOTC member states in fulfilling the mandate of the IOTC (Anonymous, 2009; Lugten, 2010). This review found numerous weaknesses in the IOTC, both legal and technical (Anonymous, 2009). The Commission was said to be outdated, and ignoring modern principles for fisheries management, notably the precautionary approach and an ecosystem-based approach to fisheries management (Anonymous, 2009). Further faults included the limited quantitative data provided for many of the stocks, low compliance, poor-quality data and a lack of co-operation (Anonymous, 2009). Recommendations were made and have since been adopted by IOTC members (Lugten, 2010). These were also made in the context of FAO recommendations for a more effective and precautionary approach to fisheries management, particularly for highly migratory and straddling species that are exploited solely or partially in the open ocean (FAO, 2009). At present, however, the western Indian Ocean remains a region with some of the most exploited poorly understood and badly enforced and managed coastal and pelagic fisheries in the world.

## 3. Fisheries management as operated in Chagos/BIOT

As a UK overseas territory, Chagos/BIOT is governed by the UK through the BIOT Government which is based at the FCO. The constitutional arrangements for BIOT are set out in the British Indian Ocean Territory (Constitution) Order 2004 and related instruments which give the Commissioner full power to make laws for the Territory. The Marine Resources Advisory Group (MRAG), on behalf of the UK government, has been responsible for granting fishing licenses to third parties (Mees et al., 2009a). The fisheries management strategy, developed by MRAG, stated that it would ‘ensure that all fishing is undertaken with due regard and concern for the stability of fish stocks, conservation of biodiversity and appropriate management of the resources for the long-term benefit of the users’ (Mees et al., 2008).

### 3.1. Pelagic Tuna Fisheries

The main licensed commercial fishery in Chagos/BIOT was for pelagic tuna, using both longlines and purse-seines. While within the commercial fishing industry the Chagos/BIOT fishery is considered well managed when compared to other fisheries in the wes-



tern Indian Ocean, this needs to be taken in the context of the generally poor or non-existent management within the region and the weak RFMO described earlier.

Longlining is one of the dominant, commercial pelagic fishery methods globally – presently estimated at 1 billion hooks (Francis et al., 2001; Lewison et al., 2004a). The longline fishery in Chagos/BIOT waters was active year-round and mainly under Taiwanese and Japanese flagged vessels targeting large pelagic species, including yellowfin (*Thunnus albacares*) and bigeye tuna (*Thunnus obesus*), swordfish (*Xiphias gladius*), striped marlin (*Tetrapturus audax*), Indo-Pacific sailfish (*Istiophorus platypterus*), with annual catches ranging from 371 to 1366 tonnes over the last five years (Tables 1 and 2). Illegal longlining is an issue with fifty Sri Lankan flagged vessels reported in Chagos/BIOT during the years 2002–2009 (IOTC, 2010).

Purse-seine fisheries are also global in nature, operating in coastal and open waters for aggregated pelagic species, particularly tuna and sardines (FAO, 2008). In Chagos/BIOT, the purse-seine fishery targeted mainly yellowfin and skipjack tuna (*Katsuwonus pelamis*) and was highly seasonal, operating between November and March with a peak usually in December and January (Mees et al., 2009a). Catches, mainly by Spanish and French flagged vessels, were highly variable from logbook records, ranging from < 100 to ~24,000 tonnes annually over the last five years (Tables 3 and 4).

Total catch in the Indian Ocean for bigeye tuna are considered close to the maximum sustainable yield and in recent years, yellowfin tuna has also been overexploited with catches exceeding maximum sustainable yield (IOTC, 2010). Concerns regarding the level of catch of juveniles for both species have been highlighted

**Table 1**  
Summary of the Longline Fishery in Chagos/BIOT FCMZ between 2004/05 and 2008/09 (from Mees et al., 2009a).

Year	2004/05	2005/2006	2006/07	2007/08	2008/09
Number of vessels	33	24	26	41	22
Number of licences	48	27	34	75	26
Number of days fished	664	1207	1147	1508	571
Total catch (t)	730	916	590	1366	371
CPUE (t/day)	1.099	0.759	0.515	0.906	0.649
CPUE (t/1000 hooks) <sup>a</sup>	0.407	0.281	0.196	0.306	0.305

<sup>a</sup> Based on an average rate of 2700 hooks set per day.

**Table 2**  
Summary of the tuna catch species composition from logbook data from the longline fishery in Chagos/BIOT FCMZ between 2004/05 and 2008/09 (from Mees et al., 2009a).

Year	2004/05	2005/2006	2006/07	2007/08	2008/09
Yellowfin tuna (%)	48	34	45	31	23
Bigeye tuna (%)	52	48	41	63	57
Other species (%)	–	28	11	6	20
Total catch (t)	730	916	590	1366	371

**Table 3**  
Summary of the Purse-Seine Fishery in Chagos/BIOT Fisheries Conservation and Management Zone (FCMZ) between 2004/05 and 2008/09 (from Mees et al., 2009a).

Year	2004/05	2005/2006	2006/07	2007/08	2008/09
Number of vessels	52	54	55	54	43
Number of licences	56	56	56	57	45
Number of days fished	991	394	27	1294	424
Total catch (MT)	23,535	13,865	95	23,418	14,962
Catch rate (t/day)	23.75	36.19	3.52	18.10	35.28

**Table 4**  
Summary of the tuna catch species composition from purse-seine logbook data from Chagos/BIOT FCMZ between 2004/05 and 2008/09 (from Mees et al., 2009a).

Year	2004/05	2005/2006	2006/07	2007/08	2008/09
Yellowfin tuna (%)	83.80	77.93	0.00	79.09	66.34
Skipjack tuna (%)	14.50	20.95	97.89	12.70	24.03
Bigeye tuna (%)	1.70	1.08	2.11	7.44	4.12
Albacore (%)	0.00	0.00	0.00	7.77	5.49

(IOTC, 2010). Skipjack tuna is a highly productive and resilient species, however, recent indicators suggest the Indian Ocean stocks should be closely monitored (IOTC, 2010). Data from tuna fisheries indicate biases and additional information sources are necessary to fully evaluate the status of the stocks (Ahrens, 2010). Illegal, unreported and unregulated fishing is not a trivial component of the catch and adds substantial uncertainty into assessments (Ahrens, 2010). There is an increasing appreciation of the effects of uncertainty on fishery stock assessment and management, resulting in a more explicit focus on sustainability and its quantification (Ahrens, 2010; Botsford et al., 2009). As with all commercial pelagic fisheries, bycatch and discards are the greatest potential threat to non-target species. These threats are evaluated in more detail later in this paper.

### 3.2. Recreational and Inshore Fisheries

Two smaller fisheries have also been operating in Chagos/BIOT. In 2008, a small recreational fishery on Diego Garcia caught 25.2 tonnes of tuna and tuna-like species (76% of the catch); the remainder were reef-associated species (Mees et al., 2009b). Secondly, a Mauritian inshore fishery that targeted demersal species, principally snappers, emperors and groupers, whose logbook records indicated that the catches were between 200 and 300 tonnes per year for the period 1991–1997, decreasing to between 100 and 150 tonnes from 2004 (Mees, 2008). The long distance from ports and relatively short season made this an increasingly unattractive venture and the number of licences issued declined in recent years (Mees, 2008).

Overall total catches in the inshore fishery were considered within sustainable limits, although varied considerably between atolls and banks (Mees, 2008). Despite the limited effort, such levels of exploitation were of potential concern considering the fishery targeted predatory species at the higher trophic levels e.g. groupers and the individuals retained were often at the maximum recorded total length for that species (S. Harding, pers. obs.). The biggest problem facing the inshore fish populations in Chagos/BIOT is illegal fisheries, particularly for sharks (Graham et al., 2010). Reef sharks in Chagos/BIOT have declined by over 90% in a 30 year period (1975–2006), attributed primarily to poaching by illegal vessels (Graham et al., 2010). Elasmobranchs are the predominant bycatch in the inshore fishery (Table 5) which may be a further contributing factor to the decline (Graham et al., 2010). Reef-associated shark species are likely to be resident in Chagos/BIOT, therefore the MPA offers an opportunity for their recovery. The closure and enforcement of remote locations has been advocated as a means of maintaining reef shark abundance (Robbins et al., 2006; Sandin et al., 2008).

### 4. Bycatch: the impact of Chagos/BIOT fisheries on other threatened species

Bycatch occurs in all fishing fleets and the management and mitigation of bycatch is one of the most pressing issues facing the global commercial fishing industry (Hall, 1996; Hall and

**Table 5**  
Levels of discards in the past as a proportion of the landed catch each year, and an estimate of discards in 2007 based on the historical average (from Mees, 2008).

Details	1996	1997	1998	1999	2000	2001	2002	2003	2004	Avge	Discards in 2007 (mt)
Undersize				0.0%			<0.1	1.2%	0.9%	0.5%	0.62
Ciguatoxic		30.0%	8.0%	22.0%	11.3%	16.1%	12.5%	11.4%	9.9%	15.2%	17.99
Shark	0.6%	1.0%	7.6%	4.8%	2.0%	2.3%	4.0%	3.2%	2.8%	3.2%	3.74

**Table 6**  
Fisheries Observer Coverage for Pelagic Fishing in Chagos/BIOT over Twelve fishing seasons.

Season	Longline fishery			Purse-seine fishery		
	Fishing days	Observer days	% Coverage	Fishing days	Observer days	% Coverage
1995–1996	135	0	0.00	411	61	14.84
1996–1997	280	0.5	0.18	448	73	16.29
1997–1998	1903	61	3.21	291	0	0.00
1998–1999	2307	18	0.78	482	13	2.70
1999–2000	1661	18	1.08	122	9	7.38
2000–2001	2052	35	1.71	109	37	33.94
2001–2002	901	4	0.44	379	61	16.09
2002–2003	1379	22	1.60	62	0	0.00
2003–2004	1060	26	2.45	104	0	0.00
2004–2005	656	0	0.00	991	0	0.00
2005–2006	1034	0	0.00	51	10	19.60
2007–2008	1508	0	0.00	1294	0	0.00
Mean% Observer Coverage:			1.24			5.56

Data source: MRAG Offshore Tuna Fishery Programme Observer reports between 1994 and 2006, Mees et al., (2009a).

Mainprize, 2005), regarded as being a fundamental threat to fish stock sustainability, food security and biodiversity conservation (Davies et al., 2009). Globally, bycatch from longline fisheries is a key contributor to the decline of large predators including sharks (Goodyear, 2003), as well as sea turtles (Crowder, 2000; Lewison et al., 2004b) and seabirds (Kitchell et al., 2002). Indeed, fisheries for tuna and tuna-like fish, as well as targeted shark fisheries, are the greatest threat to sharks and rays (Camhi et al., 2009; Dulvy et al., 2008). Sharks are intrinsically vulnerable to overfishing due to their slow growth, late maturity, low fecundity and, as a consequence, potential to recover from overfishing (Camhi et al., 2009; Dulvy et al., 2008). Given the large globalised market for these incidental or bycatch species, particularly sharks for the shark-fin trade, there is a strong incentive to locally over-exploit shark populations (Clarke et al., 2006). The data available from the IOTC are extremely limited or absent and stock status of sharks in the region is uncertain (IOTC, 2010).

For Chagos/BIOT fisheries, incidental, retained catch such as sharks is included in our definition of bycatch. As with most fisheries, bycatch in Chagos/BIOT has been inadequately recorded. Data are based primarily on logbooks and a limited observer programme that was completely absent in some years (e.g. 2004/05 and 2007/08). In other parts of the world, logbook information has been recognised as notoriously unreliable, usually involving significant underreporting and incorrect species identification, meaning that accurate estimates can only be achieved through programmes that use well-trained observers (Baum et al., 2003; Lewison et al., 2004b; Walsh et al., 2005). In Chagos/BIOT, observer coverage was on average only 1.24% per season for longline fishing and 5.56% mean coverage for purse-seine fishing (Table 6).

#### 4.1. Longline Bycatch

The longline bycatch in Chagos/BIOT was substantial, particularly for sharks, rays and billfish (Pearce, 1996; Roberts, 2007), even with the aforementioned uncertainty. Between 1991 and 1995 bycatch consisted mainly of swordfish, striped marlin, Indo-Pacific sailfish and albacore (*Thunnus alalunga*) – these spe-

cies are considered high value and were often retained (Pearce, 1996). Sharks e.g. bigeye thresher shark (*Alopias superciliosus*) and blue shark (*Prionace glauca*) were also caught during this period, but those discarded were not logged as catch (Pearce, 1996). Those retained on vessels since 1993 were recorded in logbooks, but data prior to 2006 may not have been accurately reported (Mees et al., 2008). A comparison of observer and logbook data for bycatch in the 1998–1999 longline fishing season showed that Taiwanese vessels were not recording bycatch of sharks at all, and Japanese vessels were underreporting shark catch by upto 50% (Marine Resources Assessment Group, 1999). While shark finning was prohibited in Chagos/BIOT waters from 2006 it is difficult to measure compliance as there has been no observer programme since then.

Shark bycatch on longlines is also a concern for global fisheries management (Hall and Mainprize, 2005); sharks are often secondary targets rather than waste, providing an important supplementary income to crews on some longline vessels (Dulvy et al., 2008). In the early 2000s, a catch per unit effort of 2.06 individuals per 1000 hooks was calculated for blue shark – a species vulnerable even at low levels of exploitation (Schindler et al., 2002). Using this estimate of the blue shark catch rate and data on the total number of hooks deployed ( $1.50822 \times 10^7$ ) over five fishing seasons in Chagos/BIOT between 2003/2004 and 2007/2008 (Mees et al., 2008), we can estimate the total number of blue sharks caught to be 31,069<sup>1</sup>. As blue sharks were, on average, 52% of the sharks, extrapolation results in an estimate of 59,749 sharks caught in a five-year period by longliners in Chagos/BIOT waters. The bycatch of rays was reported to be equivalent (Mees et al., 2008).

Lesser known species are also affected by bycatch in Chagos/BIOT waters. The longnose lancetfish (*Alepisaurus ferox*), a large, hermaphroditic, deep-water predatory species, can make up almost 25% of the total longline catch by number (Mees et al., 2008), though individuals are often lost or cut off the hooks before being landed, therefore unreported and not identified. Bycatch

<sup>1</sup> Estimated by multiplying the total number of fishing days (5586) by the average number of hooks deployed per day (2700).

**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 (from Mees et al., 2008).

Year	Sharks retained		Others retained (no.)	Discard numbers	
	Weight (kg)	Number		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		

figures for sharks and other species are presented in Table 7, though data are not available to separate these by species.

#### 4.2. Purse-seine bycatch

Observer coverage from the purse-seine fishery documents a significant bycatch of sharks, rays, billfish and triggerfish in Chagos/BIOT. Purse-seine fisheries in Chagos/BIOT targeted free schools of tuna but in some years, fish-aggregating devices (FADs) were also used to attract and concentrate fish schools before capture and these had a greater and more diverse bycatch (Marine Resources Assessment Group, 1996; Mees et al., 2009a). According to observer reports bycatch levels were low for free-school sets, ranging from <1% to 3.6% of the total recorded catch while purse seining using FADs had bycatch levels of 10% of the total catch (Marine Resources Assessment Group, 1996, 1997, 1998, 2000, 2001, 2002). As with the longline fishery, bycatch was not recorded in logbooks during this period. The main bycatch species in the Chagos/BIOT purse-seine fishery were rainbow runner and pelagic triggerfish, silky shark, dolphinfish, black marlin and wahoo (Mees et al., 2009a). Catches of sharks by the purse-seine fishery were approximately 0.2% of the total catch in Chagos/BIOT waters during the period between 1995 and 2002 (Mees et al., 2003).

#### 4.3. Biological effects of bycatch

Bycatch can have a considerable impact on ecosystem function (Lewison et al., 2004a), as has already been shown in the case of the loss of predatory sharks in inshore systems (Myers et al., 2007; Ferretti et al., 2010). Based on the numbers of individuals involved and the status of those species globally, the level of shark bycatch in Chagos/BIOT waters can be considered an issue. However, data are extremely limited and based primarily on logbook information. This reflects the situation for western Indian Ocean fisheries, where the total pelagic shark catch by all fisheries is thought to be considerable but underestimated, potentially resulting in a reduction in their abundance to critical levels and diminishing the biodiversity of this pelagic ecosystem (Romanov, 2001). In other oceanic regions, genetic research has shown that some migratory, pelagic sharks are made up of discrete populations that spend more time at preferred sites (Queiroz et al., 2005) and under certain circumstances shark populations are likely to benefit significantly from spatial closures of longline fisheries (Baum et al., 2003; Watson et al., 2009). To promote both fisheries management and marine species conservation, future bycatch re-

search must continue to address these critical data limitations while developing novel approaches to address uncertainty (Lewison et al., 2004a). The high natural diversity and abundance of sharks has been shown to be vulnerable to even light fishing pressure (Ferretti et al., 2010) so given the large uncertainties and biases of management, it seems likely that closing Chagos/BIOT waters to all fishing will give these threatened species a 'safe house' that can only facilitate their recovery.

In summary, bycatch is a serious conservation issue that is complex and ecosystem-wide in its effects (Lewison et al., 2004a; Harrington et al., 2005) and the bycatch from tuna fisheries in Chagos/BIOT is significant, particularly for sharks. However, the lack of data and likely significant under- and mis-reporting of bycatch in the absence of onboard observers suggests that actual numbers could be much higher. The closure of Chagos/BIOT to all commercial fishing will eliminate bycatch and help to reduce elasmobranch bycatch in the western Indian Ocean as a whole by providing a temporal and spatial haven.

### 5. Potential benefits of no-take marine reserves

Global fish catches began to decline in the 1980s due to a long history of unsustainable fishing practices that have resulted in fisheries collapse and degraded ecosystems (Pauly et al., 2005). The 2002 World Summit for Sustainable Development has demanded marine reserves for fish populations to increase the sustainability of fisheries (United Nations, 2002), and while it has been recognised that some of these reserves should be inshore to protect coastal species, others need to be large and offshore to prevent losing certain species entirely (Balmforth et al., 2004; Roberts et al., 2005; Russ and Zeller, 2003). The creation of networks of marine reserves is viewed as an essential component of marine management (Lubchenco et al., 2003) because it focuses on the protection of the ecosystem rather than managing specific threats or species in isolation (Agardy, 2000). Recent guidelines have been developed for such networks to reduce or eliminate the previously assumed trade-off between achieving conservation and fisheries goals (Gaines et al., 2010). However, a long-term commitment to enforce a no-take MPA is required to achieve its full benefits, even in coral reef environments where more species show much higher site fidelity, as both size and age of the MPA are important in determining their effectiveness (Claudet et al., 2008; Jennings, 2001; Micheli et al., 2004; Molloy et al., 2009).

Fisheries protection measures are often approached from the perspective of a single economically important species. However, poor stock estimation, improved gear technology and 'cheating' by fishers often means that these management plans are intrinsically flawed (Sumaila et al., 1999). Moreover, species that are not managed will still suffer the effects of totally unmanaged fishing and be vulnerable to bycatch (Russ and Alcala, 1989; Sumaila et al., 1999). Well enforced no-take MPAs will prevent such activities from reducing both the complexity of the habitat and the associated biodiversity (Sumaila et al., 1999). Micheli et al. (2004) assert that "reserves aimed at conserving and restoring whole assemblages and ecological processes should be established as permanent no-take zones...".

#### 5.1. Potential benefits of no-take MPAs to large pelagic and migratory species

Fisheries are the largest anthropogenic threat to pelagic ecosystems, therefore preventing fishing will potentially have the greatest beneficial effect for the ecosystem (Game et al., 2009). Indeed, it has been suggested that the simplest way to diversify the management of a given fishery resource is to exploit part of

the resource while protecting the remainder as a marine reserve (Lauck et al., 1998). While undoubtedly more complex, protection measures for migratory species should not be disregarded because they potentially move through the waters of more than one nation. There are many precedents for protection of these types of species in the terrestrial world; migratory birds are vigorously protected by some countries while others actively hunt them (e.g. Fox and Madsen, 1997) and terrestrial parks do not protect the entire range of migratory mammals such as a wildebeest (e.g. Thirgood et al., 2004). The Convention on the Conservation of Migratory Species of Wild Animals (CMS) is an environmental treaty within the United Nations Environmental Programme that focuses on the conservation and sustainable use of migratory animals and their habitats. CMS is currently engaged in efforts to develop a global conservation instrument for migratory sharks as well as addressing issues facing cetaceans and turtles, including bycatch.

The pelagic realm represents the largest global ecosystem and 99% of the Earth biosphere volume (Angel, 1993) and is the least protected marine habitat (Game et al., 2009). It has become increasingly apparent that the structure and function of this ecosystem has significantly changed largely due to fishing (Coleman and Williams, 2002; Hyrenbach et al., 2000; Myers and Worm, 2003; Verity et al., 2002). Based on the greater scientific understanding of the nearshore environment, the most obvious solution to this problem is a no-take MPA. However, pelagic species and habitats are generally thought to be less amenable to spatial protection measures, a view that has translated into a lack of closed area designations within this environment (Day and Roff, 2000; Game et al., 2009). Two aspects of the pelagic system have fostered the prevailing belief that the application of area closures is an inappropriate management approach; (1) the potentially highly migratory nature of many of the species that inhabit the pelagic system (Boersma and Parrish, 1999) and (2) the ephemeral nature of the physical processes that drive pelagic biological distributions (Etnoyer et al., 2004), though such models fail to adequately consider aspects of habitat heterogeneity and the effects of fishers' behaviour (Apostolaki et al., 2002; Roberts and Sargant, 2002).

Habitat heterogeneity is particularly true around oceanic islands, with the island mass effect resulting in localised increases in oceanic productivity (e.g. Doty and Oguri, 1956; Hargraves et al., 1970; Gilmartin and Revelante, 1974; Simpson et al., 1982; Le Borgne et al., 1985; Hernández-León, 1988). There are various theories (reviewed in Genin, 2004) as to why these islands are hot-spots of pelagic biodiversity (Worm et al., 2003), particularly for apex predators (Stevenson et al., 2007). Seamounts can perform a similar function (Morato et al., 2008) and have been shown to host populations of bigeye (Holland et al., 1999; Itano and Holland, 2000; Morato et al., 2008), yellowfin (Holland et al., 1999; Itano and Holland, 2000) and skipjack tuna (Fonteneau, 1991; Morato et al., 2008). The presence of skipjack tuna shoals is often highly predictable due to their association with convergence zones and upwellings (Laurs et al., 1984). This heterogeneity of distribution by tuna species is exploited by the use of man-made fish aggregation devices which apply further pressure on populations by extracting immature individuals (Cayre, 1991; Itano and Holland, 2000). Shoaling behaviour is also common in other ocean predators such as pelagic sharks (Au, 1991) and assemblages of these species have been observed at seamounts and offshore islands in the eastern tropical Pacific (Hearn et al., 2010). This natural heterogeneity in distribution could potentially enhance preservation of migratory species using strategically located pelagic marine reserves.

Studies have already demonstrated that marine reserves can benefit pelagic species that exhibit highly mobile behaviours, albeit to a lesser extent than sedentary species (reviewed in Game et al., 2009). In addition, it has been shown that (1) in fisheries management, the phrase 'highly migratory' often has little biolog-

ical meaning, with studies of tuna mobility demonstrating they would benefit from national-level closures (Sibert and Hampton, 2003); (2) persistence and, thus, predictability of some habitat features within the pelagic realm does occur (Alpine, 2005; Baum et al., 2003; Etnoyer et al., 2004; Hyrenbach et al., 2000; Worm et al., 2003); (3) positive, measurable reserve effects on pelagic populations exist (Baum et al., 2003; Hyrenbach et al., 2002; Jensen et al., 2010; Roberts and Sargant, 2002; Worm et al., 2003, 2005; and (4) migratory species can benefit from no-take marine reserves (Beare et al., 2010; Jensen et al., 2010; Palumbi, 2004; Polunin and Roberts, 1993). In fact, it is now believed that pelagic MPAs are an important tool in the planet's last frontier of conservation management (Game et al., 2009) and are rapidly becoming a reality (Pala, 2009), although some of the challenges relating to their implementation may be both costly and difficult (Kaplan et al., 2010). Large MPAs are considered necessary to protect migratory species such as large pelagic fish and marine mammals (Wood et al., 2008) as well as offsetting the concentration of fishing effort outside them (Walters, 2000) and maintaining ecological value (Nelson and Bradner, 2010).

Partial protection for migratory species can not be considered futile, although a more coordinated approach for protection is preferable as no-take marine reserves should be combined with areas of limited fishing effort (Pauly et al., 2002). Optimisation models have suggested that tuna fisheries could even gain some economic efficiencies by closing large areas, provided overall effort is reduced and shifted into high value geographic areas (Ahrens, 2010). In addition, the presence of pelagic MPAs has also been shown to leverage improved marine management in adjacent areas (Notarbatolo di Sciarra et al., 2008).

### 5.2. Potential benefits of the Chagos/BIOT no-take MPA to large pelagic and migratory species

While the full benefits of pelagic MPAs are not yet understood, the newly established MPA in Chagos/BIOT has many parameters that suggest it will benefit pelagic and migratory species. Numerous geographic features, such as seamounts and convergence and upwelling zones are present in Chagos/BIOT (Charles Sheppard, unpublished data; Alex Rogers, unpublished data) and the island mass effect has been reported in neighbouring Maldives (e.g. Sasamal, 2006). As previously discussed, in other locations such features have been shown to act as natural aggregation devices for tuna and other migratory species (e.g. Holland et al., 1999; Itano and Holland, 2000; Morato et al., 2008). No-take protection that encompasses these features is therefore likely to be an effective conservation tool.

As a no-take MPA, Chagos/BIOT is of sufficient size to protect both site-attached and migratory species. Modelling of mark/recapture tagging data in both the west Indian Ocean and Pacific Ocean demonstrate median life-time displacements of around 400–500 miles in the three target tuna species in Chagos/BIOT (Fonteneau, 2008; IOTC, 2008). Although this means that these fish will be exposed to periods of exploitation at some point during their lifetime, these data demonstrate that the conservation of tuna stocks can be promoted through effective domestic management policies (Sibert and Hampton, 2003). Moreover, theoretical analyses of predator–prey models suggest that migratory pelagic species require large protected reserves to exhibit increases in population size (Micheli et al., 2004); with the Chagos/BIOT MPA being 210,000 square miles, such an expanse potentially provides an excellent area for the recovery of shark, tuna and other large predators. Scientific data (e.g. Mortimer and Broderick, 1999; Williams et al., 1999) support Chagos/BIOT playing the role of a stepping-stone for many species in the western Indian Ocean

therefore Chagos/BIOT may also help some fish populations on a broad geographic scale through larval supply and recruitment.

No-take marine reserves have been widely reported to increase fish and invertebrate biomass for reef environments within their borders (reviewed in Mumby and Steneck, 2008) with many exploited species, including migratory, pelagic species (Palumbi, 2004; Polunin and Roberts, 1993) and predatory species, benefiting the most from no-take reserves (Palumbi, 2004). The absence of fishing pressure is reported as the major factor that allows both the density and individual biomass, and consequently the reproductive capacity, of exploited species to increase (McClanahan and Arthur, 2001; Palumbi, 2004). However, it is important to state that no-take MPAs cannot be a lone panacea for the protection of fish stocks or their associated habitats and appropriate management of the no-take area is essential.

It is concluded that a permanent no-take zone in the Chagos/BIOT will maintain both fish populations and the near-pristine habitat that exists in this area. One of the key issues in determining the effects of the Chagos/BIOT MPA for pelagic species is the almost complete lack of existing data, and that which exists comes entirely from fisheries. It has been proposed that MPAs can serve to hedge against inevitable uncertainties, errors, and biases in fisheries management (Lauck et al., 1998). It is certainly true that while fisheries-independent research needs to be done in Chagos/BIOT there will always be a degree of uncertainty surrounding research on pelagic organisms and their environment. The costs and logistics involved with such data collection in such a remote location reinforce the need to act now to implement a precautionary approach to achieve sustainability in marine fisheries in the context of the extreme overexploitation in the western Indian Ocean.

Modelling studies indicate that effort displacement can counteract the benefits arising from pelagic area closures (Baum et al., 2003; Worm et al., 2003). Baum et al. (2003) suggested that an effective measure to reduce the displacement effort was to avoid regions of high fishing effort in favour of areas of lower fishing effort, thus reducing the amount of effort that can be displaced. While some displacement is possible in Chagos/BIOT following implementation of the marine reserve, the reduced area of ocean available for fishing may result in a decrease in fishing effort through vessel decommissioning or a large-scale change in fishing patterns. This is particularly relevant when considering the broader regional context, particularly the *de facto* closure of the Somalia fishery due to piracy (Mangi et al., 2010). More generally, overcapacity of the global tuna fleet is an issue that needs to be addressed by all regional fisheries management organisations and fishing nations – marine reserves should be seen as a part of this broader management scheme. There may be some opportunity for monitoring activity in Chagos/BIOT that helps establish any consequences of shifting fishing effort in the region.

This paper highlights several uncertainties in the benefits and limitations of spatial closure for tuna and other pelagic species. However, the Chagos/BIOT MPA was not primarily initiated as a fisheries management tool, rather to conserve the unique and rich biodiversity of this region, both in the coastal and pelagic realm. The relatively pristine nature of the coral reefs of Chagos/BIOT is particularly important considering the 2008 Status of the World's coral reefs report reporting 19% of the original global coral reef area has already been lost through direct human impacts, with a further 15% seriously threatened within 10–20 years, and another 20% under threat in 20–40 years (Wilkinson, 2008). These predictions do not take into account the accelerating problem of climate change on the oceans (Veron et al., 2009). There remains a critically urgent need for more effective management that conserves remaining coral reefs, particularly those in areas of low anthropogenic pressure and thus likely to be most resilient to climate change impacts.

Scientific research recognises Chagos/BIOT as a globally significant, uncontaminated reference site and one of the few tropical locations where global climate change effects can be separated from those of pollution and exploitation. Research in Chagos/BIOT is already providing vital information for monitoring and managing coral reefs elsewhere, in particular the design of interventions to restore reefs to a healthier condition (Sheppard et al., 2008). Considering the paucity of empirical information on the effects of MPAs on pelagic species, there is a clear need for further work and a research agenda is under development. Delivery of this research programme will improve management and conservation actions for pelagic species both within the Chagos/BIOT MPA and in the wider context of global marine conservation planning. The implementation of a no-take marine reserve in Chagos/BIOT has therefore provided a highly unique scientific reference site of global importance for studies on both pelagic and benthic marine ecosystems and the effects of climate change upon them.

### Acknowledgements

We would like to thank the many people who provided comments and contributions to the consultation report from which we developed this paper, including Stephen Akester, MacAlister Elliott and Partners Ltd (UK); Dr Charles Anderson, IOTC Working Party on Ecosystems and Bycatch (Maldives); Dr Natalie Ban, James Cook University (Australia); Andrés Domingo Balestra, IUCN Shark Specialist Group Co-chair (Uruguay); Dr Joao Correia, Flying Sharks (Portugal); Dr Nick Dulvy, Simon Fraser University & IUCN Shark Specialist Group Co-chair (Canada); Alistair Gammell, Pew Environment Group (UK); Dr Nicholas Graham, James Cook University (Australia); Ali Hood, Shark Trust (UK); Simon Hughes, Chagos Conservation Trust (UK); Dr. Heike Lotze, Dalhousie University (Canada); Rachel Jones, Zoological Society of London (UK); William Marsden, Chagos Conservation Trust (UK); Professor Peter Mumby, University of Queensland (Australia); Jay Nelson, Pew Environment Group (USA); Felipe Pereira (Portugal); Professor Callum Roberts, University of York (UK); Dr Alex Rogers, ZSL (UK); Dr Paul Shaw, Royal Holloway University of London (UK); Professor Charles Sheppard, Warwick University (UK); Rebecca Short, ZSL (UK); Dr Mark Spalding, The Nature Conservancy (UK); Dr. Derek Tittensor, Dalhousie University (Canada); Phil Williamson, University of East Anglia (UK); Dr Boris Worm, Dalhousie University (Canada) and all members of the Chagos Environment Network and IUCN Shark Specialist Group.

Many thanks to Chris Mees, John Pearce, Robert Arthur and Graeme Parkes at MRAG for providing relevant reports and data.

Thanks to Dr Nick Dulvy, Catherine Head and Rachel Jones for commenting on drafts of this manuscript.

This paper results from a report commissioned by the Pew Environment Group, the international conservation arm of the Pew Charitable Trusts. The Pew Environment Group is a founding member of the Chagos Environment Network, a collaboration of nine conservation and scientific organisations seeking to protect the rich biodiversity of the Chagos Islands and its surrounding waters. CEN members are: The Chagos Conservation Trust; The Linnean Society of London; The Marine Conservation Society; The Pew Environment Group; The Royal Botanic Gardens, Kew; The Royal Society; The Royal Society for the Protection of Birds; The Zoological Society of London; and Professor Charles Sheppard of the University of Warwick (on behalf of many of the visiting scientists).

### References

- Agardy, T., 2000. Effects of fisheries on marine ecosystems: a conservationist's perspective. *ICES J. Mar. Sci.* 57, 761–765.

- Ahrens, R.N.M. 2010. Global analysis of apparent trends in abundance and recruitment of large tunas and billfishes inferred from Japanese longline catch and effort data. PhD Thesis, University of British Columbia. pp. 422.
- Alpine, J., 2005. The Application of Closed Area Management in Pelagic Ecosystems: A Viable Strategy for Longline Fisheries? CSIRO Marine Research and School of Zoology, University of Tasmania, BSc Thesis. pp. 68.
- Angel, M.V., 1993. Biodiversity of the pelagic ocean. Modelling the effects of establishing a marine reserve for mobile species. *Conserv. Biol.* 7, 760–772.
- Anonymous, 2009. Report of the IOTC Performance Review Panel: January 2009. Indian Ocean Tuna Commission. pp. 56.
- Apostolaki, P., Milner-Gulland, E.J., McAllister, M.K., Kirkwood, G.P., 2002. Modelling the effects of establishing a marine reserve for mobile species. *Can. J. Fish. Aquat. Sci.* 59 (3), 405–415.
- Au, D.W., 1991. Polyspecific nature of tuna schools: shark, dolphin, and seabird associates. *Fish. Bull.* 89, 343–353.
- Balmforth, A., Gravestock, P., Hockley, N., McClean, C., Roberts, C.M., 2004. The worldwide cost of marine protected areas. *Proc. Natl Acad. Sci. USA* 101, 9694–9697.
- Baum, J., Myers, R., Kehler, D., Worm, B., Harley, S., Doherty, P., 2003. Collapse and conservation of Shark Populations in the Northwest Atlantic. *Science* 299 (17), 389–392.
- Beare, D., Hölker, F., Engelhard, G.H., McKenzie, E., Reid, D.G. 2010. An unintended experiment in fisheries science: a marine area protected by war results in Mexican waves in fish numbers-at-age. vol 97, Number 9, 797–808, doi: 10.1007/s00114-010-0696-5.
- Boersma, P., Parrish, J., 1999. Limiting abuse: marine protected areas, a limiting solution. *Ecol. Econ.* 31, 287–304.
- Botsford, L., Castilla, J., Peterson, C., 1997. The management of Fisheries and Marine Ecosystems. *Science* 277, 509–515.
- Botsford, L.W., Brumbaugh, D.R., Gimes, C., Kellner, J.B., Largier, J., O'Farrell, M.R., Ralston, S., Soulanille, E., Westpest, V., 2009. Connectivity, sustainability, and yield: bridging the gap between conventional fisheries management and marine protected areas. *Rev. Fish Biol. Fisheries* 19, 69–95.
- Camhi, D.V., Valenti, S.V., Fordham, S.V., Fowler, S.L., Gibson, C., 2009. The Conservation Status of Pelagic Sharks and Rays: Report of the IUCN Shark Specialist Group Pelagic Shark Red List Workshop. IUCN Species Survival Commission Shark Specialist Group, Newbury, UK.
- Cayre, P., 1991. Behaviour of yellowfin tuna (*Thunnus albacares*) and skipjack tuna (*Katsuwonus pelamis*) around fish aggregating devices (FADs) in the Comoros Islands as determined by ultrasonic tagging. *Aquat. Living Resour.* 4, 1–12.
- CBD, 2009. Decisions adopted by the Conference of the Parties to the Convention on Biological Diversity at its Ninth Meeting. Bonn, 19–30 May 2008. Downloaded from <http://www.cbd.int/doc/decisions/cop-09/full/cop-09-dec-en.pdf> on 25th August 2010.
- Chuenpagdee, R., Morgan, L., Maxwell, S., Norse, E., Pauly, D., 2003. Shifting gears: assessing collateral impacts of fishing methods in US waters. *Front. Ecol. Environ.* 1 (10), 517–524.
- Clarke, S.C., McAllister, M.K., Milner-Gulland, E.J., Kirkwood, G.P., Michielsens, C.G.J., Agnew, D.J., Pikitch, E.K., Nakano, H., Shivji, M.S., 2006. Global estimates of shark catches using trade records from commercial markets. *Ecol. Lett.* 9, 1115–1126.
- Claudet, J., Osenberg, C.W., Benedetti-Cecchi, L., Domenici, P., Garcia-Charton, J.A., Perez-Ruzafa, A., Badalamenti, F., Bayle-Sempere, J., Brito, A., Bulleri, F., Culioli, J.M., Dimech, M., Falcon, J.M., Guala, I., Milazzo, M., Sanchez-Meca, J., Somerfield, P.J., Stobart, B., Vandeperre, F., Valle, C., Planes, S., 2008. Marine reserves: size and age do matter. *Ecol. Lett.* 11, 481–489.
- Coleman, F., Williams, S., 2002. Overexploiting marine ecosystem engineers: potential consequences for biodiversity. *Trends Ecol. Evol.* 17 (1), 40–44.
- Crowder, L., 2000. Leatherback's survival will depend on an international effort. *Nature* 405, 881.
- Davies, R.W.D., Cripps, S.J., Nickons, A., Porter, G., 2009. Defining and estimating global marine fisheries bycatch. *Mar. Pollut. doi:10.1016/j.marpol.2009.01.003*.
- Day, J., Roff, J., 2000. Planning for Representative Marine Protected Areas: A Framework for Canada's Oceans. Report prepared for World Wildlife Fund, Canada. [Online at <http://assets.wwf.ca/bluegecko.net> - viewed 15.11.09].
- Doty, M.S., Oguri, M., 1956. The island mass effect. *J. Cons. Int. Explor. Mar.* 22, 33–37.
- Dulvy, N.K., Jennings, S., Rogers, S.I., Maxwell, D.L., 2006. Threat and decline in fishes: an indicator of marine biodiversity. *Can. J. Fish. Aquat. Sci.* 63, 1267–1275.
- Dulvy, N.K., Baum, J.K., Clarke, S., Compagno, L.J.V., Cortés, E., Domingo, A., Fordham, S., Fowler, S., Francis, M.P., Gibson, C., Martínez, J., Musick, J.A., Soldo, A., Stevens, J.D., Valenti, S., 2008. You can swim but you can't hide: the global status and conservation of oceanic pelagic sharks and rays. *Aquat. Conserv.* 18 (5), 459–482.
- Essington, T.E., Wiedenmann, Beaudreau A., 2006. Fishing through marine food webs. *PNAS* 103 (9), 3171–3175.
- Etnoyer, P., Canny, D., Mate, B., Morgan, L., 2004. Persistent Pelagic Habitats in the Baja California to Bearing Sea (BSB) Ecoregion. *Oceanography* 17 (1), 90–101.
- Everaarts, J.M., Booij, K., Fischer, C.V., Maas, Y.E.M., Nievenhuizen, J., 1999. Assessment of the Environmental Health of the Chagos Archipelago. In: Sheppard, C.R.C., Seaward, M.R.D. (Eds.), *Ecology of the Chagos Archipelago*. Linnean Society, London, pp. 305–326.
- FAO, 2008. Fishing Gear Types. Purse seines. In: *FAO Fisheries and Aquaculture Department* [online]. Rome. [Cited 1 October 2010]. <http://www.fao.org/fishery/geartype/249/en>.
- FAO Fisheries and Aquaculture Department, 2009. The State of World Fisheries and Aquaculture 2008 (SOFIA). Food and Agriculture Organisation of the United Nations. Rome. 176.
- Ferretti, F., Worm, B., Britten, G.L., Heithaus, M.R., Lotze, H.K., 2010. Patterns and ecosystem consequences of shark declines in the ocean. *Ecol. Lett.* 13, 1055–1071.
- Fonteneau, A., 1991. Seamounts and tuna in the tropical Atlantic. *Aquat. Living Resour.* 4, 13–25.
- Fonteneau, A., 2008. Tuna movement patterns presently shown in the Indian Ocean by tag recoveries from the IOTTP tagging program; IOTC Working Party on Tagging Data Analysis.
- Foreign and Commonwealth Office, 2009. Consultation on whether to establish a marine protected area in the British Indian Ocean Territory. <http://www.fco.gov.uk/resources/en/pdf/21153320/mpa-consultation-101109> downloaded on 3rd January 2010.
- Fox, A.D., Madsen, J., 1997. Behavioural and distributional effects of hunting disturbance on waterbirds in Europe: implications for refuge design. *J. Appl. Ecol.* 34 (1), 1–13.
- Francis, M., Griggs, L., Baird, S., 2001. Pelagic shark bycatch in the New Zealand tuna longline fishery. *Mar. Freshw. Res.* 52, 165–178.
- Gaines, S.D., White, C., Carr, M.H., Palumbi, S.R. 2010. Designing marine reserve networks for both conservation and fisheries management. *PNAS Early Edition*, [www.pnas.org/cgi/doi/10.1073/pnas.0906473107](http://www.pnas.org/cgi/doi/10.1073/pnas.0906473107).
- Game, E.T., Grantham, H.S., Hobday, A.J., Pressey, R.L., Lombard, A.T., Beckley, L.E., Gjerde, K., Bustamante, R., Possingham, H.P., Richardson, A.J., 2009. Pelagic protected areas: the missing dimension in ocean conservation. *Trends Ecol. Evol.* 24 (7), 360–369.
- Genin, A., 2004. Bio-physical coupling in the formation of zooplankton and fish aggregations over abrupt topographies. *J. Mar. Syst.* 50, 3–20.
- Gilmartin, M., Revelante, N., 1974. The "island mass" effect on – the phytoplankton and primary production of the Hawaiian Islands. *J. Exp. Mar. Biol. Ecol.* 16, 181–204.
- Goodyear, C., 2003. Spatio-temporal distribution of longline catch per unit effort, sea surface temperature and Atlantic Marlin. *Mar. Freshw. Res.* 54, 409–417.
- Graham, N.A.D., Spalding, M.D., Sheppard, C.R.C., 2010. Reef shark declines in remote atolls highlight the need for multi-faceted conservation action. *Aquat. Conserv.* 20 (5), 543–548.
- Hall, M.A., 1996. On bycatches. *Rev. Fish Biol. Fisheries* 6, 319–352.
- Hall, S.J., Mainprize, B.M., 2005. Managing bycatch and discards: how much progress are we making and how can we do better? *Fish. Fish.* 6, 134–155.
- Hargraves, P.E., Brody, R.W., Burkholder, P.R., 1970. A study of phytoplankton in the Lesser Antilles region. *Bull. Mar. Sci.* 20, 331–349.
- Harrington, J.M., Myers, R.A., Rosenberg, A.A., 2005. Wasted fishery resources: discarded bycatch in the USA. *Fish. Fish.* 6, 350–361.
- Hearn, A., Ketchum, J., Klimley, A.P., Espinoza, E., Peñaherrera, C., 2010. Hotspots within hotspots? Hammerhead shark movements around Wolf Island, Galapagos Marine Reserve. *Mar. Biol.* 157, 1899–1915.
- Heithaus, M.R., Frid, A., Wirsing, A.J., Worm, B., 2008. Predicting ecological consequences of marine top predator declines. *Trends Ecol. Evol.* 23, 202–210.
- Hernández-León, S., 1988. Gradients of mesozooplankton biomass and ETS activity in the wind-shear area as evidence of an island mass effect in the Canary Island waters. *J. Plankton Res.* 10, 1141–1154.
- Hilton, G.M., Cuthbert, R.J., 2010. The catastrophic impact of invasive mammalian predators on birds of the UK Overseas Territories: a review and synthesis. *Ibis* 152, 443–458.
- Holland, K.N., Kleiber, P., Kajjura, S.M., 1999. Different residence times of yellowfin tuna, *Thunnus albacares*, and bigeye tuna, *T. obesus*, found in mixed aggregations over a seamount. *Fish. Bull.* 97, 392–395.
- House of Commons Environmental Audit Committee 2008. Halting Biodiversity Loss. Thirteenth Report of Session. London: House of Commons.
- House of Commons Foreign Affairs Committee 2008. Overseas Territories. Seventh Report of Session. London: House of Commons.
- Hutchings, J.A., Baum, J.K., 2005. Measuring marine fish biodiversity: temporal changes in abundance, life history and demography. *Philos. Trans. R. Soc. B* 360, 315–338.
- Hyrenbach, K., Forney, K., Dayton, P., 2000. Marine protected areas and ocean basin management. *Aquat. Conserv.* 10, 437–458.
- Hyrenbach, K., Fernandez, P., Anderson, D., 2002. Oceanographic habitats of two sympatric North Pacific albatrosses during breeding season. *Mar. Ecol. Prog. Ser.* 233, 283–301.
- IOTC, 2010. Report of the Fourteenth Session of the Indian Ocean Tuna Commission, Busan, Korea, 1–5 March 2010. IOTC-2010-S14-R[E].
- IOTC, 2008. Report of the First Session of the IOTC Working Party on Tagging Data Analysis.
- Itano, D.G., Holland, K.N., 2000. Movement and vulnerability of bigeye (*Thunnus obesus*) and yellowfin tuna (*Thunnus albacares*) in relation to FADs and natural aggregation points. *Aquat. Living Resour.* 13, 213–223.
- Jackson, J., Kirby, M., Berger, H., Bjorndal, K., Botsford, L., Bourque, B., Bradbury, R., Cooke, R., Erlanson, J., Estes, J., Hughes, T., Kidwell, S., Lange, C., Lenihan, H., Pandolfi, J., Peterson, C., Steneck, R., Tegner, M., Warner, R., 2001. Historical overfishing and the recent collapse of coastal ecosystems. *Science* 293, 629–638.
- Jennings, S., 2001. Patterns and predictions of population recovery in marine reserves. *Rev. Fish Biol. Fisheries* 10, 209–231.
- Jensen, O.P., Ortega-García, S., Martell, S.J.D., Ahrens, R.N.M., Domeier, M.L., Walters, C.J., Kitchell, J.F., 2010. Local management of a "highly migratory species": The

- effects of long-line closures and recreational catch-and-release for Baja California striped marlin fisheries. *Prog. Oceanogr.* 86 (1–2), 176–186.
- Kaplan, D.M., Chassot, E., Gruss, A., Fonteneau, A., 2010. Pelagic MPAs: the devil is in the details. *Trends Ecol. Evol.* 25, 62–63.
- Kimani, E.N., Okemwa, G.M., Kazungu, J.M., 2009. Fisheries in the Southwest Indian Ocean: Trends and Governance Challenges. In: Laipson, E., Pandya, A. (Eds.), *The Indian Ocean: Resource, Governance Challenges*. The Henry L. Stimson Centre, Washington, DC, p. 107.
- Kitchell, J., Essington, T., Boggs, C., Schindler, D., Walters, C., 2002. The role of sharks and longline fisheries in a Pelagic Ecosystem of the Central Pacific. *Ecosystems* 5, 202–216.
- Lauck, T., Clark, C.W., Mangel, M., Munro, G.M., 1998. Implementing the precautionary principle in fisheries management through marine reserves. *Ecol. Appl.* 8 (1), S72–S78.
- Laur, R.M., Fiedler, P.C., Montgomery, D.R., 1984. Albacore tuna catch distributions relative to environmental features observed from satellites. *Deep-Sea Res.* 31, 1085–1099.
- Le Borgne, R.P., Dandonneau, Y., Lemasson, L., 1985. The probern of the island mass effect on chlorophyll and zooplankton standing crops around Mare (Loyalty Island) and New Caledonia. *Bull. Mar. Sci.* 37, 450–459.
- Lewison, R., Crowder, L., Read, A., Freeman, S., 2004a. Understanding impacts of fisheries bycatch on marine megafauna. *Trends Ecol. Evol.* 19 (11), 598–604.
- Lewison, R., Freeman, S., Crowder, L., 2004b. Quantifying the effects of fisheries on threatened species: the impacts of pelagic longlines on loggerhead and leatherback sea turtles. *Ecol. Lett.* 7, 221–231.
- Lubchenco, J., Palumbi, S., Gaines, S., Andelman, S., 2003. Plugging a hole in the ocean: The emerging science of marine reserves. *Ecol. Appl.* 13 (1), S3–S7.
- Lugten, G., 2010. The role of international fishery organizations and other bodies in the conservation and management of living aquatic resources. *FAO Fisheries and aquaculture Circular*. No. 1054. Rome, FAO, pp. 123.
- Mangi, S., Hooper, T., Rodwell, L., Simon, D., Snoxell, D., Spalding, M., Williamson, P., 2010. Establishing a marine protected area in the Chagos Archipelago: socio-economic considerations. Report of the workshop held 7th January, 2010, Royal Holloway, University of London, UK, pp. 26.
- Marine Resources Assessment Group., 1996. Fishing Operations in the British Indian Ocean Territory. Report from the 1995–96 Tuna Scientific Observer Programme. MRAG Ltd. March 1996, pp. 57.
- Marine Resources Assessment Group., 1997. Fishing Operations in the British Indian Ocean Territory. Report from the 1996–97 Tuna Scientific Observer Programme. MRAG Ltd. February 1997, pp. 65.
- Marine Resources Assessment Group., 1998. Report from the 1997–98 Tuna Scientific Observer Programme. British Indian Ocean Territory. November 1997–January 1998. MRAG Ltd. February 1998, pp. 37.
- Marine Resources Assessment Group., 1999. Report from the 1998–99 Tuna Scientific Observer Programme. British Indian Ocean Territory. November 1998–January 1999. MRAG Ltd. February 1999, pp. 52.
- Marine Resources Assessment Group., 2000. Report from the 1999–2000 Tuna Scientific Observer Programme. British Indian Ocean Territory. November 1999–January 2000. MRAG Ltd. March 2000, pp. 55.
- Marine Resources Assessment Group., 2001. Report from the 2000–2001 Tuna Scientific Observer Programme. British Indian Ocean Territory. November 2000–February 2001. MRAG Ltd. March 2001, pp. 62.
- Marine Resources Assessment Group., 2002. Report from the 2001–2002 Tuna Scientific Observer Programme. British Indian Ocean Territory. December 2001–February 2002. MRAG Ltd. March 2002, pp. 57.
- McClanahan, T.R., Arthur, R., 2001. The effect of marine reserves and habitat on populations of East African coral reef fishes. *Ecol. Appl.* 11, 559–569.
- McGowan, A., Broderick, A.C., Godley, B.J., 2008. Seabird populations of the Chagos Archipelago: an evaluation of IBA sites and a need for monitoring. *Oryx* 42, 424–429.
- Mees, C.C., 2008. British Indian Ocean Territory (Chagos archipelago) – Fisheries Conservation and Management Zone. The inshore and recreational fisheries in 2007. British/Seychelles Fisheries Commission Background Paper UK03. Twentieth Scientific Sub Committee Meeting, 7–8 October 2008.
- Mees, C.C., O'Neill, C., Harding, S., 2003. British Indian Ocean Territory (Chagos archipelago) – Fisheries Conservation and Management Zone. The 2002 inshore fishery and observer programme. British/Seychelles Fisheries Commission Background Paper UK02. Thirteenth Scientific Sub Committee Meeting, 8–9 May 2003, 27.
- Mees, C., Pearce, J., Clarke, J., Wilson, O., Carroll, A., 2008. IOTC Eleventh Session of the Scientific Committee Mahé, Seychelles, 1–5 December 2008: IOTC-2008-SC-INF12.
- Mees, C., Pearce, J., Clarke, J., Wilson, O., 2009a. UK (Chagos/BIOT) national report. IOTC Twelfth Session of the Scientific Committee Mahé, Seychelles, 30 November–4 December 2009: IOTC-2009-SC-INF08.
- Mees, C.C., Wilson, O., Gater, R., Roe, J., 2009b. British Indian Ocean Territory (Chagos archipelago) – Fisheries Conservation and Management Zone. The 2008/09 inshore fishery and 2008/09 recreational fishery. British/Seychelles Fisheries Commission Background Paper UK03. Twenty-first Scientific Sub Committee Meeting, 22nd October 2009.
- Micheli, F., Amarasekare, A., Bascompte, J., Gerber, L.R., 2004. Including species interactions in the design and evaluation of marine reserves: some insights from a predator–prey model. *B. Mar. Sci.* 74, 653–669.
- Molloy, P.P., McLean, I.B., Côté, I.M., 2009. Effects of marine reserve age on fish populations: a global meta-analysis. *J. Appl. Ecol.* 46, 743–751.
- Morato, T., Varkey, D.A., Damaso, C., Machete, M., Santos, M., Prieto, R., Santos, R.S., Pitcher, T.J., 2008. Testing a seamount effect on aggregating visitors. *Mar. Ecol. Prog. Ser.* 357, 23–32.
- Mortimer, J.A., Broderick, D., 1999. Population genetic structure and developmental migrations of sea turtles in the Chagos Archipelago and adjacent regions inferred from mtDNA sequence variation. Pp. 185–194. In: Sheppard, C.R.C., Seaward, M.R.D. (Eds.), *Ecology of the Chagos Archipelago*. Linnean Society Occasional Publications 2, pp. 185–194.
- Mortimer, J.A., Day, M., 1999. Sea turtle populations and habitats in the Chagos Archipelago. In: Sheppard, C.R.C., Seaward, M.R.D. (Eds.), *Ecology of the Chagos Archipelago*. Linnean Society of London, London, pp. 159–176.
- Mumby, P.J., Steneck, R.S., 2008. Coral reef management and conservation in light of rapidly evolving ecological paradigms. *Trends Ecol. Evol.* 23, 555–563.
- Myers, R., Worm, B., 2003. Rapid worldwide depletion of predatory fish communities. *Nature* 423, 280–283.
- Myers, R.A., Baum, J.K., Shepherd, T.D., Powers, S.P., Peterson, C.H., 2007. Cascading effects of the loss of apex predatory sharks from a Coastal Ocean. *Science* 315, 1846–1850.
- Nelson, J., Bradner, H., 2010. The case for establishing ecosystem-scale marine reserves. *Mar. Pollut. Bull.* 60, 635–637.
- Notarbatolo di Sciarra, G., Agardy, T., Hyrenbach, D., Scovazzi, T., Van Klaveren, P., 2008. The Pelagos Sanctuary for Mediterranean marine mammals. *Aquatic Conserv. Mar. Freshwa. Ecosyst.* 18, 367–391.
- Pala, C., 2009. Protecting the last great tuna stocks. *Science* 324, 1133.
- Palumbi, S.R., 2004. Marine reserves and ocean neighbourhoods: the spatial scale of marine populations and their Management. *Annu. Rev. Environ. Resour.* 29, 31–68.
- Pauly, D., Christensen, V., Guénette, S., Pitcher, T.J., Sumaila, U.R., Walters, C.J., Watson, R., Zeller, D., 2002. Towards sustainability in world fisheries. *Nature* 418, 689–695.
- Pauly, D., Watson, R., Alder, J., 2005. Global trends in world fisheries: impacts on marine ecosystems and food security. *Philos. Trans. R. Soc. B.* 360 (1453), 5–12.
- Pearce, J., 1996. A review of the British Indian Ocean Territory fisheries conservation and management zone tuna fishery 1991–1995. Marine Resources Assessment Group.
- Pinnegar, J.K., Polunin, N.V.C., Francour, P., Badalamenti, F., Chemello, R., Harmelin-Vivien, M.-L., Hereu, B., Milazzo, M., Zabala, M., Pipitone, D'Anna G., 2000. Trophic cascades in benthic marine ecosystems: lessons for fisheries and protected-area management. *Environ. Conserv.* 27 (2), 179–200.
- Polunin, N.V.C., Roberts, C.M., 1993. Greater biomass and value of target coral-reef fishes in two small Caribbean marine reserves. *Mar. Ecol. Prog. Ser.* 100, 167–176.
- Procter, D., Fleming, L.V. (Eds.), 1999. *Biodiversity: The UK Overseas Territories*. Joint Nature Conservation Committee, Peterborough.
- Queiroz, N., Lima, F.P., Maia, A., Ribeiro, P.A., Correia, J.P., Santos, A.M., 2005. Movement of blue shark, *Prionace glauca*, in the north-east Atlantic based on mark-recapture data. *J. Mar. Biol. Assoc. UK* 85, 1107–1112.
- Robbins, W.D., Hisano, M., Connolly, S.R., Choat, J.H., 2006. Ongoing collapse of coral-reef shark populations. *Curr. Biol.* 16, 2314–2319.
- Roberts, J., 2007. Preliminary characterization of bycatch by tuna longliners operating in the Chagos/BIOT area. Report for MRAG.
- Roberts, R.C., Sargant, H., 2002. Fishery benefits of fully protected marine reserves: why habitat and behaviour are important. *Nat. Resour. Model.* 15, 487–507.
- Roberts, C., Hawkins, J.P., Gell, F.R., 2005. The role of marine reserves in achieving sustainable fisheries. *Philos. Trans. R. Soc. B* 360, 123–132.
- Romanov, E.V., 2001. Bycatch in the tuna purse-seine fishery in the western Indian Ocean. *Fish. Bull.* 100, 90–105.
- Russ, G.R., Alcala, A.C., 1989. Effects of intense fishing pressure on an assemblage of coral reef fishes. *Mar. Ecol. Prog. Ser.* 56, 13–27.
- Russ, G.R., Zeller, D., 2003. From mare liberum to mare reservatum. *Mar. Pollut.* 27, 75–78.
- Sandin, S.A., Smith, J.E., DeMartini, E.E., Dinsdale, E.A., Donner, S.D., Friedlander, A.M., Konotchick, T., Malay, M., Maragos, J.E., Obura, D., Pantos, O., Paulay, G., Richie, M., Rohwer, F., Schroeder, R.E., Walsh, S., Jackson, J.B.C., Knowlton, N., Sala, E., 2008. Baselines and degradation of coral reefs in the northern Line Islands. *PLoS ONE* 3, e1548. doi:10.1371/journal.pone.0001548.
- Sasamal, S.K., 2006. Island mass effect around the Maldives during the winter months of 2003 and 2004. *Int. J. Remote Sens.* 27, 22.
- Schindler, D.E., Essington, T.E., Kitchell, J.F., Boggs, C., Hilborn, R., 2002. Sharks and tunas: fisheries impacts on predators with contrasting life histories. *Ecol. Appl.* 12 (3), 735–748.
- Sheppard, C.R.C., 2000b. The Chagos Archipelago. In: Mc Clanahan, T., Sheppard, C.R.C., Obura, D. (Eds.), *Coral Reefs of the Western Indian Ocean: Ecology and Conservation*. Oxford University Press, pp. 445–470.
- Sheppard, C.R.C., 2000a. The Chagos Archipelago, central Indian Ocean. In: Sheppard, C. (Ed.), *Seas at the Millennium, a Scientific Evaluation*, vol. 2. Elsevier Press, pp. 221–232.
- Sheppard, C., Harris, A., Sheppard, A., 2008. Archipelago-wide coral recovery patterns since 1998 in the Chagos Archipelago, central Indian Ocean. *Mar. Ecol. Prog. Ser.* 362, 109–117.
- Sheppard, C.R.C., Chen, A., Harris, A., Hillman, C., Graham, N.A.J., Marx, D., McGowan, A., Mortimer, J., Pfeiffer, M., Price, A.R.G., Purkis, S., Raines, P., Riegl, B., Schleyer, M., Sheppard, A.L.S., Smith, S., Tamelander, J., Topp, J.M.W., Turner, J., Yang, S.Y., 2009. Science in Chagos – What we know and what we need to know. Report for the Chagos Conservation Trust. Downloaded 4th January 2010. <http://>

- www.reefnewmedia.co.uk/cmt\_chagos/uploads/pdf/science/science\_in\_chagos.pdf
- Sibert, J., Hampton, J., 2003. Mobility of tropical tunas and the implications for fisheries management. *Mar. Policy* 27, 87–95.
- Simpson, J.H., Tett, P.B., Argote-Espinoza, M.L., Edwards, A., Jones, K.J., Savidge, G., 1982. Mixing and phytoplankton growth around an island in a stratified area. *Cont. Shelf Res.* 1, 15–31.
- Stevenson, C., Katz, L.S., Micheli, F., Block, B., Heiman, K.W., Perle, C., Weng, K., Dunbar, R., Witting, J., 2007. High apex predator biomass on remote Pacific islands. *Coral Reefs* 26, 47–51.
- Sumaila, U.R., Guenette, S., Alder, J., Pollard, D., Chuenpagdee, R., 1999. Marine protected areas and managing fished ecosystems. CMI Report R 1999, 4.
- Thirgood, S., Mosser, A., Tham, S., Hopcraft, G., Mwangomo, E., Mlengeya, T., Kilewo, M., Fryxell, J., Sinclair, A.R.E., Borner, M., 2004. Can parks protect migratory ungulates? The case of the Serengeti wildebeest. *Anim. Conserv.* 7, 113–120.
- Thurstan, R.H., Brockington, S., Roberts, C.M. 2010. The effects of 118 years of industrial fishing on UK bottom trawl fisheries. *Nature Communications*. 1, Article number: 15. doi:10.1038/ncomms1013.
- United Nations 2002. Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August–4 September 2002. A/CONF.199/20. UN, New York, USA.
- van der Elst, R., Everett, B., Jiddawi, N., Mwatha, G., Afonso, P.S., Boulle, D., 2005. Fish, fishers and fisheries of the Western Indian Ocean: their diversity and status. A Preliminary Assessment. *Philos. Trans. R. Soc. B* 363, 263–284.
- Verity, P., Smetacek, V., Smayda, T., 2002. Status, trends and the future of the marine pelagic ecosystem. *Environ. Conserv.* 29 (2), 207–237.
- Veron, J.E.N., Hoegh-Guldberg, O., Lenton, T.M., Lough, J.M., Obura, D.O., Pearce-Kelly, P., Sheppard, C., Spalding, M.D., Stafford-Smith, M.G., Rogers, A.D., 2009. The coral reef crisis: The critical importance of <350 ppm CO<sub>2</sub>. *Mar. Pollut. Bull.* 58, 1428–1436.
- Walsh, W.A., Ito, R.Y., Kawamoto, K.E., McCracken, M., 2005. Analysis of logbook accuracy for blue marlin (*Makaira nigricans*) in the Hawaii-based longline fishery with a generalized additive model and commercial sales data. *Fish. Res.* 75, 175–192.
- Walters, C., 2000. Impacts of dispersal, ecological interactions, and fishing effort dynamics on efficacy of marine protected areas: how large should protected areas be? *Bull. Mar. Sci.* 66, 745–757.
- Watson, J.T., Essington, T.E., Lennert-Cody, C.E., Hall, M.A., 2009. Trade-offs in the design of fishery closures: management of silky shark bycatch in the eastern Pacific Ocean tuna fishery. *Conserv. Biol.* 23, 623–635.
- Wilkinson, C., 2008. Status of Coral Reefs of the World. Global Coral Reef Monitoring Network and Reef and Rainforest Research Center, Townsville, Australia. pp. 296.
- Williams, S.T., Knowlton, N., Weight, L.A., 1999. Indo-pacific molecular biogeography of the coral-dwelling snapping shrimp *Alpheus lottini* (Decapoda: Caridea: Alpheidae). In: Sheppard, C.R.C., Seaward, M.R.D. (Eds.), *Ecology of the Chagos Archipelago*. Linnean Society Occasional Publications 2, pp. 195–206.
- Williamson, P. (ed.) 2009. Marine conservation in the British Indian Ocean Territory: science issues and opportunities. Report of Workshop held 5–6 August 2009 at the National Oceanography Centre, Southampton. UK Natural Environment Research Council, Swindon SN2 1EU. pp. 20.
- Wood, L.J., Fish, L., Laughren, J., Pauly, D., 2008. Assessing progress towards global marine protection targets: shortfalls in information and action. *Oryx* 42, 340–351.
- Worm, B., Lotze, H.K., Hillebrand, H., Sommer, U., 2002. Consumer versus resource control of species diversity and ecosystem functioning. *Nature* 417, 848–851.
- Worm, B., Lotze, K., Myers, R., 2003. Predator diversity hotspots in the blue ocean. *Proc. Nat. Acad. Sci.* 100 (17), 9884–9888.
- Worm, B., Sandow, M., Oschlies, A., Lotze, H.K., Myers, R.A., 2005. Global patterns of predator diversity in the open oceans. *Science* 309, 1365–1369.



**Annex 64**

Note Verbale No. 6/2010 from British High Commission to  
Mauritius Ministry of Foreign Affairs, 15 February 2010

Note No. 06/2010

The High Commission of the United Kingdom of Great Britain & Northern Ireland presents its compliments to the Ministry of Foreign Affairs, Regional Integration and International Trade and with reference to the Ministry's Note number 1197/28/4 of 30 December 2009 regarding the postponement of holding Bilateral Talks on areas of mutual cooperation with regards to the British Indian Ocean Territories.

The High Commission should be grateful for an indication as to when the Government of Mauritius would be willing to reschedule such a meeting: either in London or Port Louis.

The High Commission of the United Kingdom of Great Britain & Northern Ireland avails itself of this opportunity to renew to the Ministry of Foreign Affairs, Regional Integration and International Trade, the assurances of its highest consideration.

British High Commission  
Port Louis  
15 February 2010



**Annex 65**

Submission from Joanne Yeadon,  
30 March 2010



Foreign &  
Commonwealth  
Office

(pw) *Kejibama*

*[Signature]*

1.4.2010

Overseas Territories Directorate  
King Charles Street  
London  
SW1A 2AH

Tel: 020 7008 2890  
Fax: 020 7008 1589  
www.fco.gov.uk

## Submission

To Collin Roberts (agreed in draft)  
PS/Chris Bryant )  
PS/Foreign Secretary ) submitting in parallel

From Joanne Yeadon  
Date 30 March 2010  
Pages 5

### BRITISH INDIAN OCEAN TERRITORY (BIOT): PROPOSED MARINE PROTECTED AREA (MPA): NEXT STEPS

#### Issue

1. How to progress the proposal for the establishment of a Marine Protected Area (MPA) in the British Indian Ocean Territory.

#### Timing

2. Immediate. The consultation report is widely anticipated and we should put it into the public domain as soon as we can.

#### Preferred options

3. That the Foreign Secretary announces the publication of the report on the responses to the FCO public consultation into whether to create an MPA in the Territory; commenting on the level of interest in the consultation and general support for environmental protection and for a no-take fishing zone; noting that the consultation has thrown up a range of views which need to be explored further; stating that he believes that the establishment of an MPA is the way ahead for the protection of the environment of the Territory and that he will ask officials to work towards this. But he should stop short of announcing that he is going to ask the BIOT Commissioner to declare an MPA in the Territory at this stage. I attach a draft statement which could be used as both as a press statement and as a Written Ministerial Statement.

#### Agreed by

4. Legal Advisers, Port Louis, DEFRA, PRT and Press Office.

#### Parliamentary and Media

5. Media

The public consultation attracted a large amount of media coverage in all the major nationals including the Times, the Guardian & the Daily Telegraph. Articles have supported the establishment of an MPA in principle but have also raised the issue of the Government policy over the Chagossians past and present. We can expect any announcement by the

Foreign Secretary on whether to establish an MPA to attract equal coverage including further debate about the Government's policy towards the Chagossians. The MPA consultation has attracted large press coverage in Mauritius which has been consistently anti-UK.

## 6. Parliamentary

The public consultation has stimulated a high level of interest in Government policy on the Territory and has resulted in the tabling of some 26 PQs on BIOT since the beginning of the year (compared with around 20 in the whole of 2009). The consultation has led the All Party Parliamentary Group on the Chagos to increase their efforts to secure the right of return for the Chagossians. Baroness Whitaker and Jeremy Corbyn MP have written to the Prime Minister and followed the letters up with meetings with No.10. Mr Corbyn led a Westminster Hall Debate on BIOT on Wednesday 10 March. Lord Luce has been actively lobbying the US Embassy and plans to call on the Department of Defense and State Department when he visits Washington at Easter. The Mauritian High Commissioner in London has also been active and has met with the Foreign Affairs Committee handing over a paper detailing Mauritian views on sovereignty and the MPA to which the Foreign Secretary responded on 23 February.

A vocal minority led by Labour backbenchers and the Liberal Democrats continue to press the case for resettlement. A number of their MPs attended the Westminster Hall debate. But even among these there is a diversity of views and Mr Corbyn was unsuccessful in his efforts to claim that there were only two views: for and against the Government. We judge that there are many more MPs who support the environmental protection objectives of a BIOT MPA, but who have no wish to get involved in the wider politics.

## Argument

7. Given the amount of heat created by the public consultation it is worth recalling that:
  - (a) The consultation was (only) about how to strengthen protection of the marine environment in BIOT;
  - (b) It was expressly without prejudice to the sovereignty claim of Mauritius;
  - (c) It was expressly on the basis of current government policy against resettlement, but without prejudice to any outcome from the case in progress at Strasbourg.
8. I attach the Consultation facilitator's report on the consultation and summarise the outcome in the background below. If you take the petitions out of the equation, the majority of responses support the establishment of a full no-take MPA, although a large number of responses point out the need to resolve the Chagossian issue. The largest single response was a petition which supports an MPA but refers to working with Chagossians to protect the reef, which attracted over 200,000 signatures. But a consultation is not a vote but a qualitative exercise to collect views and evidence.
9. It is clear from our work so far and from the consultation exercise that establishing an MPA in BIOT would be a significant environmental move. Many in the environmental and scientific community would welcome it, but recent conferences have shown there would be those that pointed to the need for Chagossian involvement. It is also clear that there are still a significant number of technical and resource issues to work through and we need more time to manage political stakeholders, such as Mauritius and those lobbying for Chagossian resettlement.

## Relations with Mauritius

10. The Mauritian Government accepts the underlying objective of strengthening environmental stewardship in the region but they remain unhappy with what they see as the unilateral FCO consultation – even though we made it clear in the consultation document that any decision to create an MPA will have no impact on the UK's commitment to cede the Territory to Mauritius when it is no longer needed for defence purposes. We have also offered them the opportunity of a joint statement which places a sovereignty "umbrella" over all the work on the MPA. The Mauritians continue to insist that any MPA takes account of their sovereignty claim and includes the resettlement of the Chagossian community – both red lines for UK Government policy on the Territory as the Mauritians know.
11. Mauritius' position hardened notably following the tete-a-tete between Gordon Brown and PM Ramgoolam at CHOGM. PM Ramgoolam has, historically, been moderate on BIOT. But he insists that Gordon Brown promised to halt the MPA consultation at CHOGM and he briefed the Mauritian press accordingly following his return from Port of Spain. [REDACTED] He believes the FCO has ignored Gordon Brown's promise and this causes him greatly to distrust our position, especially in an election year.
12. Mauritian delegations at international meetings subsequently appear to have been briefed to raise their claim of sovereignty when they can. So far this has been done at the Commonwealth Meeting in London on 25 February, the Biodiversity Meeting in Bali attended by Hillary Benn on 25 February, and at the Indian Ocean Tuna Commission 1-4 March. Mauritius also complained to the Human Rights Council on 1 March over the Secret Detentions Report. They had no complaints over the substance of the report but did not like the fact that the study had used the terminology "British Indian Ocean Territory" rather than "Chagos Archipelago" and made their standard claim to sovereignty over the territory which we rebuffed. They have also approached the IMO.
13. The Mauritians have also since declined to take up our offer of a third round of bilateral talks, demanding that the MPA consultation be cancelled before a third round of talks could take place. There is little prospect of Mauritius changing tack before their own general elections (due in May or July/August). But, assuming Ramgoolam wins the elections, they may be willing to come back to the table thereafter.
14. We do not need Mauritius' agreement to declare an MPA. Indeed they have never expressed any interest in any of the many environmental protection measures taken in BIOT in recent years (although these were taken before the establishment of the bilateral dialogue). Nevertheless, it is clear that any move to establish an MPA before their elections [REDACTED] and may lead them to consider and possibly even attempt some form of international legal challenge.

#### Parliamentary Reaction

15. The All Party Parliamentary Group will continue to lobby on behalf of the Chagossian community and seek their right to return to the Territory. They view the creation of an MPA as a possible means of facilitating such a return. Without resettlement, the APPG will not support the establishment of an MPA.

#### Chagossians (including legal action)

16. While one Chagossian group (the Diego Garcian Society in Crawley) is in favour of the overall approach, the largest group has come out against any proposal which does not include the right of return. Richard Gifford, Olivier Bancoult's solicitor, made

it clear during the VTC between the consultation facilitator and the Mauritian Chagossian Community that he plans to mount a legal challenge over the consultation process. This was always on the cards and he has already sent a pre-action letter. We have managed the consultation to minimise the chance of a successful action for judicial review. But we have to accept that Bancoult's lawyers will challenge anything we do. Although an ECtHR judgment in favour of HMG will make this harder for them.

17. Questions in connection with an MPA's compliance with the UN Convention on the Law of the Sea have been raised by a number of lawyers responding to the consultation and by one of the Japanese fishing fleets. While our initial view is that nothing proposed so far would be in conflict with UNCLOS, we need to be absolutely sure. Legal Advisers have been tasked to work through some of the issues raised.

### Costs

18. There are also budgetary questions to be sorted out. Options 2 and 3 in the consultation document (MPAs with a degree of residual pelagic fishing) can probably be managed within our existing budget. But if we move immediately to a full no-take MPA we will need a satisfactory funding arrangement to replace the income from the sale of fishing licences. Developments in other Overseas Territories have removed any flexibility from the Overseas Territories Programme Fund. The Pew Trust Group is seeking funding from charitable trusts/organisations and they say they are close to putting a funding proposal to us.

[REDACTED] We believe we can progress this issue, but it will take more time and there is little prospect of a contribution from other interested Government departments (Defra, DfID, MoD) in the current resource climate. Without full funding for increased fisheries protection, and without the presence of licensed fishing vessels to report on unlicensed fishers, there is a risk that the declaration of a no-take zone would result in a "paper park" and lead to reduced rather than enhanced environmental protection.

### Conclusion

19. None of the above is insurmountable and we must recognise that the majority of respondents to the consultation support an MPA (albeit with caveats relating to the Chagossians). We could make a decision now. But, for the reasons set out above, we are likely to be able to do so more securely and with less hostility if we take more time to work through the various issues. We, therefore, recommend a positive, but not definitive, announcement.

### Background

20. The Foreign Secretary launched the public consultation on 10 November 2009. The consultation closed on 5 March following a short extension to allow us to consult with Chagossian communities in Mauritius. The facilitator has now completed her report (Flag A).
21. The response to the consultation was high, with over a quarter of a million people registering a view (although the vast majority of these were in response to petitions both for and against an MPA). Ninety per cent of respondents made clear they supported greater marine protection of some sort. The main difference between responses was their view on potential resettlement of the Chagossian community.

Of those who supported one of the 3 listed options for marine protection, the great majority supported option 1: declaration of a full no-take zone.

22. As expected support for options 2 & 3 (fishing allowed at certain times of the year and full protection for the reefs only respectively) came from the Indian Ocean commercial tuna fishing community as well as fleets from Europe and Japan who fish in the area. The Indian Ocean Tuna Commission and officials and representatives in the Seychelles shared this view.
23. Opposition to any of the proposals came mainly from members of the Chagossian community and signatories to the Marine Education Trust petition.
24. Support for a zoned-use or an Indian Ocean Network approach came from MRAG, the Seychelles Environment Ministry and the Joint Nature Conservation Committee.

### Resource implications

25. As mentioned above, we have not managed to secure funding to replace the revenue brought into BIOTA by the sale of fishing licences. We would, therefore, face a shortfall of around £1 million a year for patrols on top of the £1.5 million OTD already provides from the OTPF.

*Joanne Yeadon*

Joanne Yeadon  
Head of BIOT & Pitcairn Section

Number of attachments: 2

cc: PS/Baroness Kinnock  
Colin Roberts, OTD

[REDACTED]



## DRAFT WMS/PRESS STATEMENT

I am pleased today to publish the report on the consultation that I announced on 10 November 2009 into whether to create a Marine Protected Area in the British Indian Ocean Territory.

The response to the consultation has been impressive both in terms of quality and quantity. There is clearly a great deal of interest in the idea of a Marine Protected Area and, more generally, in ensuring the on-going protection of the environment in BIOT.

I am absolutely clear that the UK should do all it can to protect the unique environment of BIOT and I believe that the way ahead should include the establishment of an MPA.

But the consultation has raised a range of issues which demonstrate that further work needs to be done to ensure that this is achieved in a realistic, sustainable and affordable way as part of a strategic approach. I have, therefore, instructed officials to take work forward to that end.

**Annex 66**

Email from Joanne Yeadon to Ewan Ormiston,  
31 March 2010

vi) that BIOTA/FCO ensures through the programme of facilitated visits to the territory that representatives of the Chagossian community have opportunities to engage in activities in support of the MPA and other environmental protection measures in BIOT.

---

**From:** Joanne Yeadon (Restricted)  
**Sent:** 31 March 2010 11:47  
**To:** Ewan Ormiston (Restricted)  
**Cc:** Colin Roberts (Restricted); Andrew Allen (Restricted); John Murton (Restricted); Jennifer Townson (Restricted)  
**Subject:** [REDACTED]: BIOT: MARINE PROTECTED AREA  
**Importance:** High

Ewan,

The Private Office have just telephoned. The Foreign Secretary is minded to ask Colin to declare an MPA and go for option 1 (full no-take zone). BUT FINAL DECISION NOT YET TAKEN.

The FS has said that in an ideal world, he would like to go for declaring an MPA and spend the next 3 months reaching some sort of agreement with the Mauritian Government on the governance (management) of the area but making it clear that we will have 3 months to consult them. But if they don't come to any agreement, we will go ahead anyway. **He has asked for ideas, whether the above is feasible, what are the implications? His objective is to find a way to mitigate the Mauritian reaction.** We need to get something to him this afternoon.

Our initial reaction here is that the Mauritians, having managed themselves into a corner publicly and insisting that any MPA must deal with sovereignty and resettlement, they will find it hard to backtrack especially as the UK will not be able to move on sovereignty/resettlement. Also, if the Mauritian election is called today, as suggested in an earlier telecon, when will the election be held? Will it be possible for the Mauritians to undertake such talks. Would they be willing? But would be grateful for your views.

Alongside this, we will need to stress that we are also concerned about the reaction from Parliament, Chagossians and threat of legal action & to stress the point about funding again.

Joanne

*Joanne Yeadon  
Head of BIOT and Pitcairn Section  
Overseas Territories Directorate  
Tel: 020 7008 2890  
Fax: 020 7008 1589  
[www.fco.gov.uk](http://www.fco.gov.uk)*

**Annex 67**

Email from Global Response Centre to Joanne Yeadon,  
1 April 2010

Joanne Yeadon (Restricted)

Pw

MPA

From: Global Response Centre (Restricted)  
Sent: 01 April 2010 22:20  
To: Joanne Yeadon (Restricted)  
Cc: DL PO - PS (Restricted); DL PO - SPADS (Restricted); No 10 Duty Clerks (No 10) (Conf); David Frost (Restricted); Geoffrey Adams (Restricted); Michael Howes (Restricted); GCO Office (Restricted); Colin Roberts (Restricted); John Murton (Restricted); Newsdesk (Restricted); Global Response Centre (Restricted); PUS Action/Info (Restricted); PS Kinnock - Info (Restricted); PS Lewis - Info (Restricted); PS Bryant - Info (Restricted); DL PO - Press (Restricted); Ewan Ormiston (Restricted); Sarah Riley (Restricted); Tom Fletcher (No 10) (Conf); Sarah Bamber (Restricted); John Dennis (Restricted); Andrew Pocock (Restricted)  
Subject: RESTRICTED: RECORD OF FOREIGN SECRETARY TELECON WITH NAVIN RAMGOOLAM, MAURITIUS PRIME MINISTER: THURSDAY 1 APRIL 2010, 15:00  
Registered: Yes  
Security Label: [REDACTED]

*[Handwritten signature]* 6.4.2010

**\*\* REGISTERED \*\***

From Global Response Centre. Please distribute further as necessary

[REDACTED]: RECORD OF FOREIGN SECRETARY TELECON WITH NAVIN RAMGOOLAM, MAURITIUS PRIME MINISTER: FRIDAY 1 APRIL 2010, 15:00

1. The Foreign Secretary said that he wanted to inform the Mauritius Prime Minister that he would today instruct the BIOT Commissioner to establish a Marine Protected Area (MPA) in the British Indian Ocean Territory. We were telling the Prime Minister this in advance as we did not want there to be any surprises.
2. The Foreign Secretary said that both the UK and Mauritius were committed to the environmental agenda and the establishment of the MPA had no impact on the UK commitment to cede BIOT to Mauritius when the territory was no longer needed for defence purposes. Nor would it prejudice the legal position of Mauritius or the Chagos Islanders. The UK valued the relationship with Mauritius and the Foreign Secretary hoped that we could cooperate together to ensure that the MPA was a success.
3. The Foreign Secretary said there had been a very large response to the consultation exercise with about a quarter of a million responses. This was a remarkable number. The majority of the responses were straightforward but there had also been responses from the environmental, political, governmental and scientific communities and some from the business community. The consultation showed that those arguing for commercial exploitation of the area were clearly in the minority. There had been some debate around the no-take approach and there was overwhelming support for that.
4. Ramgoolam said that he was disappointed that there had not been bilateral discussions. He asked if it might be possible to delay the announcement until after the Mauritius elections. It was a controversial issue in Mauritius. The Foreign Secretary said that the consultation had been thorough and there had already been an extension to the consultation period. It would not be possible to delay the announcement. The UK would stress that the decision was without prejudice to the legal position of the Chagos Islanders or to the discussions with Mauritius on the Territory.

5. The Foreign Secretary said he would say very clearly that we would work with all interested parties, in Britain and internationally, on the implementation of the no-take approach. He would also make clear that our commitment to the government and people of Mauritius in respect of ceding sovereignty at the appropriate time was strong and clear. While recognising the disagreement with the Mauritius Government on the process leading up to the establishment of the MPA, he hoped that this could bring the two governments together to work in the best interests of the environment.

6. Ramgoolam said that he had to take the line that Mauritius disagreed with the decision on the MPA but he would like to say that he and the Foreign Secretary had talked about sovereignty. The Foreign Secretary stressed that the sovereignty issue had not changed and Ramgoolam should not seek to suggest that was the purpose of the phone call. If it would help, Ramgoolam could say that if both governments were re-elected then there could be early bilateral talks on the implementation of the MPA.

7. Ramgoolam said that when the Mauritians tried to talk to the United States about BIOT the Americans took the line that Mauritius needed to settle the sovereignty issue with the UK first. The Foreign Secretary said that our position was clear. We would cede the Territory to Mauritius when we no longer required the base.

Rab MacKenzie

Global Response Centre

## **Annex 68**

D. M. Ceccarelli, *The value of oceanic marine reserves for protecting highly mobile pelagic species: Coral Sea case study* (2011)

# The value of oceanic marine reserves for protecting highly mobile pelagic species: Coral Sea case study



**Daniela M. Ceccarelli**

**Jan. 31, 2011**

**Report prepared for the Protect Our Coral Sea campaign**





## Contents

Executive summary .....	3
Introduction .....	4
Positive effects of marine reserves for pelagic and migratory species .....	5
Positive ecosystem-level effects of pelagic marine reserves .....	10
Predictability of bathymetric and hydrographic features .....	11
Key arguments from marine reserve critics.....	11
Argument 1: Reserve size and migration distance.....	11
Argument 2: Fisheries losses and overexploitation .....	15
Argument 3: Governance and enforcement .....	18
Parallels with Chagos/BIOT .....	22
Conclusions .....	22
Acknowledgments.....	23
References .....	24
Appendix 1—Migratory and pelagic species of the Coral Sea.....	35

## Figures and tables

Table 1. Summary of studies predicting marine reserve benefits.....	6
Table 2. Recorded movement distances for species caught by the ETBF .....	13
Figure 1. Landings by functional groups on the northeast Australian shelf.....	17
Table 3. Catches (tonnes) of the most important ETBF species between 1998 and 2006.....	17
Table 4. Summary table of challenges raised by critics of marine reserves.....	19

## Executive summary

This paper reviews the value of marine reserves for protecting migratory and highly mobile pelagic species. Three common arguments used by critics of marine reserves were considered, and the proposed Coral Sea marine reserve was highlighted as an example of how these challenges could be met. Comparisons were made with the UK's recently established large-scale no-take marine reserve in the Chagos Archipelago. The major findings of this review are as follows:

- Recent scientific findings support the idea that large pelagic species benefit from marine reserves, because:
  - o Protecting even a part of species' range or life cycles, especially critical habitat areas which function as important feeding or breeding grounds, reduces overall population mortality. Partial protection works best in a coordinated approach for protection, including no-take marine reserves and areas of limited fishing effort;
  - o Pelagic species are not uniformly distributed, but tend to aggregate around bathymetric and hydrographic features that are predictable in space and time, making the most beneficial design of pelagic reserves possible; and
  - o Even species identified as highly migratory display predictable movement patterns where the majority (70-90 percent) of the population moves no farther than 600 kilometres (km).
- Critics of marine reserves for the conservation of pelagic species have focused on three major issues:
  - o Size: Reserves have to be very large to encompass an adequate portion of pelagic species' home ranges;
  - o Fisheries management: There is some scepticism about the use of marine reserves as a fisheries management tool, with concerns about displaced fishing effort; and
  - o Governance: There is concern that arranging governance and enforcement beyond one country's exclusive economic zone (EEZ) is too challenging.
- The proposed Coral Sea marine reserve is ideal to surmount these challenges and take advantage of the benefits, in the following ways:
  - o Size: The proposed reserve encompasses almost 1 million km<sup>2</sup>, making it large enough to protect a significant portion (if not all) the home ranges and life cycles of many pelagic species that reside within it. It is large enough to also encompass a large variety of bathymetric and hydrographic features that provide key habitat for pelagic species at vulnerable times (feeding and breeding).
  - o Fisheries management: The Coral Sea marine reserve is being proposed for broad ecosystem conservation benefits, not as a fisheries management tool. Its history of relatively low exploitation by fisheries means that pelagic, reef and deep-sea ecosystems are relatively undisturbed, making them strong candidates for conservation to prevent future exploitation, and displaced fishing would be minimal. The permanent closure of the Coral Sea would partially or wholly protect populations of species that are subject to overexploitation elsewhere along their range.

- Governance: The proposed Coral Sea marine reserve lies entirely within Australia's EEZ, making negotiations with neighbouring countries unnecessary. Precedents for managing large marine reserves exist in Australia, and the proposed reserve design (a single large no-take area) is the most cost-effective management option.

## Introduction

The open ocean, long considered invulnerable, is under increasing pressure from human impacts<sup>1,2</sup>. As coastal fisheries become depleted, and technological improvements allow fishing vessels to venture farther offshore, large migratory marine species have become more intensely exploited<sup>3,4</sup>. More than 10 years ago, researchers reported that "almost 70 percent of fished stocks are listed as 'fully fished, overfished, depleted, or recovering' "<sup>5</sup>. Numerous heavily exploited species are now of conservation concern, including tuna, billfish and sharks<sup>3,6-8</sup>. For instance, almost all sharks recorded by Baum *et al.* (2003)<sup>3</sup> underwent a 50 percent decline over the 15 years of their study. While marine reserves have steadily increased in coastal areas<sup>9</sup>, there is still a lack of adequate protection for pelagic ecosystems worldwide<sup>1,4</sup>.

Marine reserves are considered the best conservation tools available to protect marine species and habitats from exploitation<sup>10</sup>. However, the global percentage of area protected in marine reserves is less than 1 percent<sup>11</sup>, well below the proportion needed to adequately represent all biogeographic zones<sup>5,12</sup>. Ideally, marine reserves would maintain or restore native species diversity, habitat diversity and heterogeneity, keystone species and connectivity<sup>13</sup>. Diverse and complex habitats promote species diversity<sup>14-16</sup>, which in turn affects productivity<sup>17</sup>, resistance to and recovery from disturbance<sup>18</sup>, stable food web dynamics<sup>6,19</sup> and the capacity to fill all the roles required for a functioning ecosystem even if individual species disappear<sup>20</sup>. Keystone species, or species that can affect whole ecosystems through changes in their abundance<sup>6,21</sup>, and connectivity between habitats and populations are also considered critical to the persistence of ecosystems in the face of stressors<sup>16</sup>. The benefit of no-take marine reserves to the abundance and size of sedentary species, especially those with a history of exploitation, is well-documented<sup>22-24</sup>. Despite gaps in knowledge and persisting doubts about their effectiveness in protecting pelagic and migratory species<sup>25</sup>, increasing evidence suggests that marine reserves can also benefit these highly mobile species<sup>26-28</sup>.

A recent increase in the establishment of very large marine reserves that encompass pelagic and deep-sea ecosystems mirrors the positive shift in the perception of their usefulness<sup>29</sup>. The proposed no-take Coral Sea marine reserve would be one of the world's largest, covering around 1 million km<sup>2</sup> between the seaward edge of the Great Barrier Reef Marine Park and the border of Australia's EEZ<sup>30</sup>. The proposed reserve aims to protect geological, ecological, cultural and heritage values represented within the area<sup>30</sup>. The Coral Sea is regionally important, providing breeding and spawning grounds for a number of migratory species, nesting habitat for seabirds and turtles, and dispersal stepping-stones for marine species between the Pacific and the Great Barrier Reef. There is some concern that this reserve would not adequately protect highly mobile and migratory pelagic species, but parallels exist with other large-scale marine reserves where the protection of pelagic species has been one of the key goals<sup>27</sup>.

This paper reviews scientific research that assesses the benefits of marine reserves for protecting migratory and highly mobile pelagic species. This review also evaluates the case of the proposed Coral Sea marine reserve, and considers the three most common arguments against marine reserve establishment in the context of pelagic species protection. Because of similar issues, comparisons are made with the UK's recently established large no-take marine reserve in the Chagos Archipelago.

### Positive effects of marine reserves for pelagic and migratory species

Positive, measurable marine reserve effects on pelagic species exist<sup>3,31-33</sup>, including for large migratory species such as marine mammals and large predators<sup>32,34-36</sup>. The protection of such species over their whole annual range may not be realistic, but marine reserves can be used to protect them at highly vulnerable stages of their life cycles by encompassing seasonal breeding or feeding grounds, or key parts of their migratory routes<sup>34,37-39</sup>, all habitats critical to the survival of the species (critical habitat)<sup>40</sup>. Because highly mobile species are often also the most heavily exploited, they may receive some benefit even from small marine reserves, although the probability of adequate protection increases with increasing reserve size<sup>28</sup>. Spawning aggregations in particular are increasingly shown to be temporally predictable, and therefore both vulnerable to exploitation and responsive to protection<sup>23,36,41,42</sup>. Protecting vulnerable areas such as breeding or spawning grounds can result in a greater source of larvae or young to the exploited part of the population, resulting in improved breeding success and lower mortality overall<sup>36,39,43</sup>. Some researchers have suggested that protecting at least 50 percent of a species' total habitat would afford it adequate protection<sup>43,44</sup>, while others argue that for species that undertake extensive migrations, spatial protection must be coupled with strict harvest quotas<sup>45</sup>.

It is generally agreed that one large reserve is more effective for protecting wide-ranging species than a number of small reserves, even if they protect the same overall percentage of a region<sup>46</sup>. A review of marine reserves in 1999 concluded that large migratory species could not be protected with small reserves, where the largest reserve measured 350 km<sup>2</sup><sup>5</sup>. In contrast, a later review of marine reserve success included reserves in excess of 1,000 km<sup>2</sup> and found that populations of lobsters, snappers and other fish with large seasonal movements of up to 1,000 km<sup>47</sup> did benefit substantially, even if the reserves encompassed only a part of their home range<sup>23</sup>.

Critics argue that marine reserves cannot benefit mobile commercial species and are only appropriate for small-scale fisheries in tropical regions<sup>23,48</sup>. The argument against pelagic marine reserves is driven by the notion that they don't work as fisheries management tools; however, their capacity to protect ocean biodiversity is less disputed<sup>49</sup>. Protection for pelagic species already exists in some places (see also Hooker and Gerber 2004<sup>34</sup>), including:

- A number of temporary spatial closures or bans on specific gear types to protect pelagic and migratory stocks in the high seas by regional fisheries management organisations around the world<sup>50</sup>;
- Three areas totalling 17,000 km<sup>2</sup> in the Georges Bank, Gulf of Maine, partially closed to fishing<sup>23</sup>;
- The Indian Ocean and Southern Ocean Whale Sanctuaries<sup>50</sup>,

- Temporary closures by the Mexican government of fixed areas to commercial longlining off the coast of Baja California<sup>32</sup>;
- The seasonal protection of southern bluefin tuna habitat off eastern Australia<sup>51</sup>;
- Cetacean feeding, migration or calving areas in the Mediterranean Sea, the Great Australian Bight off southern Australia and the Southern Ocean<sup>34,45,52,53</sup>;
- Four areas that exclude certain fishing methods (especially purse seining) totalling 1.2 million km<sup>2</sup> stretching 7,000 km from French Polynesia to Palau, established by western Pacific island nations<sup>54</sup>;
- The 356,893-km<sup>2</sup> Papahānaumokuākea Marine National Monument in the Northwestern Hawaiian Islands;
- The 246,000-km<sup>2</sup> Mariana Trench Marine National Monument in the northern Mariana Islands, with 17 percent closed to fishing; and
- The 544,000-km<sup>2</sup> Chagos Protected Area in the Indian Ocean<sup>29</sup>.

The current lack of data from large oceanic marine reserves means that some of the evidence of their positive effects for pelagic species comes from modelling studies (Table 1)<sup>3,55</sup>. However, the most compelling proof comes from what is termed an “unintended experiment”: Fisheries catch data were compiled after a large area of the North Sea (575,000 km<sup>2</sup>) had been closed to fishing during the six years of World War II<sup>35</sup>. This study showed conclusively both increased abundance in pelagic species and larger proportions of older fish. In a more recent study, the protection of billfish from longlining in a part of their range off Baja California resulted in an overall population increase of up to 22 percent<sup>32</sup>. The recovery of whales following the combination of reduced whaling and the establishment of large whale sanctuaries also highlights the benefits of marine reserves that cover only parts of species’ ranges<sup>56,57</sup>. More recent reviews and meta-analyses have found increasing empirical evidence that highly mobile and large-bodied species exploited by fisheries tend to benefit from marine reserves of varying size<sup>26,33,37</sup>.

Table 1. Summary of studies predicting marine reserve benefits for pelagic and migratory species, using a variety of methods.

Source (method)	Location	Species	Summary of findings
Clark (1996) <sup>44</sup> (discussion paper)	Global	All exploited species	- Marine reserves need to include up to 50% of a population or home range in order to protect a species from overfishing.
Lauck <i>et al.</i> (1998) <sup>43</sup> (modelling)	Hypothetical	Hypothetical	- Marine reserves need to include up to 50% of a population or home range in order to protect a species from overfishing.
Roberts and Sargent (2002) <sup>36</sup>	Hypothetical	Hypothetical migratory fish	- Protecting important aggregation areas has a disproportionate effect on

Source (method)	Location	Species	Summary of findings
(modelling)			entire populations of highly mobile and migratory species.
Baum <i>et al.</i> (2003) <sup>3</sup> (modelling)	Northwest Atlantic	Sharks	<ul style="list-style-type: none"> <li>- Priority areas for shark conservation are highlighted.</li> <li>- Population benefits for sharks with fishing closures of different areas are modelled.</li> <li>- Marine reserves coupled with reductions in fishing effort have positive effects on sharks and other large pelagic predators.</li> </ul>
Gell and Roberts (2003) <sup>23</sup> (review)	Global	All species	<ul style="list-style-type: none"> <li>- Highlights reversal of notion that mobile species cannot be protected by marine reserves.</li> <li>- Even for highly mobile species, a portion of the population may remain within a small home range</li> <li>- Protecting migration bottlenecks, nurseries, spawning or feeding aggregation sites can benefit even highly migratory species.</li> </ul>
Worm <i>et al.</i> (2003) <sup>31</sup> (modelling)	Northwest Atlantic	Pelagic species, primarily predators	<ul style="list-style-type: none"> <li>- Identify pelagic diversity hot spots associated with productivity and habitat features.</li> <li>- Protecting hot spots from fishing has large benefits for pelagic populations.</li> <li>- Identify pelagic predator diversity hot spot in Great Barrier Reef/Coral Sea area.</li> </ul>
Willis <i>et al.</i> (2003) <sup>26</sup> (empirical, modelling)	Northern New Zealand	Snapper ( <i>Pagrus auratus</i> )	<ul style="list-style-type: none"> <li>- Density and size of snapper increase inside marine reserves, despite its high mobility.</li> </ul>
Hooker and Gerber	Global	Predators and megafauna	<ul style="list-style-type: none"> <li>- Marine reserves are beneficial for protecting predators and</li> </ul>

Source (method)	Location	Species	Summary of findings
(2004) <sup>34</sup> (discussion paper)			other megafauna (e.g., cetaceans, seabirds). - Present tools and approaches for enhancing marine reserve effectiveness.
Micheli <i>et al.</i> (2004) <sup>28</sup> (meta-analysis)	Global	All species	- Highly mobile species benefit from marine reserve protection.
Palumbi (2004) <sup>37</sup> (review)	Global	All species	- Is ambivalent about the value of marine reserves for migratory pelagic species but states that "If fishing effort is not displaced, then the impact of reserves on highly migratory species is similar to the effect of decreasing fishing effort by the same percentage as the percent area dedicated to reserves."
Hyrenbach <i>et al.</i> (2006) <sup>58</sup> (empirical)	Central California	Black-footed albatross ( <i>Phoebastria nigripes</i> )	- Advocates protecting albatross foraging grounds, even though these comprise only a part of their overall range.
Louzao <i>et al.</i> (2006) <sup>38</sup> (empirical, modelling)	Balearic Islands	Balearic shearwater ( <i>Puffinus mauretanicus</i> )	- Marine zoning measures can benefit populations of far-ranging seabirds by extending protective measures beyond their breeding colonies.
Alpine and Hobday (2007) <sup>55</sup> (modelling)	Eastern Australia	Pelagic, migratory and other species targeted by fisheries or of conservation concern	- Quantified the area requirements of pelagic protected area networks to protect pelagic species (target and non-target). - Area requirements ranged from 7 to 26% of the region for adequate protection of pelagics.
Pichegru <i>et al.</i> (2009) <sup>39</sup> (empirical)	Benguela upwelling region	Cape gannets ( <i>Morus capensis</i> ) and African	- Measured overlap between seabird feeding and commercial fishing grounds.

Source (method)	Location	Species	Summary of findings
		penguins ( <i>Spheniscus demersus</i> )	- Marine reserves in bird-feeding hot spots is likely to increase the birds' breeding success.
Beare <i>et al.</i> (2010) <sup>35</sup> (empirical)	North Sea	North Sea gadoids	- Large North Sea area unfished during World War II. - Large benefits to exploited fish, including migratory species. - Older fish benefit fastest and in greatest proportion, creating a "Mexican wave" in numbers of subsequent generations.
Claudet <i>et al.</i> (2010) <sup>33</sup> (meta-analysis)	European marine reserves	Fish	- Density and size of species targeted by fisheries increase inside marine reserves, even highly mobile species.
De Juan and Leonart (2010) <sup>4</sup> (modelling)	Mediterranean	All pelagic species	- Identifies habitats critical to pelagic species in the Mediterranean. - Advocates for marine reserve protection of pelagic species.
Jensen <i>et al.</i> (2010) <sup>32</sup> (empirical)	Baja California	Striped marlin ( <i>Kajikia audax</i> )	- Temporary closures of Mexico's EEZ to long-lining (1977–1980, 1984–1985) caused increase in striped marlin, despite its range extending outside the closed area.
Koldewey <i>et al.</i> (2010) <sup>27</sup> (review)	Global	All species	- Increasing evidence that even partial protection of highly mobile and migratory species is beneficial. - "Highly migratory" species may be based on long-range movements of a few individuals, while most of the population remains within a home range.



The Coral Sea plays a regionally important role for South Pacific pelagic fish stocks. It hosts spawning aggregations of tuna, billfish<sup>59-61</sup> and other large pelagic fish<sup>62</sup>, and contains nesting grounds for marine turtles and seabirds<sup>63,64</sup>. It is one of the few oceanic areas that has retained a high diversity of large oceanic predators<sup>31</sup> that are heavily exploited elsewhere along their range<sup>65</sup>. The wide range of bathymetric features such as reefs and seamounts attracts migratory species, including seabirds<sup>66</sup> and cetaceans<sup>67</sup>. The proposed Coral Sea marine reserve, covering an area of around 1 million km<sup>2</sup>, would ensure that a high proportion of the key areas in the life cycles and migration pathways of many pelagic species are protected (see Appendix 1).

### Positive ecosystem-level effects of pelagic marine reserves

The capacity for well-designed marine reserves to meet the objectives of maintaining or restoring species, habitats and connectivity<sup>13</sup> is increasingly well-documented, especially for shallow-water environments<sup>10,24</sup>. When species diversity is protected, for instance, rates of resource collapse decrease and recovery potential, stability and water quality increase, sometimes exponentially<sup>17</sup>. Most scientists agree that marine reserves protect habitats and biodiversity<sup>68,69</sup> by reducing stressors such as extraction<sup>55</sup>, making ecosystems more resilient and therefore better able to withstand the more pervasive effects of climate change and pollution<sup>17,70-72</sup>.

Because of the vast extent of oceanic ecosystems and the increased understanding of their value, it is now believed that pelagic marine reserves are rapidly becoming a reality in the planet's "last frontier of conservation management"<sup>11, 28,54,73</sup>, although their implementation may be both costly and difficult<sup>74</sup>. Large-scale pelagic marine reserves have the capacity to protect greater diversity, larger habitats and entire trophic webs and ecological processes<sup>29,34</sup>. As well as pelagic habitats, they would include deep-sea ecosystems that are poorly understood and yet at risk from activities such as trawling, oil and mineral exploration, and sea dumping<sup>71,73,75</sup>. Protecting entire bioregions has the benefit that pathways of connectivity will be preserved without the need for complex conservation planning to establish a marine reserve network<sup>16</sup>.

The proposed marine reserve in the Coral Sea would encompass four large-scale bioregions<sup>62</sup>, including terrestrial, pelagic, shallow, deep and abyssal ecosystems<sup>62</sup>. The cessation of fishing would not only benefit the numerous target species, but also the large number of species caught as bycatch<sup>76</sup>. The coral reefs in the Coral Sea are already vulnerable to high temperature anomalies that can cause coral bleaching and death; some of these reefs appear more vulnerable than others<sup>77</sup>. Studies of genetic connectivity<sup>78,79</sup> indicate that the Coral Sea might contain the entire genetic stock of some species, as well as the stepping-stones of dispersal between the wider Pacific Ocean and the Great Barrier Reef<sup>80</sup>. Preliminary research suggests that the Coral Sea's deep-sea habitats are vulnerable, patchy and important for deep-diving pelagic species<sup>81</sup>. A permanent closure would safeguard critical habitats such as breeding and feeding hot spots, support the resilience of ecosystems and connectivity pathways, and therefore enhance the persistence of pelagic populations.

## Predictability of bathymetric and hydrographic features

Despite the perception that the open ocean is relatively featureless and large species move through it more or less at random, there are persistent and predictable bathymetric and hydrographic features<sup>3,31,82</sup>. Hyrenbach *et al.* (2000)<sup>82</sup> distinguished between three types of oceanic features that can be mapped: 1) static systems, defined by topographic features; 2) persistent hydrographic features, such as currents and frontal systems; and 3) ephemeral habitats, shaped by wind- or current-driven upwellings and eddies. All three types of features are known to attract aggregations of marine life and may be identified by analysing the foraging distribution of higher predators<sup>82</sup> or by making use of sophisticated real-time imagery<sup>11</sup>. The tendency for pelagic species to aggregate in predictable seasons and areas of ocean has made them highly exploitable, and predicting the location of aggregations of commercially valuable species has been important in fisheries oceanography<sup>55</sup>. Even highly migratory species have been found to travel along predictable pathways defined by topographic or oceanographic features<sup>83</sup>. In fact, the predictability of movements and aggregations of terrestrial migratory species has already been applied to the protection of migratory species on land and is considered viable in the open ocean<sup>733</sup>.

Topographic features such as shelf breaks, canyons and seamounts alter the water flow above them, causing highly productive plankton blooms or swarms<sup>82</sup>. Turbulent water flow in the lee of islands and emergent reefs also serves to retain the planktonic food sources of pelagic fish<sup>84</sup>. These features have been shown to act as highly effective natural aggregation devices for tuna and other migratory species, primarily for feeding<sup>85,86</sup>, but also for breeding<sup>87</sup>. Hydrodynamic features such as eddies, currents, upwellings, downwellings or fronts are also areas of high productivity, attracting species from all trophic levels<sup>82</sup>. Temperature fronts, or water mass boundaries, are well-known as biological hot spots and migration corridors<sup>88,89</sup>. The dynamic nature of these features has served to fuel the argument against spatial closures<sup>51,55</sup>, but many of these features are predictable in space and time and can be tracked remotely<sup>11</sup>.

The Coral Sea contains more than 30 emergent reefs and atolls, part of a major seamount chain, four major plateaus and a series of troughs, slopes, canyons and abyssal plains<sup>62,90</sup>. Major currents, gyres and eddy systems interact with these bathymetric features, creating a complex pattern of hydrodynamic regimes with the potential to support numerous hot spots of pelagic diversity<sup>91</sup>. Most of these features and communities remain to be studied, but existing research has shown increased productivity in the lee of islands and reefs<sup>84</sup> and an increase in the abundance of the larvae of some tuna and billfish species near reefs and islands<sup>92</sup>. A further study has indicated that broadbill swordfish may set up resident populations in the vicinity of seamounts, and favourable conditions for this exist in the Coral Sea<sup>60</sup>. Sophisticated remote sensing tools exist that can map the position, movement and extent of areas likely to attract aggregations of pelagic life<sup>11</sup>. Protecting the entire Coral Sea would ensure the inclusion of these features, and the large size of the reserve would allow for seasonal or annual movements of the more dynamic fronts, eddies and currents.

## Key arguments from marine reserve critics

### Argument 1: Reserve size and migration distance

A key argument against oceanic marine reserves is that they would need to be exceedingly large to adequately protect migratory species<sup>74</sup>. It is argued that even species that habitually

reproduce or feed in an area of ocean do not exhibit the level of site fidelity needed for a marine reserve. For instance, Kaplan *et al.* (2010)<sup>74</sup> argue that the tropical skipjack tuna (*Katsuwonus pelamis*) does not undertake consistent feeding or breeding migrations, making it difficult to establish a reserve for its protection in the right place. Similarly, the population of whale sharks protected by the Ningaloo Marine Park is in decline, due to intensifying threats elsewhere along its range<sup>93</sup>. However, it has previously been shown that even protecting one part of a tuna's home range or life cycle can have an overarching positive effect on its overall stocks<sup>94</sup>. A modelling study showed that because highly mobile species are often also the most heavily exploited, they are most likely to benefit from marine reserves, with larger reserves affording greater protection<sup>28</sup>. Partial protection for migratory species cannot be considered futile<sup>4,95</sup>.

In fisheries management, the phrase "highly migratory" can be derived from the long-range movements of a few individuals within a population, with studies of tuna mobility demonstrating they would benefit from national-level closures<sup>94</sup>. For instance, in assessing the efficacy of the Chagos marine reserve for the protection of tuna stocks, Sheppard (2010)<sup>22</sup> questioned the distances implied by "highly migratory" and found that the average distance travelled by tagged tunas meant that they would spend relatively little time outside the reserve. Even for a species shown to be highly migratory (the striped marlin [*Kajikia audax*]), reduction in fishing pressure over a small part of its range resulted in measurable improvement<sup>32</sup>. Another study cautions that long-range movement may be undertaken by only some members of a population and that generalizations about the mobility of the entire population may be inappropriate<sup>26</sup>.

Applying this argument to the Coral Sea, migration distances reported in the available literature were collated for the pelagic species most targeted by the Eastern Tuna and Billfish Fishery, after Hobday (2010)<sup>96</sup>. If movement data were available, further species were added if they were highly valued by the game-fishing industry or often caught as bycatch (Table 1). Species with the ability to undertake migrations of more than 1,000 nautical miles tend to move between 400-600 nautical miles on average (Table 2). While this may take them into the EEZs of other Pacific nations, there is a high likelihood that they may spend 50 percent of their time inside the Coral Sea, effectively complying with the guidelines set up by Clark (1996)<sup>44</sup> and Lauck *et al.* (1998)<sup>43</sup> for adequate protection. Sibert and Hampton (2003)<sup>94</sup> state that while international arrangements are ideal, protection of tuna stocks within an individual country's EEZ is also highly effective.

Table 2. Recorded movement distances for species caught by the Eastern Tuna and Billfish Fishery, ranked in order of importance after Hobday (2010)<sup>96</sup>. Also added are five species (below the line) that feature strongly in fisheries, as target or bycatch species. For a more comprehensive list of pelagic and migratory species that are exploited in the Coral Sea or elsewhere, and may therefore benefit from protection, see Appendix 1.

Species	Info	Reference
<b>Yellowfin tuna</b>	34 tunas tagged in the Coral Sea and recaptured, most along the New South Wales (NSW) coast within 200 nautical miles (nm) of release; longest straight-line distance between release and recapture was 569 nm after 9 months.	Hampton and Gunn (1998) <sup>97</sup>
	273 tunas tagged by game fishers, most recaptured within the Australian Fishing Zone less than 600 nm from release.	
	Most tunas tagged by the Australian Commonwealth Scientific and Research Organization (CSIRO) in the Coral Sea were caught close to the release area.	
	Median lifetime displacement of 336-376 nm, mostly northeast into EEZs of other Pacific Island nations.	Sibert and Hampton (2003) <sup>94</sup>
	Average distance travelled for all individuals recaptured from 2006 to 2008 was 247 nm.	Industry & Investment (I&I) NSW (2009) <sup>98</sup>
<b>Broadbill swordfish</b>	Median movement of tagged fish was 744 km.	Sedberry and Loefer (2001) <sup>99</sup>
	Average distance travelled during 193 days was 30 ± 43 km.	Sepulveda <i>et al.</i> (2010) <sup>100</sup>
<b>Bigeye tuna</b>	Most tuna tagged by CSIRO in the Coral Sea were caught close to the release area.	Hampton and Gunn (1998) <sup>97</sup>
	90% of tuna captured within 150 nm of tagging location.	Clear <i>et al.</i> (2005) <sup>101</sup>
<b>Albacore tuna</b>	Two individuals tagged and recaptured: one moved 302 nm, the other 1,727 nm.	I&I NSW (2009) <sup>98</sup>
	Average distance travelled was 859.25	Cosgrove <i>et al.</i> (2010) <sup>102</sup>

Species	Info	Reference
	km.	
<b>Dolphinfish</b>	Move distances of up to 440 km.	Kingsford and Defries (1999) <sup>103</sup>
	Average distance travelled for all individuals recaptured from 2006 to 2008 was 112.6 nm.	I&I NSW (2009) <sup>98</sup>
<b>Striped marlin</b>	90% of 360 tagged individuals were recaptured less than 1,000 km from the tagging location.	Jensen <i>et al.</i> (2010) <sup>32</sup>
	Mean straight-line distance per fish was 921 ± 264 km.	Holdsworth <i>et al.</i> (2009) <sup>104</sup>
	Average distance of 280 nm	Squire Jr. (1974) <sup>105</sup>
	The majority of striped marlin released off Australia have a mean displacement of less than 200 nm (after six to nine months).	Bromhead <i>et al.</i> (2004) <sup>106</sup>
	Average distance travelled for all individuals recaptured from 2006 to 2008 was 214.2 nm.	I&I NSW (2009) <sup>98</sup>
<b>Shortfin mako shark</b>	Move between ocean basins, enough to cause a lack of genetic differentiation.	Schrey and Heist (2003) <sup>107</sup>
	Approximately 75% of the makos travelled less than 500 nm from their original tagging location with a mean distance of 398.	Kohler <i>et al.</i> (2002) <sup>108</sup>
	Average distance for seven juveniles tracked between six and 45 hours was 55 km.	Sepulveda <i>et al.</i> (2004) <sup>109</sup>
	Average distance travelled for all individuals recaptured from 2006 to 2008 was 571 nm.	I&I NSW (2009) <sup>98</sup>
	Tagged off eastern Australia, stayed within the region.	Stevens <i>et al.</i> (2010) <sup>110</sup>
<b>Blue shark</b>	82% of recaptured blue sharks travelled less than 1,000 km.	Queiroz <i>et al.</i> (2005) <sup>111</sup>
	More than 75% of the blue sharks travelled less than 1,000 nm from their original tagging location with a	Kohler <i>et al.</i> (2002) <sup>108</sup>

Species	Info	Reference
	mean distance of 463 nm.	
	Average distance travelled for all individuals recaptured from 2006 to 2008 was 697 nm.	I&I NSW (2009) <sup>98</sup>
	Tagged off eastern Australia, stayed within the region.	Stevens <i>et al.</i> (2010) <sup>110</sup>
<b>Wahoo</b>	Can move more than 1,000 km.	Theisen <i>et al.</i> (2008) <sup>112</sup>
<b>Skipjack tuna</b>	Median lifetime displacement ranges from 420 to 470 nm.	Sibert and Hampton (2003) <sup>94</sup>
<b>Black marlin</b>	Average short-term movement of five tagged marlin was 277.4 nm.	Gunn <i>et al.</i> (2003) <sup>113</sup>
	Average distance travelled for all individuals recaptured from 2006 to 2008 was 727.5 nm.	I&I NSW (2009) <sup>98</sup>
<b>Sailfish</b>	Average distance travelled for all individuals recaptured from 2006 to 2008 was 38.6 nm.	I&I NSW (2009) <sup>98</sup>
<b>Porbeagle shark</b>	More than 90% of tagged porbeagles travelled less than 500 nm from their original tagging location, with a mean distance of 234.	Kohler <i>et al.</i> (2002) <sup>108</sup>
<b>Thresher shark</b>	Tagged off eastern Australia, stayed within the region.	Stevens <i>et al.</i> (2010) <sup>110</sup>

### Argument 2: Fisheries losses and overexploitation

Fishers are typically opposed to the establishment of marine reserves that overlap with their fishing grounds because of the perceived loss of revenue<sup>29,114</sup>, even though it has been shown that fishing yield can be equivalent between marine reserves and traditional fisheries management<sup>115</sup>. Closure of large areas to fishing may lead to displacement of fishing effort that will cause overexploitation elsewhere<sup>3,31</sup>. For instance, in a modelling study of the northwest Atlantic, the closure of an area with low to intermediate existing fishing effort simply displaced fishing effort elsewhere—to areas of higher species diversity—and increased the catch rate of most shark species<sup>3</sup>.

An economic impact assessment of fisheries closure in the high seas concluded that overall losses would be minimal in comparison with the ecosystem service and biodiversity benefits gained from such protection—it was calculated that the closure of 20 percent of the high seas may lead to the loss of only 1.8 percent of the current global reported marine fisheries catch<sup>116</sup>. It has now been established that marine reserves can export target species into adjacent fisheries, both through the emigration of adults and juveniles and the export of

propagules<sup>23,117, 118,119</sup>. This “spillover” effect must be integrated into analyses of displaced fishing effort.

It is unclear whether overexploitation of pelagic species is occurring in the Coral Sea. Global assessments consider the region lightly fished<sup>65</sup>, but estimates of catches on the northeast shelf, which include the Coral Sea, have documented large declines in catch rates (Figure 1). Furthermore, a number of species are considered at high risk from Eastern Tuna and Billfish Fishery (ETBF) longlining, most notably longfin mako sharks, crocodile sharks, pelagic thresher sharks, dusky sharks, ocean sunfish, short-finned pilot whales, false killer whales and leatherback turtles<sup>76</sup>. Two commercial fisheries (the Coral Sea Fishery, or CSF, and the ETBF)<sup>i</sup> make up the bulk of the catch in the entire Coral Sea, and the charter fishing industry targets large predators in the Great Barrier Reef Marine Park and Coral Sea<sup>120</sup>. The CSF is small (with 17 licensed operators, a mean gross value of production [GVP] of A\$866,000 between 2002 and 2006) and data-poor, making it difficult to ascertain trends and sustainability<sup>121,122</sup>. The lack of good data will make it extremely difficult to calculate the impact of the proposed closure of the CSF<sup>121</sup>.

The ETBF also operates within the entire Coral Sea area but extends farther south, and less than one-third of its catch (between 15 and 31 percent in the years 1998 to 2006) comes from the Coral Sea itself (Table 3). The largest catch per unit effort for all species within the Coral Sea comes from its southern edge<sup>123</sup>. Climate change is expected to drive many large pelagic species, including the 14 top species caught by the ETBF, farther south, suggesting that yields for this fishery in the Coral Sea are expected to decline<sup>96</sup>.

The potential costs and displaced fishing effort of recreational and charter fishing in the Coral Sea is less well-understood. The sport fishery between Cairns and Lizard Island is highly lucrative, targeting a well-known black marlin spawning aggregation<sup>60</sup>. Game fishing from charter vessels occurs around many reefs and seamounts of the Coral Sea, but data from the long-term Game Fish Tagging Program indicates that between 1989 and 2009, 99.2 percent of more than 18,000 tagged fish were caught in the Great Barrier Reef Marine Park and 0.8 percent in the Coral Sea<sup>124</sup>. It is therefore possible that the risk of displacing fishing effort is small, and that populations of tuna, shark and billfish species that are heavily exploited outside the Coral Sea may benefit from marine reserve protection along this part of their range.

---

<sup>i</sup> Five fisheries are permitted to operate in the Coral Sea. Additional fisheries to the CSF and the ETBF are the Norfolk Island Fishery, the Southern Bluefin Tuna Fishery, the Eastern Skipjack Fishery and the Torres Strait Island Fishery. Catches from these fisheries are either almost entirely from outside the Coral Sea or the data are absorbed within the ETBF for reporting purposes.

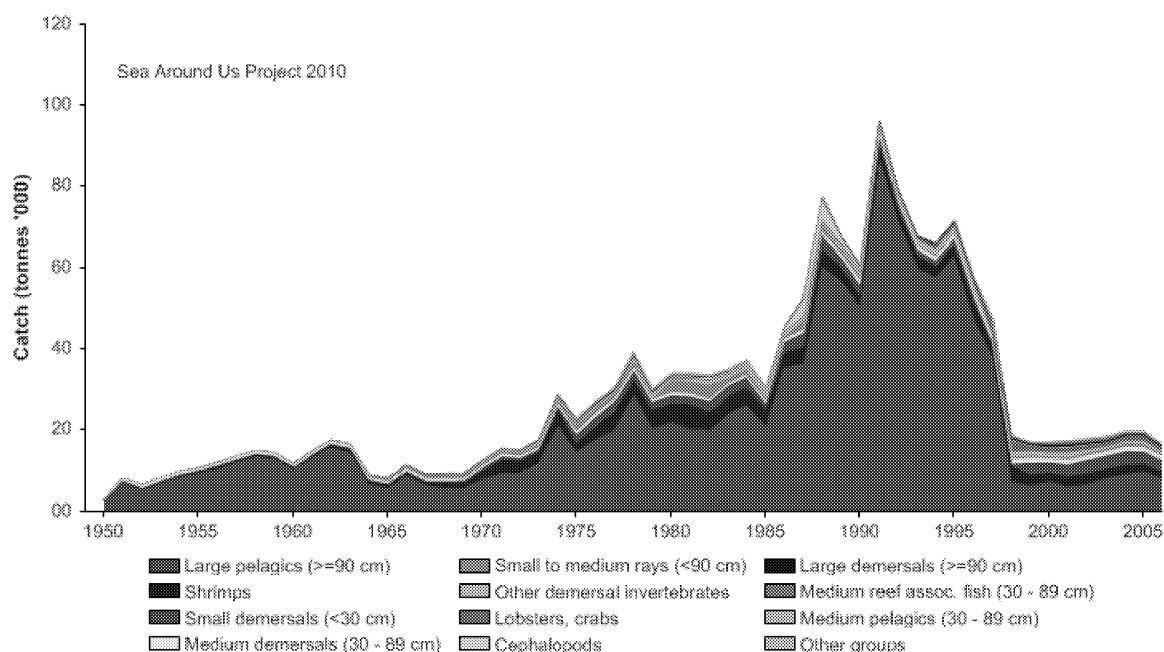


Figure 1. Landings by functional groups on the northeast Australian shelf, which includes the Coral Sea, 1950-2006. From [www.searoundus.org/lme/40/3.aspx](http://www.searoundus.org/lme/40/3.aspx).

Table 3. Catches (tonnes) of the most important ETBF species between 1998 and 2006. Data are split between catches from 25°S north (lying mostly in the Coral Sea), total catch from all areas, and the percent of the catch from above 25°S (%CS) from <sup>123</sup>.

Species	Location	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06
<b>Yellowfin tuna</b>	Coral Sea	753	258	652	778	856	465	370	463
	Total	2,144	1,306	1,499	2,460	3,390	2,407	1,945	1523
	% CS	35.1	19.7	43.5	31.6	25.2	19.3	19	30.4
<b>Bigeye tuna</b>	Coral Sea	421	196	472	324	338	200	268	137
	Total	897	679	998	1,019	934	769	822	555
	% CS	46.9	28.9	47.3	31.8	36.2	26	32.6	24.7
<b>Broadbill swordfish</b>	Coral Sea	366	216	404	324	211	121	148	127
	Total	1,651	2,081	1,854	2,336	2,175	1,669	1,637	1,447
	% CS	22.2	10.4	21.8	13.9	9.7	7.2	9	8.8
<b>Striped marlin</b>	Coral Sea	50	36	138	150	90	48	23	80
	Total	492	514	717	768	631	574	408	505
	% CS	10.2	7	19.2	19.5	14.3	8.4	5.6	15.8
<b>Albacore</b>	Coral Sea	93	76	91	159	107	64	83	809



Species	Location	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06
	Total	404	362	396	663	493	546	620	1584
	% CS	23	20.9	22.9	23.9	21.7	11.7	13.4	51.1
<b>Sharks</b>	Coral Sea	74	52	83	95	42	42	22	18
	Total	222	280	305	336	175	177	134	108
	% CS	33.3	18.6	27.2	28.3	24	23.7	16.4	16.7
<b>Other</b>	Coral Sea	126	45	209	219	129	128	100	143
	Total	334	267	862	756	644	657	546	602
	% CS	37.7	16.8	24.2	28.9	20	19.5	18.3	23.7
<b>TOTAL</b>	Coral Sea	1,884	880	2,050	2,051	1,773	1,068	1,014	1,777
	Total	6,143	5,488	6,631	8,338	8,442	6,798	6,111	6,324
	% CS	30.7	16	30.9	24.6	21	15.7	16.6	28.1

### Argument 3: Governance and enforcement

The third key criticism of pelagic marine reserves centres on the costs and logistic constraints of governance, but the greatest concerns are directed toward marine reserves in international waters<sup>4,11,74</sup>. Where a marine reserve is placed entirely within a nation's EEZ, concerns are focused less on governance issues and more on the logistics and costs of management<sup>11</sup>. Large, multiple-use marine reserves such as the Great Barrier Reef Marine Park can offer both a blueprint for the type of surveillance and enforcement required, and a cautionary tale of the effects of insufficient enforcement activity<sup>10,125</sup>.

There is still much to be learned about the enforcement of pelagic marine reserves<sup>126</sup>. In remote oceanic areas, large no-take marine reserves are easier to police than multiuse parks or even marine reserve networks<sup>22</sup>, and a recent analysis found that larger reserves cost less per unit area than smaller ones<sup>127</sup>. This same analysis examined three potential management scenarios for the Coral Sea (one large no-take reserve, a multiuse park with 30 percent of its area as no-take, and three smaller no-take areas making up 30 percent of the whole area together), and found that a single large no-take area would be the least costly to manage.

The proposed Coral Sea marine reserve would not extend beyond the boundaries of Australia's EEZ, precluding the need for complex international arrangements. Surveillance in this vast and remote area may be challenging, but there is increasing sophistication in vessel-monitoring systems (VMSs) and satellite technology<sup>11</sup>. Additionally, there are existing arrangements and infrastructure that may be used for management activities and compliance monitoring<sup>127</sup> (see also Table 4). As a relatively wealthy nation with an extended EEZ, Australia is in an ideal position to take a leading role in the global protection of oceanic species and ecosystems.

Table 4. Summary table of challenges raised by critics of marine reserves for the protection of pelagic species, with proposed solutions and counterarguments, both general and directly relevant to the Coral Sea. Table reproduced and extended from Game *et al.* (2009)<sup>11</sup>.

Issue	Challenges	Solutions and counter-arguments	Coral Sea example
<b>Biological</b>	Many pelagic species are highly mobile, often covering thousands of kilometres annually.	Spatial protection is either impossible across whole ranges or for all life-history stages, or the area required for conservation management would be unreasonably large.	The Coral Sea marine reserve would protect around 1 million km <sup>2</sup> of ocean, including islands, reefs, seamounts, open ocean, abyssal plains, plateaux and canyons. Even highly mobile species have a high probability of spending at least 50% of their life cycle in the Coral Sea (Table 1).
		Regulations or moratoria on gears or catch are more appropriate for limiting incidental capture of threatened pelagic fauna.	The ETBF still records large quantities of bycatch, and stocks of its primary target species are known to be vulnerable <sup>127</sup> .
<b>Physical</b>	The pelagic ocean is characterized by physical processes that are dynamic in space and time.	The environment is too dynamic to be represented in static reserves. Mobile reserves would be too difficult to enforce.	A Coral Sea marine reserve would encompass a number of permanent or predictable bathymetric and hydrographic features known to attract aggregations of pelagic and migratory species <sup>62</sup> .
		Many important pelagic features are either spatially or temporally predictable <sup>82</sup> , so static or dynamic marine reserves need to be designed accordingly <sup>55</sup> . For features with less predictability, mobile fisheries closures have been effectively implemented off eastern Australia based on near real-time predictions	

---

<b>Design</b>	The pelagic ocean is generally data-poor compared with terrestrial or coastal systems.	Lack of data on the complexities of pelagic ecosystems limits the selection and design of marine reserves.	of pelagic habitat <sup>51</sup> . Governance issues are also addressed below. Widespread data sets, especially time-series data on remotely sensed physical and biological features (e.g., chlorophyll), are more abundant than commonly perceived and are useful for marine reserve selection. In contrast to fisheries catch limits, the selection of pelagic marine reserves does not have to rely on full understanding of ecosystem functions.	Remote sensing data for the Coral Sea is available through a number of sources. The general understanding of the Coral Sea's bathymetry (structure of the seafloor), oceanography and ecology is good <sup>62,128</sup> .
	There is a lack of well-established design principles to inform the selection of pelagic marine reserves.	Design principles for pelagic marine reserves will need to be developed de novo.	Some existing conservation planning tools and methods can be used in the pelagic ocean (e.g., Marxan), and good case studies are starting to appear. New challenges will lead to novel solutions with broad impact.	One of the primary requirements for the protection of pelagic and migratory species is that a marine reserve be large enough to encompass at least 50% of their home range <sup>44</sup> . The Coral Sea marine reserve would protect around 1 million km <sup>2</sup> . This area is highly likely to be adequate for the protection of most pelagic and migratory species that use its habitats.
<b>Governance</b>	Marine reserves might need to extend outside a country's EEZ.	Beyond national jurisdictions there is no legal basis for marine reserves.	Numerous existing international and regional agreements can be exercised to regulate marine reserves in the high seas <sup>27</sup> .	The proposed Coral Sea marine reserve does not extend beyond Australia's EEZ <sup>30</sup> .

---

---

Exploitation of the pelagic ocean is generally difficult and expensive to observe, and it is therefore challenging to enforce regulations.	Marine reserves will be more difficult and expensive to enforce, especially in developing nations, than traditional catch or gear restrictions.	Widespread adoption of satellite VMSs, and financial support for this in developing nations, will improve remote surveillance.	Australia is a wealthy nation where technology and surveillance operations are, to some extent, already in place <sup>129</sup> . A precedent is in place for the use of existing operations for research and compliance monitoring <sup>127</sup> .
--	---	--	--

---

## Parallels with Chagos/BIOT

The newest addition to a growing list of very large marine reserves is the Chagos Archipelago or British Indian Ocean Territory, referred to by Koldewey *et al.* (2010)<sup>27</sup> as Chagos/BIOT. The ecological rationale behind the establishment of this marine reserve could easily be applied to the proposed Coral Sea marine reserve. Scientific research suggests that with 544,000 km<sup>2</sup> of ocean, reefs and seamounts, the Chagos/BIOT Marine Reserve potentially provides an excellent area for the recovery of shark, tuna and other large predators<sup>27</sup>. Similarly, the Coral Sea is highly likely to be large enough (approximately 1 million km<sup>2</sup>) to adequately protect large pelagic predators that are subject to overexploitation elsewhere along their range<sup>130</sup>. Other similarities between the two regions are the relatively intact nature of the entire system, the remoteness of the coral reefs from human impacts, their status as stepping-stones to genetic connectivity between broader regions, their regional importance for threatened and endangered species and the diversity of undersea geological features<sup>27</sup>. These criteria were crucial in driving the protection of Chagos/BIOT<sup>48</sup>.

Chagos/BIOT has met with opposition, especially from the tuna fishing industry<sup>22</sup>. Unfortunately, the lack of data about tuna catches within the reserve made it difficult to estimate the potential loss to the industry or the displacement likely to occur into other areas<sup>22,48</sup>. Estimates of the proportion of the Indian Ocean catch coming from the Chagos/BIOT area range from 2 to 6 percent<sup>22</sup>. The proportion of the ETBF catch in the Coral Sea is higher, ranging from 15 to 31 percent between 1998 and 2006. The Coral Sea Fishery operates entirely within the proposed reserve area, but its commercial value is relatively low. Recreational fishers and representatives of the game-fishing industry, rather than the commercial fishing industry, have expressed opposition to the protection of the Coral Sea (I. Zethoven, pers. comm.).

Chagos/BIOT was declared in the first half of 2010 despite a lack of existing information, apart from some fisheries data<sup>27</sup>. In comparison, despite knowledge gaps, the Coral Sea is reasonably well-understood; knowledge of underlying bathymetric and oceanographic features and biological communities has allowed broad ecological patterns and processes to be described or inferred<sup>62</sup>. There is increasing global demand to heed the precautionary principle, especially in marine ecosystems where data are scarce and fisheries decline or collapse has been well-documented<sup>13,43,44,82</sup>.

## Conclusions

This review has detected a trend in the scientific literature toward greater support for the use of marine reserves to protect migratory and highly mobile pelagic species. Recent research has demonstrated that large pelagic species targeted by fisheries benefit from marine reserves. This is most likely because:

- Even protecting a part of species' ranges or life cycles, especially critical habitat areas which function as important feeding or breeding grounds, can cause a decrease in overall population mortality;
- Pelagic species are not uniformly distributed, but tend to aggregate around bathymetric and hydrographic features that are predictable in space and time, making the most beneficial design of pelagic reserves possible; and

- Even species identified as “highly migratory” display movement patterns where the majority (70 to 90 percent) of the population moves no farther than 600 km.

Critics of marine reserves for the conservation of pelagic species have focused on three major issues. Firstly, there has been a concern that reserves have to be very large to encompass an adequate portion of pelagic species’ home ranges. Secondly, there is some scepticism about the use of marine reserves as a fisheries management tool, with concerns about displaced fishing effort causing overexploitation in adjacent areas. Thirdly, there is a great degree of difficulty associated with arranging governance and enforcement beyond one country’s EEZ .

The proposed Coral Sea marine reserve is ideally placed to surmount the challenges raised. The proposed reserve encompasses almost 1 million km<sup>2</sup>, making it large enough to protect a significant portion (if not all) of the home ranges and life cycles of most pelagic species that reside within it. It is large enough to also encompass a large variety of bathymetric and hydrographic features that provide key habitat for pelagic species at vulnerable times (feeding and breeding). It lies entirely within Australia’s EEZ, making difficult negotiations with neighbouring countries unnecessary. Existing marine operations and technology may be used for surveillance and enforcement. The Coral Sea marine reserve is being proposed as a conservation tool rather than a fisheries management strategy. Its history of relatively low exploitation, coupled with its relatively high remaining density and diversity of large pelagic predators, is considered ideal for conservation, as its ecosystems remain relatively undisturbed. Finally, a recent precedent exists: The ecological values leading to the declaration of the Chagos/BIOT marine reserve are also found in the Coral Sea.

### **Acknowledgments**

This paper has benefited greatly from peer review by Dr. Maria Beger and Dr. Natalie Ban of the Australian Research Council’s Centre of Excellence for Coral Reef Studies and Dr. Edward Game of The Nature Conservancy.

## References

1. Verity, P.G., *et al.* (2002) Status, trends and the future of the marine pelagic ecosystem. *Environmental Conservation* 29, 207-237
2. Mills, C.E., and Carlton, J.T. (1998) Rationale for a system of international reserves for the open ocean. *Conservation Biology* 12, 244-247
3. Baum, J.K., *et al.* (2003) Collapse and conservation of shark populations in the Northwest Atlantic. *Science* 299, 389-392
4. de Juan, S., and Leonart, J. (2010) A conceptual framework for the protection of vulnerable habitats impacted by fishing activities in the Mediterranean high seas. *Ocean and Coastal Management* 53, 717-723
5. Boersma, P.D., and Parrish, J.K. (1999) Limiting abuse: marine protected areas, a limited solution. *Ecological Economics* 31, 287-304
6. Myers, R.A., *et al.* (2007) Cascading effects of the loss of apex predatory sharks from a coastal ocean. *Science* 315, 1846-1850
7. Graham, N.A.J., *et al.* (2010) Reef shark declines in remote atolls highlight the need for multi-faceted conservation action. *Aquatic Conservation: Marine and Freshwater Ecosystems* 20, 543-548
8. Ward-Paige, C.A., *et al.* (2010) Large-scale absence of sharks on reefs in the greater-Caribbean: A footprint of human pressures. *PLoS ONE* 5(8): e11968. doi:10.1371/journal.pone.0011968
9. Wood, L.J., *et al.* (2008) Assessing progress towards global marine protection targets: shortfalls in information and action. *Oryx* 42, 340-351
10. McCook, L.J., *et al.* (2010) Adaptive management of the Great Barrier Reef: A globally significant demonstration of the benefits of networks of marine reserves. *PNAS* [www.pnas.org/cgi/doi/10.1073/pnas.0909335107](http://www.pnas.org/cgi/doi/10.1073/pnas.0909335107)
11. Game, E.T., *et al.* (2009) Pelagic protected areas: the missing dimension in ocean conservation. *Trends in Ecology and Evolution* 24, 360-369
12. UNEP (2010) COP 10 Decision X/2 - Strategic Plan for Biodiversity 2011-2020. <http://www.cbd.int/decision/cop/?id=12268>

13. Foley, M.M., *et al.* (2010) Guiding ecological principles for marine spatial planning. *Marine Policy* 34, 955-966
14. Caley, M.J., and St John, J. (1996) Refuge availability structures assemblages of tropical reef fishes. *Journal of Animal Ecology* 65, 414-428
15. Graham, N.A.J., *et al.* (2009) Coral mortality versus structural collapse as drivers of corallivorous butterflyfish decline. *Biodiversity and Conservation* 18, 3325-3336
16. Jones, G.P., *et al.* (2007) Population connectivity and conservation of marine biodiversity. *Oceanography* 20, 100-111
17. Worm, B., *et al.* (2006) Impacts of biodiversity loss on ocean ecosystem services. *Science* 314, 787-790
18. Palumbi, S.R., *et al.* (2008) Ecosystems in action: lessons from marine ecology about recovery, resistance, and reversibility. *BioScience* 58, 33-42
19. Dulvy, N.K., *et al.* (2004) Coral reef cascades and indirect effects of predator removal by exploitation. *Ecology Letters* 7, 410-416
20. Bellwood, D.R., *et al.* (2004) Confronting the coral reef crisis. *Nature* 429, 827-833
21. Berke, S.K. (2010) Functional groups of ecosystem engineers: A proposed classification with comments on current issues. *Integrative and Comparative Biology* 50, 147-157
22. Sheppard, C. (2010) Marine protected areas and pelagic fishing: The case of the Chagos Archipelago. *Marine Pollution Bulletin* 60, 1899-1901
23. Gell, F.R., and Roberts, C.M. (2003) Benefits beyond boundaries: the fishery effects of marine reserves. *Trends in Ecology and Evolution* 18, 448-455
24. Halpern, B.S., and Warner, R.R. (2002) Marine reserves have rapid and lasting effects. *Ecology Letters* 5, 361-366
25. Claudet, J., *et al.* (2008) Marine reserves: size and age do matter. *Ecology Letters* 11, 481-489
26. Willis, T.J., *et al.* (2003) Protection of exploited fish in temperate regions: high density and biomass of snapper *Pagrus auratus* (Sparidae) in northern New Zealand marine reserves. *Journal of Applied Ecology* 40, 214-227



27. Koldewey, H.J., *et al.* (2010) Potential benefits to fisheries and biodiversity of the Chagos Archipelago/British Indian Ocean Territory as a no-take marine reserve. *Marine Pollution Bulletin* 60, 1906-1915
28. Micheli, F., *et al.* (2004) Trajectories and correlates of community change in no-take marine reserves. *Ecological Applications* 14, 1709-1723
29. Nelson, J., and Bradner, H. (2010) The case for establishing ecosystem-scale marine reserves. *Marine Pollution Bulletin* 60, 635-637
30. Zethoven, I.e. (2008) An Australian Coral Sea heritage park., The Pew Environment Group
31. Worm, B., *et al.* (2003) Predator diversity hotspots in the blue ocean. *PNAS* 100, 9884–9888
32. Jensen, O.P., *et al.* (2010) Local management of a “highly migratory species”: The effects of long-line closures and recreational catch-and-release for Baja California striped marlin fisheries. *Progress in Oceanography* 86, 176-186
33. Claudet, J., *et al.* (2010) Marine reserves: fish life history and ecological traits matter. *Ecological Applications* 20, 830-839
34. Hooker, S.K., and Gerber, L.R. (2004) Marine reserves as a tool for ecosystem-based management: The potential importance of megafauna. *BioScience* 54, 27-39
35. Beare, D., *et al.* (2010) An unintended experiment in fisheries science: a marine area protected by war results in Mexican waves in fish numbers-at-age. *Naturwissenschaften* 97, 797-808
36. Roberts, R.C., and Sargant, H. (2002) Fishery benefits of fully protected marine reserves: why habitat and behaviour are important. *Natural Resource Modeling* 15, 487-507
37. Palumbi, S.R. (2004) Marine reserves and ocean neighborhoods: The spatial scale of marine populations and their management. *Annual Review of Environment and Resources* 29, 31-68
38. Louzao, M., *et al.* (2006) Oceanographic habitat of an endangered Mediterranean porcellariiform: Implications for marine protected areas. *Ecological Applications* 16, 1683-1695
39. Pichegru, L., *et al.* (2009) Overlap between vulnerable top predators and fisheries in the Benguela upwelling system: implications for marine protected areas. *Marine Ecology Progress Series* 391, 199-208

40. Gibson, L.E., and Wellbelove, A.P. (2010) Protecting Critical Marine Habitats: The key to conserving our threatened marine species., A Humane Society International and WWF-Australia Report
41. Claydon, J. (2004) Spawning aggregations of coral reef fishes: Characteristics, hypotheses, threats and management. *Oceanography and Marine Biology: an Annual Review* 42, 265-302
42. Pears, R.J., *et al.* (2006) Demography of a large grouper, *Epinephelus fuscoguttatus*, from Australia's Great Barrier Reef: implications for fishery management. *Marine Ecology Progress Series* 307, 259-272
43. Lauck, T., *et al.* (1998) Implementing the precautionary principle in fisheries management through marine reserves. *Ecological Applications* 8, S72-S78
44. Clark, C.W. (1996) Marine reserves and the precautionary management of fisheries. *Ecological Applications* 6, 369-370
45. Gerber, L.R., *et al.* (2005) Do the largest protected areas conserve whales or whalers? *Science* 307, 525-526
46. Walters, C. (2000) Impacts of dispersal, ecological interactions, and fishing effort dynamics on efficacy of marine protected areas: How large should protected areas be? *Bulletin of Marine Science* 66, 645-757
47. Griffiths, M.H., and Wilke, C.G. (2002) Long-term movement patterns of five temperate-reef fishes (Pisces:Sparidae): implications for marine reserves. *Marine and Freshwater Research* 53, 233-244
48. Williamson, P. (2010) Marine conservation in the British Indian Ocean Territory: science issues and opportunities. Workshop held 5-6 August 2009 at the National Oceanography Centre, Southampton supported by the NERC Strategic Ocean Funding Initiative and the Oceans 2025 programme., University of East Anglia Print Services
49. Hilborn, R., *et al.* (2004) When can marine reserves improve fisheries management? *Ocean and Coastal Management* 47, 197-205
50. Corrigan, C., and Kershaw, F. (2008) Working toward high seas marine protected areas: An assessment of progress made and recommendations for collaboration., UNEP-WCMC
51. Hobday, A.J., and Hartmann, K. (2006) Near real-time spatial management based on habitat predictions for a longline bycatch species. *Fisheries Management and Ecology* 13, 365-380

52. Notarbatolo di Sciara, G., *et al.* (2008) The Pelagos Sanctuary for Mediterranean marine mammals. *Aquatic Conservation: Marine and Freshwater Ecosystems* 18, 367-391
53. Burnell, S.R., and Bryden, M.M. (1997) Coastal residence periods and reproductive timing in southern right whales, *Eubalaena australis*. *Journal of Zoology, London* 241, 613-621
54. Pala, C. (2009) Protecting the last great tuna stocks. *Science* 324, 1133
55. Alpine, J.E., and Hobday, A.J. (2007) Area requirements and pelagic protected areas: is size an impediment to implementation? *Marine and Freshwater Research* 58, 558-569
56. Richards, R. (2009) Past and present distributions of southern right whales (*Eubalaena australis*). *New Zealand Journal of Zoology* 36, 447-459
57. Clapham, P.J., *et al.* (1999) Baleen whales: conservation issues and the status of the most endangered populations. *Mammal Review* 29, 35-60
58. Hyrenbach, K.D., *et al.* (2006) Use of marine sanctuaries by far-ranging predators: commuting flights to the California Current System by breeding Hawaiian albatrosses. *Fisheries Oceanography* 15, 95-103
59. Young, J., *et al.* (2003) Reproductive dynamics of broadbill swordfish, *Xiphias gladius*, in the domestic longline fishery off eastern Australia. *Marine and Freshwater Research* 54, 315-332
60. Speare, P. (2003) Age and growth of black marlin, *Makaira indica*, in east coast Australian waters. *Marine and Freshwater Research* 54, 307-314
61. Farley, J.H., *et al.* (2004) Age and growth of bigeye tuna (*Thunnus obesus*) in the eastern and western AFZ. *IOTC-2004-WPTT-INF04*
62. Brewer, D.T., *et al.* (2007) Ecosystems of the East Marine Planning Region., Report to Department of Environment and Water Resources. CSIRO
63. Moritz, C., *et al.* (2002) Population genetics of Southeast Asian and Western Pacific green turtles, *Chelonia mydas*., Reports to UNEP / CMS
64. Congdon, B.C., *et al.* (2007) Vulnerability of seabirds on the Great Barrier Reef to climate change. In *Climate Change and the Great Barrier Reef: A Vulnerability Assessment*. (Johnson, J.E., and Marshall, P.A., eds), Great Barrier Reef Marine Park Authority

65. Mora, C., *et al.* (2009) Management effectiveness of the world's marine fisheries. *PLoS Biology* 7: e1000131. doi:10.1371/journal.pbio.1000131
66. Baker, B., *et al.* (2008) Seabird monitoring study at Coringa Herald National Nature Reserve., Report to the Department of the Environment, Water, Heritage and the Arts by Latitude 42 Environmental Consultants Pty Ltd
67. Birtles, A., *et al.* (2008) Marine and Tropical Sciences Research Facility Annual Report, June 2008. Program 8: Sustainable Use and Management of Marine Resources of the Great Barrier Reef., Marine and Tropical Sciences Research Facility
68. Kaiser, M.J. (2005) Are marine protected areas a red herring or fisheries panacea? *Canadian Journal of Fisheries and Aquatic Sciences* 62, 1194-1199
69. Lubchenco, J., *et al.* (2003) Plugging a hole in the ocean: The emerging science of marine reserves. *Ecological Applications* 13, S3-S7
70. Hughes, T.P., *et al.* (2010) Rising to the challenge of sustaining coral reef resilience. *Trends in Ecology and Evolution* 25, 633-642
71. Williams, A., *et al.* (2010) Seamount megabenthic assemblages fail to recover from trawling impacts. *Marine Ecology* 31, 183-199
72. Hughes, T.P., *et al.* (2003) Climate change, human impacts, and the resilience of coral reefs. *Science* 301, 929-933
73. Norse, E.A. (2005) Pelagic protected areas: the greatest parks challenge of the 21st century. *Parks* 15:32–39. *Parks* 15, 32-39
74. Kaplan, D.M., *et al.* (2010) Pelagic MPAs: The devil is in the details. *Trends in Ecology and Evolution* 25, 62-63
75. Davies, A.J., *et al.* (2007) Preserving deep-sea natural heritage: Emerging issues in offshore conservation and management. *Biological Conservation* 138, 299-312
76. Wilson, D.T., *et al.*, eds (2010) *Fishery status reports 2009: status of fish stocks and fisheries managed by the Australian Government*. Australian Bureau of Resource Economics - Bureau of Rural Sciences
77. Ceccarelli, D., *et al.* (2009) Lihou Reef National Nature Reserve Marine Survey – October 2008., Report to the Department of the Environment, Water, Heritage and the Arts by C&R Consulting Pty Ltd.

78. Planes, S., *et al.* (2001) Strong genetic divergence among populations of a marine fish with limited dispersal, *Acanthochromis polycanthus*, within the Great Barrier Reef and the Coral Sea. *Evolution* 55, 2263-2273
79. Benzie, J.A.H., and Williams, S.T. (1992) Genetic structure of giant clam (*Tridacna maxima*) populations from reefs in the Western Coral Sea. *Coral Reefs*, 11(3): 135-141. *Coral Reefs* 11, 135-141
80. van Herwerden, L., *et al.* (2009) Complex patterns of population structure and recruitment of *Plectropomus leopardus* (Pisces: Epinephelidae) in the Indo-West Pacific: implications for fisheries management. *Marine Biology* 156, 1595-1607
81. Sarano, F., and Pichon, M. (1988) Morphology and ecology of the deep fore reef slope at Osprey Reef (Coral Sea). In *Proceedings of the 6th International Coral Reef Symposium*, 607-611
82. Hyrenbach, K.D., *et al.* (2000) Marine protected areas and ocean basin management. *Aquatic Conservation: Marine and Freshwater Ecosystems* 10, 437-458
83. Jorgensen, S.J., *et al.* (2009) Philopatry and migration of Pacific white sharks. *Proceedings of the Royal Society B: Biological Sciences* doi: 10.1098/rspb.2009.1155
84. Rissik, D., and Suthers, I.M. (2000) Enhanced feeding by pelagic juvenile myctophid fishes within a region of island-induced flow disturbance in the Coral Sea. *Marine Ecology Progress Series* 203, 263-273
85. Morato, T., *et al.* (2008) Evidence of a seamount effect on aggregating visitors. *Marine Ecology Progress Series* 357, 23-32
86. Hyrenbach, K., *et al.* (2002) Oceanographic habitats of two sympatric North Pacific albatrosses during breeding season. *Marine Ecology Progress Series* 233, 283-301
87. Hearn, A., *et al.* (2010) Hotspots within hotspots? Hammerhead shark movements around Wolf Island, Galapagos Marine Reserve. *Marine Biology* 157, 1899-1915
88. Etnoyer, P., *et al.* (2006) Sea-surface temperature gradients across blue whale and sea turtle foraging trajectories off the Baja California Peninsula, Mexico. *Deep-Sea Research II* 53, 340-358
89. Ferraroli, S., *et al.* (2004) Where leatherback turtles meet fisheries. *Nature* 429, 521
90. Keene, J., *et al.* (2008) Sedimentology and geomorphology of the East Marine region of Australia., Report to the Department of the Environment, Water, Heritage and the Arts by Geoscience Australia

91. Choukroun, S., *et al.* (2010) On the surface circulation in the western Coral Sea and residence times in the Great Barrier Reef. *Journal of Geophysical Research* 115, C06013, doi:06010.01029/02009JC005761
92. Fowler, A.M., *et al.* (2008) Onshore-offshore distribution and abundance of tuna larvae (Pisces: Scombridae: Thunnini) in near-reef waters of the Coral Sea. *Fisheries Bulletin* 106, 405-416
93. Bradshaw, C.J.A., *et al.* (2008) Decline in whale shark size and abundance at Ningaloo Reef over the past decade: The world's largest fish is getting smaller. *Biological Conservation* 141, 1894-1905
94. Sibert, J., and Hampton, J. (2003) Mobility of tropical tunas and the implications for fisheries management. *Marine Policy* 27, 87-95
95. Pauly, D., *et al.* (2002) Towards sustainability in world fisheries. *Nature* 418, 689-695
96. Hobday, A.J. (2010) Ensemble analysis of the future distribution of large pelagic fishes off Australia. *Progress in Oceanography* 86, 291-301
97. Hampton, J., and Gunn, J. (1998) Exploitation and movements of yellowfin tuna (*Thunnus albacares*) and bigeye tuna (*T. obesus*) tagged in the north-western Coral Sea. *Marine and Freshwater Research* 49, 475-489
98. I&I NSW (2009) I&I NSW Game Fish Tagging Program, Summary 2006/2007 & 2007/2008., I&I New South Wales
99. Sedberry, G.R., and Loefer, J.K. (2001) Satellite telemetry tracking of swordfish, *Xiphias gladius*, off the eastern United States. *Marine Biology* 139, 355-360
100. Sepulveda, C.A., *et al.* (2010) Fine-scale movements of the swordfish *Xiphias gladius* in the Southern California Bight. *Fisheries Oceanography* 19, 279-289
101. Clear, N.P., *et al.* (2005) Movement of bigeye tuna (*Thunnus obesus*) determined from archival tag light-levels and sea surface temperatures., CSIRO, Hobart, and SPC
102. Cosgrove, R., *et al.* (2010) A simulated archival tagging programme for albacore (*Thunnus alalunga*) in the Northeast Atlantic, including an analysis of factors affecting tag recovery. *ICES Journal of Marine Science* 67, 1216-1221
103. Kingsford, M.J., and Defries, A. (1999) The ecology of and fishery for *Coryphaena* spp. in the waters around Australia and New Zealand. *Scientia Marina* 63, 267-275

104. Holdsworth, J.C., *et al.* (2009) Near real time satellite tracking of striped marlin (*Kajikia audax*) movements in the Pacific Ocean. *Marine Biology* 156, 505-514
105. Squire Jr., J.L. (1974) Migration patterns of Istiophoridae in the Pacific Ocean as determined by cooperative tagging programs., NOAA
106. Bromhead, D., *et al.* (2004) Striped marlin: biology and fisheries., Bureau of Rural Sciences
107. Schrey, A.W., and Heist, E.J. (2003) Microsatellite analysis of population structure in the shortfin mako (*Isurus oxyrinchus*). *Canadian Journal of Fisheries and Aquatic Sciences* 60, 670-675
108. Kohler, N.E., *et al.* (2002) Tag and recapture data for three pelagic shark species: Blue shark (*Prionace glauca*), shortfin mako (*Isurus oxyrinchus*), and porbeagle (*Lamna nasus*) in the north Atlantic Ocean. *Col. Vol. Sci. Pap. ICCAT* 54, 1231-1260
109. Sepulveda, C.A., *et al.* (2004) Movement patterns, depth preferences, and stomach temperatures of free-swimming juvenile mako sharks, *Isurus oxyrinchus*, in the Southern California Bight. *Marine Biology* 145, 191-199
110. Stevens, J.D., *et al.* (2010) Satellite tagging of blue sharks (*Prionace glauca*) and other pelagic sharks oV eastern Australia: depth behaviour, temperature experience and movements. *Marine Biology* 157, 575-591
111. Queiroz, N., *et al.* (2005) Movement of blue shark, *Prionace glauca*, in the north-east Atlantic based on mark-recapture data. *Journal of the Marine Biological Associations of the United Kingdom* 85, 1107-1112
112. Theisen, T.C., *et al.* (2008) High connectivity on a global scale in the pelagic wahoo, *Acanthocybium solandri* (tuna family Scombridae). *Molecular Ecology* 17, 4233-4247
113. Gunn, J.S., *et al.* (2003) Short-term movement and behaviour of black marlin *Makaira indica* in the Coral Sea as determined through a pop-up satellite archival tagging experiment. *Marine and Freshwater Research* 54, 515-525
114. Blyth-Skyrme, R.E., *et al.* (2006) Conservation benefits of temperate marine protected areas: variation among fish species. *Conservation Biology* 20, 811-820
115. Hastings, A., and Botsford, L.W. (1999) Equivalence in yield from marine reserves and traditional fisheries management. *Science* 284, 1537-1538
116. Sumaila, U.R., *et al.* (2007) Potential costs and benefits of marine reserves in the high seas. *Marine Ecology Progress Series* 345, 305-310

117. Goñi, R., *et al.* (2010) Net contribution of spillover from a marine reserve to fishery catches. *Marine Ecology Progress Series* 400, 233-243
118. Roberts, C.M., *et al.* (2001) Effects of marine reserves on adjacent fisheries. *Science* 294, 1920-1923
119. Halpern, B.S., *et al.* (2009) Spillover from marine reserves and the replenishment of fished stocks. *Environmental Conservation* 36, 268-276
120. Wilson, D., *et al.*, eds (2009) *Fishery status reports 2008: status of fish stocks and fisheries managed by the Australian Government*. Bureau of Rural Sciences & Australian Bureau of Agricultural and Resource Economics
121. Dowling, N.A., *et al.* (2008) Developing harvest strategies for low-value and data-poor fisheries: Case studies from three Australian fisheries. *Fisheries Research* 94, 380-390
122. Furlani, D., *et al.* (2007) Ecological risk assessment for the effects of fishing: Report for the demersal trawl sub-fishery of the Coral Sea Fishery., Report for the Australian Fisheries Management Authority
123. Evans, S.K. (2007) Eastern Tuna and Billfish Fishery Data Summary 2005-2006., Data Group, Australian Fisheries Management Authority
124. NSW DPI (2009) Game Fish Tagging Program.
125. Ayling, A.M., and Choat, J.H. (2008) Abundance patterns of reef sharks and predatory fishes on differently zones reefs in the offshore Townsville region., Report by Sea Research for the Great Barrier Reef Marine Park Authority
126. Game, E.T., *et al.* (2010) Pelagic MPAs: The devil you know. *Trends in Ecology and Evolution* 25, 63-64
127. Ban, N.C., *et al.* (2009) Marine protected area management costs: an analysis of options for the Coral Sea., Report prepared for the Protect Our Coral Sea campaign by the Australian Research Council Centre of Excellence for Coral Reef Studies
128. Beaman, R.J. (2010) 3DGBR: a high-resolution depth model for the Great Barrier Reef and Coral Sea. Marine and Tropical Sciences Research Facility Final Report Project 2.5i.1a Milestone 10 June 2010., Marine and Tropical Sciences Research Facility, Reef and Rainforest Research Centre
129. Brooke, S.D., *et al.* (2010) Surveillance and enforcement of remote maritime areas. Paper 1: surveillance technical options., Marine Conservation Biology Institute



130. Worm, B., *et al.* (2005) Global patterns of predator diversity in the open oceans. *Science* 309, 1365-1369

### Appendix 1—Migratory and pelagic species of the Coral Sea

This table lists those migratory and pelagic species affected by fishing in the Coral Sea, either as target species or bycatch<sup>76</sup>, and may therefore benefit from protection.

<b>Species</b>	<b>Common name</b>	<b>Pressure</b>
<i>Thunnus albacares</i>	Yellowfin tuna	Commercial fishing
<i>Thunnus obesus</i>	Bigeeye tuna	Commercial fishing
<i>Xiphias gladius</i>	Broadbill swordfish	Commercial fishing
<i>Thunnus alalunga</i>	Albacore tuna	Commercial fishing
<i>Coryphaena hippurus</i>	Dolphinfish	Commercial fishing
<i>Centrolophus niger</i>	Rudderfish	Commercial fishing
<i>Tetrapturus audax</i>	Striped marlin	Commercial fishing
<i>Isurus oxyrinchus</i>	Shortfin mako shark	Commercial fishing
<i>Prionace glauca</i>	Blue shark	Commercial fishing
<i>Acanthocybium solandri</i>	Wahoo	Commercial fishing
<i>Makaira indica</i>	Black marlin	Commercial fishing
<i>Brama brama</i>	Ray's bream	Commercial fishing
<i>Ruvettus pretiosus</i>	Black oilfish	Commercial fishing
<i>Katsuwonus pelamis</i>	Skipjack tuna	Commercial fishing
<i>Thunnus thynnus</i>	Northern bluefin tuna	Commercial fishing
<i>Tetrapturus angustirostris</i>	Shortbilled spearfish	Commercial fishing
<i>Istiophorus platypterus</i>	Indo-Pacific sailfish	Commercial fishing
<i>Lampris guttatus, L. immaculatus</i>	Moonfish	Commercial fishing
<i>Thunnus maccoyii</i>	Southern bluefin tuna	Commercial fishing
<i>Carcharhinus brachyurus</i>	Bronze whaler	Commercial fishing
<i>Carcharhinus longimanus</i>	Oceanic whitetip shark	Commercial fishing

---

<i>Sphyrna spp.</i>	Hammerhead shark	Commercial fishing
<i>Galeocerdo cuvier</i>	Tiger shark	Commercial fishing
<i>Carcharhinus falciformis</i>	Silky shark	Commercial fishing
<i>Sarda australis</i>	Australian bonito	Commercial fishing
<i>Carcharhinus limbatus</i>	Dusky shark	Commercial fishing
<i>Lamna nasus</i>	Porbeagle	Commercial fishing
<i>Alopias vulpinus</i>	Thresher shark	Commercial fishing
<i>Scomberomorus commerson</i>	Narrow barred Spanish mackerel	Commercial fishing
<i>Rachycentron canadum</i>	Black kingfish	Commercial fishing
<i>Isurus paucus</i>	Longfin mako	Commercial fishing
<i>Carcharodon carcharias</i>	Great white shark	Bycatch
<i>Elegatis bipinnulata</i>	Rainbow runner	Bycatch
<i>Pseudocarcharias kamoharai</i>	Crocodile shark	Bycatch
<i>Caranx ignobilis</i>	Giant trevally	Bycatch
<i>Alepisaurus ferox</i>	Lancetfish	Bycatch
<i>Manta birostris</i>	Manta ray	Bycatch
Marine turtles	Various	Bycatch
Seabirds	Various	Bycatch

---

**Annex 69**

First witness statement of Joanne Yeadon,  
1 May 2012

Defendant  
J Yeadon  
First  
"JY 1"  
1 May 2012

CO/8588/2010

IN THE HIGH COURT OF JUSTICE  
QUEEN'S BENCH DIVISION  
ADMINISTRATIVE COURT

IN THE MATTER OF A CLAIM FOR JUDICIAL REVIEW

R  
on the application of  
LOUIS OLIVIER BANCOULT

Claimant

v

SECRETARY OF STATE FOREIGN AND COMMONWEALTH AFFAIRS

Defendant

WITNESS STATEMENT OF JOANNE YEADON

I, Joanne Yeadon, civil servant, of the Foreign and Commonwealth Office, King Charles Street, London SW1A 2AH, say as follows.

1. I am a grade D6 civil servant. I have worked at the Foreign and Commonwealth Office ("FCO") since 1983 and am currently deployed in the Corporate Pool at the FCO, a position I have held since April 2011. From December 2007 to April 2011 I was the British Indian Ocean Territory ("BIOT") Administrator. My responsibilities as BIOT Administrator included the development and implementation of United Kingdom policy towards BIOT and on the relationship

between BIOT and the United States, Mauritius and Seychelles, and overseeing the day to day administration of BIOT.

2. I was responsible for organising the public consultation, including the drafting of the consultation document, that is the subject of challenge in the present proceedings. I am authorised by the defendant to make this statement, which focuses on that consultation process. The contents of this statement are within my own knowledge or derived from FCO files and are true to the best of my knowledge and belief. I exhibit at "JY 1" documents to which I refer in this statement. I have also read the draft statement of Colin Roberts, which deals more widely with the creation of the BIOT marine protected area, and the contents of that statement are true to the best of my knowledge and belief.
  
3. While, as Mr Roberts' statement explains, the protection of the BIOT environment goes back many years, and consideration of marine protected areas was mentioned in the June 2000 preliminary feasibility study at paragraphs 2.6.4 and Annex G paragraphs 25-33 (tab 1 of "JY 1"), the specific idea for a marine protected area ("MPA") stemmed from an approach in July 2007 to Professor Charles Sheppard, the Environmental Adviser for BIOT, by the Pew Environmental Group, which is part of the Pew Charitable Trusts ("Pew"), in July 2007. Professor Sheppard put Pew in touch with Tony Humphries, my predecessor as BIOT administrator. Copies of these documents are at tabs 2 and 3 of "JY 1".
  
4. On 25 October 2007 the Chagos Conservation Trust ("CCT"), a registered United Kingdom charity which aims to promote conservation and related science and

education in respect of the Chagos archipelago, held a conference on "The future conservation of the Chagos". Professor Sheppard is on the executive committee of the CCT. At tabs 4 and 5 of "JY 1" are both the letter of 20 June 2007 from the Chairman of the CCT, William Marsden CMG, to Tony Humphries and Mr Marsden's further letter of 19 October 2007 enclosing the conference timetable and programme booklet. Mr Humphries tells me that he may have dropped in on the conference but cannot recall it in any detail.

5. On 11 April 2008 Mr Marsden wrote to Leigh Turner, Director of Overseas Territories at the FCO, enclosing a draft discussion paper with proposals for developing the conservation framework for BIOT which built on the contacts with Pew and the conference of 25 October 2007. The draft discussion paper advocated strengthening existing environmental safeguards and its proposals included a comprehensive Chagos marine and fisheries management and conservation system with a no-take fishing zone. Copies of these documents are at tab 6 of "JY 1".
6. On 22 April 2008 Dr Jay Nelson and Ms Heather Bradner, the Director and Manager respectively of Pew's "Global Ocean Legacy" project, met me at the FCO. We discussed the possibility of turning BIOT into a marine protected area in which no fishing took place, a "no take zone". After the meeting, this topic was discussed further within the FCO (tabs 7 and 8 of "JY 1").
7. Later that afternoon the newly created Chagos Environmental Network ("CEN") held its inaugural meeting at the Linnean Society. The founder members of the CEN included CCT, Pew, Professor Sheppard, among others. The inaugural

meeting was addressed by Dr Jay Nelson, who explained that Pew's Global Ocean Legacy had been tasked to look at global waters to find large areas of ocean which could be made into no take zones and protected. The meeting was supportive of making BIOT such a no take zone. On 4 June 2008 Simon Hughes, the CEN Secretary (and also the CCT Secretary) sent Andrew Allen, the then Deputy BIOT Commissioner, the minutes of the inaugural CEN meeting and a further draft of the "BIOT/Chagos Conservation Framework discussion paper". Copies of these documents are at tab 9 of "JY 1".

8. On 4 September 2008 Dr Jay Nelson wrote to Colin Roberts, who had since become the BIOT Commissioner, seeking a meeting to discuss the possibility of turning BIOT into a no-take marine reserve. Mr Roberts met Dr Nelson during the week commencing 15 September 2008, though I can find no record of the specific date. I cannot recall whether I attended that meeting. On 24 September 2008 Dr Nelson wrote to Mr Roberts to thank him for the meeting, enclosing a book about the effects of fishing. Copies of Dr Nelson's two letters are at tabs 10 and 11 of "JY 1".

9. Mr Roberts addressed the annual general meeting of the CCT on 18 November 2008. Mr Roberts told the meeting that he personally found attractive the concept of a complete BIOT no take area, but explained that this would not be easy to achieve, as there were constraints. One of those constraints was security: the UK as well as the US needed the facilities at Diego Garcia. Another constraint was resources. Copies of the minutes of the AGM and of the Chairman's annual report which refers to the interest expressed by Pew, are at tab 12 of "JY 1".



10. On 16 January 2009 Dr Nelson wrote to Mr Roberts to update him on the progress made by Global Ocean Legacy and to inform him that a member of Pew's staff, Mr Rand, was going to London and would like to meet Mr Roberts to discuss the way forward. A copy of this letter is at tab 13 of "JY 1". I do not recall having any contact with Mr Rand.
  
11. On 12 February 2009 Mr Marsden wrote to Gillian Merron MP, Parliamentary Under Secretary of State at the FCO, inviting her to a press briefing at the Royal Society on 9 March 2009 at which the CCT and CEN would announce proposals for the creation in BIOT of one of the world's largest conservation areas. On 5 March 2009 Ms Merron replied, stating that the Government needed to look at the ideas presented by CEN in greater detail and that her officials were in the process of doing this. On 13 February 2009 Mr Bancoult, as chairman of the Chagos Refugees Group, wrote an open letter in response to the CCT's proposed plan. The letter stated that the Chagos Refugees Group supported environmentalists in the establishment of protected areas "but we endorse conservation plans that allow every Chagossian who wants to return to his homeland to have a fair chance to do so and have an active part in it". Mr Bancoult's letter was reported by the Association of Publishing Agencies on [www.apanews.net](http://www.apanews.net) on the same day. Copies of these documents, and of an Associated Press article on the 9 March 2009 meeting, are at tabs 14-18 of "JY 1".
  
12. On 23 April 2009 there was a meeting at the FCO between Government officials and the CEN. The attendees included Mr Roberts, Dr Nelson, Professor Sheppard

and me. A copy of the minutes of the meeting, including three annexes, is at tab 19 of "JY 1". Item No.2 on the agenda was the creation of a marine protected area.

13. On 6 May 2009 the Secretary of State decided to proceed with consideration of the possibility of creating a marine protected area in BIOT, and to hold a public consultation as part of this process (tab 20 of "JY 1").

14. On 30 March 2009 Mr Roberts had visited the National Oceanography Centre ("NOC") at Southampton University to discuss a number of topics, including the possibility of creating a marine protected area. There was a follow-up meeting on 29 May. On 19 June 2009 the Director of the NOC, Professor Hill, wrote to Mr Roberts, agreeing that the NOC would be pleased to hold a workshop to address this initiative. The workshop was held on 5-6 August 2009. I attended, and addressed, the workshop on behalf of BIOT. Other attendees included Dr Nelson and Professor Sheppard. Copies of the letter of 19 June and of the report of the workshop are at tabs 21 and 22 of "JY 1". In my address, which is summarised at p.9 of the report, I emphasised that any proposal for the establishment of a BIOT marine protected area was without prejudice to the outcome of proceedings at the European Court of Human Rights. Page 12 of the report mentions that Mr Bancoult had submitted comments. I cannot now recall whether this was a reference to Mr Bancoult's letter of 13 February 2009 or whether that letter was circulated to the workshop participants. The workshop, or rather the decision of two scientists, Dr Spalding and Dr Rodwell, not to attend it, was the subject of an

article in *Le Mauricien*, a Mauritian newspaper. A copy of that article is at tab 23 of “JY 1” but the article is not dated.

15. Professor Sheppard wrote an article entitled “British Indian Ocean Territory (Chagos Archipelago): our global opportunity”, which appeared in the autumn 2009 edition of *Science in Parliament* (tab 24 of “JY 1”). In that article Professor Sheppard mentioned that the Government was exploring details of Pew’s proposal for making BIOT a totally protected marine protected area.
16. On 29 October 2009 the Secretary of State agreed to launch the public consultation on the creation of a BIOT marine protected area on 10 November. The FCO engaged an independent facilitator, Rosemary Stevenson, to assist in the consultation process. A copy of the independent facilitator’s terms of reference is at tab 25 of “JY 1”. Ms Stevenson had previously acted as facilitator for the St Helena airport consultation.
17. As I mentioned above, as the BIOT Administrator I was responsible for the consultation and for drafting the consultation document. As the consultation was a BIOT matter, the Government Code of Practice on Consultation did not formally apply. However, it was decided to hold the consultation in accordance with the provisions of that Code of Practice. The Code current at the time, and still current, was the third edition (July 2008), produced by the Better Regulation Executive of the Department for Business, Enterprise and Regulatory Reform. A copy of this Code is at tab 26 of “JY 1”. I draw attention to section 4 of the Code, “Accessibility of consultation exercises”, and in particular to paragraph 4.2:

As far as is possible, consultation documents should be easy to understand: they should be concise, self-contained and free of jargon. This will also help reduce the burden of consultation. While consultation exercises on technical details may need to seek input from experts, when the views of non-experts are also required, simpler documents should be produced.

18. The consultation document has already been produced in these proceedings. However, for ease of reference I also produce it at tab 27 of "JY 1", together with letters from the Secretary of State to the Chairmen of the Commons Foreign Affairs Committee and the All Party Parliamentary Group on Chagos Islands (BIOT), both dated 8 November 2009, informing them of the consultation, and the FCO press and Ministerial statements of 10 November 2009, and the 12 November 2009 press statement by the British High Commission, Mauritius, informing Mauritians of the consultation and asking "please make yourself heard" (tabs 28-32 of "JY 1").
19. I highlight the following parts of the consultation document. Page references in the next 7 paragraphs are to the pages of the consultation document.
20. The Foreword (p.3) makes clear that the consultation is "to help us assess *whether* a marine protected area is the right option for the future environmental protection of the British Indian Ocean Territory" (emphasis added).
21. Four specific questions were asked, with three specific options being described including "a full no-take marine reserve for the whole of the territorial waters and Environmental Preservation and Protection Zone (EPPZ)/Fisheries Conservation and Management Zone". However, those consulted were expressly told that their responses "should not be restricted to these questions" (pp.5, 8).

22. On page 7 the consultation document stated, under the heading "Scope":

Any decision to establish a marine protected area would be taken in the context of the Government's current policy on the Territory, following the decision of the House of Lords in *R (Bancoult) v Secretary of State for Foreign and Commonwealth Affairs* [2008] UKHL 61 that the British Indian Ocean Territory (Constitution) Order 2004 and the British Indian Ocean Territory (Immigration) Order 2004 are lawful; i.e., there is no right of abode in the Territory and all visitors need a permit before entering the Territory. Access to a part of the Territory is also restricted under our Treaty obligations with the US. It is the Government's provisional view, therefore, that we would not establish a permanent research facility in any part of the Territory. Any decision to establish a marine protected area would not affect the UK Government's commitment to cede the Territory to Mauritius when it is no longer needed for defence purposes.

The consultation and any decision that may follow for the establishment of a marine protected area are, of course, without prejudice to the outcome of the current, pending proceedings before the European Court of Human Rights (ECtHR). This means that should circumstances change, all the options for a marine protected area may need to be reconsidered.

23. I am aware that the claimant's amended grounds allege that the creation of the BIOT MPA was materially influenced by "an improper motive, namely an intention to create an effective long-term way to prevent Chagossians and their descendents from resettling in the BIOT": paragraph 7(a). I categorically deny that I, or to the best of my knowledge, any other person in Government, was influenced by any improper motive as alleged or at all. Indeed, throughout my tenure as BIOT Administrator I was at pains to make clear to everyone with whom I discussed the proposed marine protected area that Government policy on this matter was subject to the outcome of the litigation over the Chagossians' asserted right of abode.

24. The amended grounds complain that the consultation was misleading, and therefore unfair, by reason of the absence of any reference to the feasibility of

resettlement of the islands. The consultation document did not refer to any of the Feasibility Studies that the FCO had commissioned, for those studies were not relevant to the consultation. As a matter of common law, the House of Lords had in *Bancoult (No.2)* ruled definitively that the Chagossians have no right of abode in BIOT. This is unaffected by whether or not there is a BIOT MPA. Government policy at the time of the consultation, and since, is that the Chagossians will not be granted a right of abode. All this is without prejudice to the outcome of the Strasbourg case. But in these circumstances, the Feasibility Studies were irrelevant to the consultation.

25. The consultation document contains a certain amount of scientific information, and makes reference to other sources of such information. Given the wide range of consultees, it would in my view have confused rather than clarified matters to have included more scientific information in the consultation document. It is not clear to me whether the claimant in the present judicial review is asserting that the consultation document itself should have contained more scientific information. With the exception of Mr Gifford (paragraph 28 below refers), none of the responses to the consultation complained that the consultation document should have included more scientific information. See, for example, paragraphs 31 and 45-46 of the independent facilitator's report.

26. The consultation document stated (p.4) that the consultation period would run from 10 November 2009 to 12 February 2010, and that there would be meetings organised by the independent facilitator in Port Louis, Mauritius and Victoria, Seychelles and in the United Kingdom on dates to be announced. Meetings were

held in Victoria, Seychelles and in Crawley, UK (where many of the Chagossians who live in the UK reside), on 24-27 January 2010 and 6 February 2010 respectively. It turned out to be inopportune for the independent facilitator to hold a meeting in Mauritius, so a meeting was held there by video conference from London on 4 March 2010. Both the claimant and his solicitor, Mr Gifford, took part in the video conference. Their comments are summarised in section C.3 of the independent facilitator's collation of responses (tab 33 of "JY 1"). On 11 February 2010 an FCO press release announced that the consultation period was being extended to 5 March 2010, to ensure that everyone with an interest in the issue was able to contribute. A copy of the press release is at tab 34 of "JY 1".

27. The independent facilitator collated the responses to the consultation. She produced a report, and a summary of the responses, which she submitted to the FCO. I do not have a record of the date the FCO received them, but I attached the report to my 30 March 2010 submission (paragraph 19 of Mr Roberts' draft statement refers), and I note that paragraph 47 of the claimant's amended grounds says that the independent facilitator's report was published on 1 April 2010. Copies of these two documents are at tabs 33 and 35 of "JY 1".

28. As previously stated, the consultation was launched on 10 November 2009. On 23 December 2009 Mr Gifford wrote a 13 page letter to the Secretary of State. In that letter he made, among other things, a wide ranging request for disclosure of the draft phase 2B feasibility study and "full disclosure of the documents evidencing and underlying the formulation and implementation of the Government's policy of securing and maintaining the exile of the population", including but expressly not

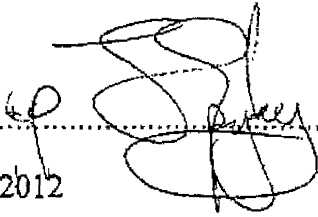
limited to a list of categories (a)-(g). The letter made no mention of the Environmental Information Regulations SI 2004/3391. I replied on behalf of the FCO on 12 February 2010. Mr Gifford wrote back to me on 26 February 2010. The request for disclosure was dealt with as a request under the Freedom of Information Act 2000. This request is currently the subject of an appeal to the First-tier Tribunal General Regulatory Chamber (Information Rights) in *(1) Chagos Refugees Group (2) Chagos Social Committee v (1) Information Commissioner (2) Foreign and Commonwealth Office (EA/2011/0300)*. On 16 March 2010 Mr Gifford wrote to Ms Stevenson, enclosing an audio CD of the video conference on 4 March to "assist" her but also complaining that the Chagossians had been hampered in their response to the consultation by reason of the lack of the disclosure requested in his letter of 23 December 2009. There is no file record of a reply to that letter. Copies of this correspondence are at tabs 36-39 of "JY 1".

29. On 31 March 2010 the Secretary of State decided to instruct the BIOT Commissioner to declare an MPA for BIOT on 1 April. On 1 April 2010 the FCO issued a press statement announcing the Secretary of State's decision and summarising his reasons for making it. On the same day, the Commissioner issued Proclamation No. 1 of 2010 establishing for the British Indian Ocean Territory a marine reserve to be known as the Marine Protected Area within the Environment (Protection and Preservation) Zone which was proclaimed on 17 September 2003. Copies of these documents are at tabs 40-42 of "JY 1".

I believe that the facts stated in this statement are true



Signed

A large, stylized handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke at the top. The signature is positioned above a horizontal dotted line.

1 May 2012

Defendant  
J Yeadon  
First  
"JY 1"  
1 May 2012

CO/8588/2010

IN THE HIGH COURT OF JUSTICE  
QUEEN'S BENCH DIVISION  
ADMINISTRATIVE COURT

IN THE MATTER OF A CLAIM FOR  
JUDICIAL REVIEW

R  
on the application of  
LOUIS OLIVIER BANCOULT  
Claimant

v

SECRETARY OF STATE FOR FOREIGN  
AND COMMONWEALTH AFFAIRS  
Defendant

WITNESS STATEMENT OF JOANNE YEADON
---------------------------------------

Steven Kovats QC  
39 Essex Street  
London WC2R 3AT

Treasury Solicitor  
1 Kemble Street  
London WC2B 4TS

Ref: Q100326H/ZER/B4

**Annex 70**

First witness statement of Colin Roberts,  
1 May 2012

Defendant  
C Roberts  
First  
"CR 1"  
1 May 2012

CO/8588/2010

IN THE HIGH COURT OF JUSTICE  
QUEEN'S BENCH DIVISION  
ADMINISTRATIVE COURT

IN THE MATTER OF A CLAIM FOR JUDICIAL REVIEW

R  
on the application of  
LOUIS OLIVIER BANCOULT

Claimant

v

SECRETARY OF STATE FOREIGN AND COMMONWEALTH AFFAIRS

Defendant

WITNESS STATEMENT OF COLIN ROBERTS
------------------------------------

I, Colin Roberts, Director, Overseas Territories Directorate, Foreign and Commonwealth Office and HM Commissioner for the British Indian Ocean Territory, of the Foreign and Commonwealth Office, King Charles Street, London, SW1A 2AH, SAY AS FOLLOWS.

1. I have been a member of the Diplomatic Service since 1989 and have served in London, Tokyo and Paris. I served as HM Ambassador to the Republic of Lithuania 2004-8. In 2008 I was appointed as Director of the Overseas Territories Directorate in the Foreign and Commonwealth Office ("FCO") and as HM Commissioner for both the British Indian Ocean Territory and the British Antarctic Territory. I was appointed as HM Commissioner of the British Indian Ocean Territory ("BIOT") by the Secretary of State. The appointment vests in me

broad executive and legislative powers in relation to BIOT. I am accountable to the Secretary of State in the exercise of these powers. In practice I have authority to determine policy and to take executive and legislative decisions which relate to the security and good governance of the Territory. On matters of particular importance or which are likely to be considered of political significance in the United Kingdom or in the relations between the United Kingdom and third countries I am expected to consult the Secretary of State. Where matters relate to the administration of the Territory I, officials in my Directorate and the Secretary of State, act as HM Government in right of BIOT. I am duly authorised by the defendant to make this statement in response to the allegation made at paragraph 7(a) of the amended claim form grounds, namely that the decision to create the British Indian Ocean Territory marine protected area (“MPA”) on 1 April 2010 was materially influenced by “an improper motive, namely an intention to create an effective long-term way to prevent Chagossians and their descendants from resettling in the BIOT”. In this statement I also set out what has been done to implement the MPA since 1 April 2010 and what would be the consequences if the Administrative Court were in these proceedings to declare that the decision to create the MPA was unlawful.

2. I say at once, both speaking for myself and on behalf of the defendant, that the decision to create the MPA was not influenced by the alleged or any improper motive.
  
3. The claimant founds his allegation of improper motive on certain documents published by WikiLeaks and again published in the Daily Telegraph on 4 February

2011. Those documents purport to be three diplomatic cables that were sent by the United States embassy in London, dated 11 July 2008, 15 May 2009 and 5 June 2009 (“the cables”).

4. The defendant’s response to the claimant’s allegation is at two levels. The first is neither to confirm nor deny the content of the cables. The reasons for this are set out in the statement of Martin Sterling, which I have read in draft. The second is to exhibit contemporaneous documents, which reveal what were, and by implication what were not, the defendant’s motives for creating the MPA. I produce copies of those documents as exhibit “CR 1” and comment on them in the paragraphs below. I have redacted some of those documents to remove material that is not relevant to the issues in the present proceedings and which it would be against the public interest to disclose. I confirm that nothing in those redactions either supports the claimant’s allegation of improper motive or undermines the defendant’s case in this claim for judicial review.

5. The development of policy which led to the establishment of the BIOT MPA on 1 April 2010 needs to be seen in the context of wider United Kingdom Government policy towards environmental protection in the Overseas Territories. The Territories have long been recognised as of exceptional environmental and biodiversity importance and there is a long history of engagement between the United Kingdom Government, the Governments of the Territories and environmental and scientific experts in the United Kingdom and internationally.

6. On 17 March 1999 the Foreign Secretary published a White Paper, “Partnership for Progress and Prosperity: Britain and the Overseas Territories” (Cm 4264). Chapter Eight “Sustainable development – the environment” (tab 1 of “CR 1”) noted that the United Kingdom’s accession to United Nations Convention on the Law Of the Sea (“UNCLOS”) in 1997 extended to all the Overseas Territories, and that UNCLOS included an important framework providing for the protection of the marine environment and conservation of living marine resources, for example rights to exploit, and duties to conserve, living resources up to 200 miles from coastlines. The White Paper referred at paragraph 8.4 to the overall objective of using the environment of the Overseas Territories to provide benefits to people in them, and to conserve our global heritage by managing sustainably all the Overseas Territories’ natural resources. Paragraph 8.5 listed a number of specific aims as part of this overall objective, including “to protect fragile ecosystems such as coral reefs from further degradation and to conserve biodiversity in the Overseas Territories”. Paragraph 8.6 stated that the “role of Overseas Territory governments .... is to develop appropriate, applicable and affordable environmental policies, legislation and standards.”
7. The development of these environmental protection policies followed different paths in different Territories, reflecting the enormous political, economic and geographical variation of the Territories. However, environmental protection remained a key driver of policy throughout the period 1999-2010. The context for this includes the United Kingdom’s international commitments, of which I list the following by way of illustration.

- (a) Convention on Biological Diversity, ratified 3 June 1994, though not extended to BIOT. Article 8(a) of this Convention requires that each contracting state shall as far as possible and as appropriate establish a system of protected areas where special measures need to be taken to conserve biological diversity.
- (b) International Convention on the International Trade in Endangered Species of Wild Fauna and Flora, ratified 2 August 1976 and extended to BIOT.
- (c) Ramsar Convention on Wetlands of International Importance, in force 5 May 1976. The UK's list of Ramsar sites includes Diego Garcia, excluding the area set aside for military uses and subject to defence requirements. Article 1 of the Convention requires contracting states to formulate and implement their planning so as to promote the conservation of the listed wetlands.
- (d) Convention on the Conservation of Migratory Species of Wild Animals, ratified in 1985 and extended to BIOT, together with the 2001 Memorandum of Understanding on the Conservation and Management of Marine turtles and their Habitats of the Indian Ocean and South-East Asia.
- (e) The United Nations Agreement for the Implementation of the Provisions of UNCLOS relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, ratified 1999 and extended to BIOT.



8. Also, although it is not a legally binding commitment, paragraph 32 of the Plan of Implementation of the 2002 World Summit on Sustainable Development requires the promotion and conservation and management of the oceans through actions at all levels, giving due regard to the relevant international instruments, including among other things at sub-paragraph (c), the establishment of marine protected areas consistent with international law and based on scientific information.
  
9. Mounting global concerns about threats to biodiversity led to increased pressure from the international community and from the United Kingdom Parliament to implement the UK's commitments under international conventions, and the designation by the United Nations of 2010 as the International Year of Biodiversity placed a renewed focus on the environment of the Overseas Territories. Work across Government led in 2009 to the completion of a biodiversity strategy for the Overseas Territories by the Government's specialist advisory body, the Joint Nature Conservation Committee (tab 2 of "CR 1"). This led to a tripartite agreement between the FCO, DfID and Defra in 2009 renewing the Departmental partnership towards environmental protection). The development of new conservation approaches to BIOT was firmly embedded in this wider context. The new partnership was launched by Ministers from the three Departments concerned at a public event in the Foreign and Commonwealth Office on 30 June 2009. A presentation by the Chagos Environment Network of its proposal for a large scale marine protected area in BIOT was a key element of this event.

10. In parallel to the work on BIOT, my Directorate was engaged in extensive negotiations within the Antarctic Treaty System for the establishment of the world's first high seas marine protected area, which was also achieved in 2009 and referred to in the Foreign Secretary's letter to his Defra counterpart of 23 December 2009 (tab 3 of "CR 1"). Through 2008-10 my Directorate also pursued, together with other United Kingdom Government Departments, Territory Governments and environmental and scientific organisations and experts, a range of environmental protection initiatives in most of the Territories. There has been an increasing focus on bringing ambition and cohesion to the protection of the marine environment as, with the exception of territory within the Antarctic Treaty System, the vast majority (in area) of the lands and seas over which the United Kingdom exercises sovereignty is ocean. This strategy has been endorsed and reinforced by the present Government and will be given full expression in the Coalition Government's forthcoming White Paper. This is also expressed in detail in the 16 January 2012 paper on "The Environment in the United Kingdom's Overseas Territories: UK Government and Civil Society Support" which Defra has published on its Departmental website, Annex 2 of which tabulates the support that Defra and its Agencies provide to the Overseas Territories in meeting the demands of international agreements and instruments. A copy of that paper is at tab 4 of "CR 1".

11. The environment of BIOT had long been recognised as special even in the context of the Overseas Territories. The seas and coral systems of other states in the Indian Ocean have become substantially degraded in recent decades. The special circumstances which prevail in BIOT have helped mitigate these effects. The

record shows a steady strengthening over the years of the terrestrial and marine protection regimes in the Territory. The small commercial fishery was always operated to a high degree of conservatism and sustainability. In the wider context set out in the preceding paragraphs it was natural to consider the opportunities for taking a significant step forward in environmental protection in BIOT. The same trend in global opinion fostered work by advocates for the establishment of a large scale marine protected area in BIOT, in particular the Chagos Conservation Trust/Chagos Environment Network and the Pew Foundation's Global Ocean Legacy, all of which have had extensive contacts with the United Kingdom Government throughout my time as Director.

12. When I assumed responsibility for the Overseas Territories in July 2008 the development of this overall strategy was a central part of my objectives. Much of this work was led by the Polar Regions Unit (PRU) which had accumulated a high level of expertise in marine conservation policy and included specialist secondees from Defra. In 2009-10 I transferred responsibility for environmental policy from our general affairs section to the PRU to increase the resources and professionalism available. It was always clear that work on BIOT would be complex, so the lead remained with the BIOT Administration, drawing on the expertise of the PRU which was working concurrently on establishing large scale marine protected areas in the British Antarctic Territory, South Georgia and the South Sandwich Islands as well as on other initiatives and stakeholder engagement relating to other Territories. In the period July 2008 to May 2009 I encouraged my Directorate and the BIOT Administration to engage in extensive discussions with interested stakeholders to scope out the options for strengthening the

protection regime in BIOT including looking at the options for the kind of large-scale marine protected area advocated by the CCT/CEN. The main events in this period are covered in the statement of Joanne Yeadon, a draft of which I have read and which is accurate to the best of my knowledge and belief.

13. By April 2009 we had reached the point where the scoping work on BIOT was sufficiently clear to present the issues to the Secretary of State. I prepared a confidential note for the Secretary of State, dated 5 May 2009, which set out the benefits and risks of establishing an MPA in BIOT. A redacted version is at tab 5 of "CR 1". There was no suggestion in my note or in the oral presentation to Ministers which followed on 6 May that the establishment of a BIOT marine protected area might prevent resettlement in the future. At this time, resettlement was simply not a live issue. The policy on resettlement was already settled and was not now up for review. We were aware that the creation of a marine protected area should be done, if at all, in a manner that did not affect, and was without prejudice to, the outcome of the case of *Chagos Islanders v United Kingdom*. The potential benefits were set out in the 5 May note under the headings of Conservation, Climate Change, Scientific, Development, Political and Security. The security benefits identified related to the control of illegal, unregulated and unreported fishing.

14. Ministers approved the work and asked that it be continued (tab 6 of "CR 1"). The Secretary of State instructed the Directorate to pursue talks with the Governments of Mauritius and the United States and to prepare for a formal international public consultation to address the political risks which we had identified.

15. Between 7 May and 29 October 2009 we were occupied with extensive discussions with stakeholders. I took part in some, but by no means all, of these. Following the Secretary of State's instructions, I focussed on the negotiations with the Government of Mauritius and the Government of the United States. The key points in these negotiations were, respectively, my visit to Mauritius in July 2009 for talks with Foreign Minister Boolell and formal negotiations with a Mauritian delegation led by the Chief Cabinet Secretary and Head of the Civil Service, Mr Seeballuck; and the UK/US annual politico-military ("Pol-Mil") talks on BIOT in Washington in September 2009. The July talks in Port Louis went well and resulted in a Joint Communiqué in which the Government of Mauritius confirmed its welcome in principle for the United Kingdom's proposal for environmental protection. The joint communiqué was in due course included as Annex C to the consultation document. Subsequently Mauritius changed its approach. There were extensive contacts with the US in the run up to the September talks. Environmental issues had for many years been a core agenda item for the Annual BIOT Pol-Mil talks as the environmental protection of the Territory in general and the island of Diego Garcia in particular has long been a priority for both the UK and the US.

16. The meeting on 12 May 2009, of which the Wikileaks cable of 15 May purports to be a record, was one of a series of contacts with the US Government. The meeting was held at the request of the US Embassy in order to brief a senior member of the Embassy who was unfamiliar with BIOT issues. This was a long and open discussion in which the US side raised concerns about the MPA proposal and the

UK side sought to explain and reassure. The US expressed concerns that establishing a marine protected area might weaken the integrity of immigration controls and so facilitate resettlement and otherwise compromise the security of their military installations. They were also concerned that the legislative and regulatory framework governing a marine protected area might constrain military operations and manoeuvres; and that over time these regulations might, through the pressure of the environmental lobby, become more restrictive. We discussed these issues from a number of perspectives including, as is normal, from the perspective of public and media reaction. Officials have a duty to consider all angles and implications of policy proposals. I cannot speak for the drafters of the cable, but as a matter of policy it was clear that any form of entrenchment of the marine protected area would be unacceptable to the United Kingdom and US Governments on operational security grounds and that the establishment of the MPA would and should have no impact on the question of resettlement. This is why it was not even raised in the note to the Foreign Secretary of 5 May. The issue at the heart of the Claimant's allegation of improper motive, namely resettlement, was thus never a factor in the development of policy on the MPA. The 7 September 2009 note we put to the US as the basis for the September 2009 talks, a redacted copy of which is at tab 7 of "CR 1", makes this explicit in the formal assurances we provided at paragraph 11:

- (8<sup>th</sup> bullet point) We will not seek any international status for the MPA which is inconsistent with the fundamental purpose of the territory [ie the defence purposes of the UK and US].
- (10<sup>th</sup> bullet point) Nothing in the MPA proposal affects the UK government's policy to prevent resettlement. We envisage no resident presence on the outer islands. However, any MPA proposal will be without prejudice to the current proceedings at the ECtHR.

17. The other extracts from the cable which the Claimant cites are matters for the drafter of the cable. All FCO staff who work on BIOT are aware of the history of the Territory and of Mr Greenhill's notorious reference to "Tarzans and Man Fridays", which is cited by the claimant's solicitor, Mr Gifford, at pp.2-3 of his letter of 9 December 2010 to the European Court of Human Rights. Neither I nor my FCO colleagues would ever use such language with the intention of disparaging the Chagossian community.
18. Following extensive informal consultations from May to October 2009, in late October we recommended the Foreign Secretary agree to launch a formal public consultation. A redacted copy of Ms Yeadon's submission of 29 October is at tab 8 of "CR 1". Ms Yeadon's witness statement deals with the consultation process. I confirm that to the best of my knowledge and belief the consultation process was carried out in good faith and with a genuine interest in gauging public opinion and in ensuring that the Chagossian communities, among others, were able to express their views.
19. The formal consultation closed on 5 March 2010. At this point the political calendar was dominated by the impending United Kingdom elections. On 30 March 2010 we submitted advice to Ministers recommending that, although the consultation had been successfully completed, there was further work to do with stakeholders before establishing an MPA. A redacted copy of Ms Yeadon's submission is at tab 9 of "CR 1". There is no suggestion in this detailed advice that establishing an MPA would have any bearing on the possibility of future resettlement. On the contrary, paragraph 7 recalled that the consultation was only

about how to strengthen protection of the marine environment in BIOT and was expressly on the basis of current government policy against resettlement but without prejudice to any outcome from the case in progress at Strasbourg.

20. The Foreign Secretary sought additional advice from the BIOT Administration on 31 March. After careful consideration the Foreign Secretary rejected officials' advice and decided we were in a position to announce the establishment of the MPA: Ms Brooker's minute of 31 March refers. Redacted copies of these documents are at tabs 10-15 of "CR 1". There followed a public statement by the Foreign Secretary on 1 April (tabs 16-17 of "CR 1") and, following the Foreign Secretary's instruction, I proclaimed the MPA later that day (tab 18 of "CR 1"). The language of the statement and of the Proclamation did not specify the nature of the MPA, but the Foreign Secretary subsequently confirmed that his intention was to establish the full "no-take" MPA covering the whole of the BIOT Fisheries Conservation and Management Zone.

21. Although the Foreign Secretary was aware of the various political issues and risks around the establishment of the MPA he was always, I believe, motivated by the environmental objectives of the MPA proposal. At no time did I or any officials in my Directorate discuss with him or with any other Minister the suggestion imputed by the Claimant that establishing the MPA might prevent the resettlement of BIOT by Chagossians, for the simple reason that the MPA was not relevant to the question of resettlement. As an illustration of this, I exhibit at tab 19 of "CR 1" the letter of 17 February 2011 from the Minister for Africa, the UN, Overseas Territories and Conflict Issues to the Chair of the All Party Parliamentary Group –



Chagos Islands. Although this letter post dates the creation of the MPA, it accurately reflects the thinking in 2010 too. The second and third paragraphs of that letter read:

The establishment of the MPA is without prejudice to the pending proceedings at the European Court of Human Rights.

Nothing that has been done to implement the MPA and nothing that is currently contemplated would be a bar to the British Government complying with any judgment of the European Court of Human Rights, or a bar to any British Government choosing in future to change the policy on resettlement.

22. From early April 2010 to June 2010 the policy process was effectively on hold for the United Kingdom elections and formation of the Coalition Government. Ministers of the Coalition Government subsequently confirmed that while they wished to review policy towards BIOT (and towards the Overseas Territories) they wished to maintain the MPA in BIOT and that the freeze on the issuance of new fishing licences which followed the Proclamation of 1 April should continue. The Government has subsequently confirmed the strategy towards protection of the marine environment in the Overseas Territories in general. This will be set out in the Government's forthcoming White Paper of May 2012.

23. The immediate consequence of the establishment of the MPA on 1 April 2010 was the gradual reduction in commercial fishing up to 1 October 2010 when the last licence still in force on 1 April expired. From that point the BIOT MPA has been the world's largest Category 1 marine protected area, ie in which no commercial fishing activity is permitted. There has been a broad welcome, both within the United Kingdom and internationally, for the full no-take approach as indicated by the public consultation. There has of course also been opposition from the

expected quarters: commercial fishery interests; Mauritius (on sovereignty grounds); and some Chagossian groups and their supporters.

24. The establishment of the BIOT MPA has been recognised as an environmental initiative of global significance. The BIOT Administration with the support of the United Kingdom Government and the National Environment Research Council has established a Scientific Advisory Group to advise the BIOT Administration on the scientific aspects of managing the MPA. The core of this work is to establish research baselines and to prioritise proposals for research. We have always made it clear that we welcome the participation of Chagossians in environmental work in BIOT. We enabled a group of four Chagossians to participate in a habitat restoration project on Diego Garcia in June and July 2011. We are funding a programme to provide environmental training to Chagossians in partnership with the Zoological Society of London and the CCT. We arranged for a young Chagossian to join the scientific research expedition to BIOT in February and March 2012. Separately, the BIOT Administration is developing a new legislative and regulatory framework for the MPA. This needs to address the regime for deterring and penalizing illegal, unreported and unregulated fishing, permit arrangements for yachts in safe passage and measures to minimise the risk of maritime accidents which might jeopardise the MPA. The Administration is also currently preparing to procure the specialist services required to ensure the monitoring and protection of the MPA. The MPA is thus a long-term project. This work requires extensive consultation with stakeholders. The position remains as stated by the Minister in his letter of 17 February 2011 (paragraph 21 above,

refers): nothing that has been done and nothing that is contemplated has had any impact on the question of resettlement.

25. Although representatives of the international fishing industry expressed their view in the consultation process that the BIOT Administration should continue to licence commercial fishing, no company to which licences had been issued in the past or which held extant licences on 1 April 2010 has challenged the BIOT Administration's right to end the commercial fishery. The owners of the Mauritian registered vessels who benefited from arrangements whereby they could apply for licences to fish free of charge similarly raised no objection in the consultation process or subsequently. This is not surprising, as these companies have opportunities to fish elsewhere. The BIOT Administration grants licences to vessels and their owners, not to employees or crews of those vessels. We have no knowledge of the nationality of those employees or crews or of the contractual terms between them and the vessel owners or operators. We have no reason to believe that the closure of the commercial fishery in BIOT does anything, of itself, to reduce the total fishing effort in the Indian Ocean or out of Mauritius. There is therefore no reason why Chagossian or any other employees on fishing vessels should need to suffer economic hardship as a result of the closure of the BIOT fishery. However, it is well known that fish stocks in the Indian Ocean are heavily depleted by overfishing and it may be that employment opportunities in the fisheries sector in Mauritius are reducing. But the MPA in BIOT is a measure designed to rectify the overfishing problem, and is not a cause of unemployment in the sector.

26. If the MPA were to be declared unlawful in the present proceedings, the work described above to build the MPA framework would need to be put on hold while the Government and BIOT Administration decided whether to adopt a different approach to environmental protection in the Territory or to rectify whatever defect the Court found in the decision-making process. This would put at risk two years' of work by many officials, scientists and other experts in the United Kingdom and internationally. It would create administrative and legal uncertainty over the future of environmental protection in the Territory. The BIOT Administration would lose the benefit of private sector donations which are conditional on the closure of the fishery. These could be offset to some extent by the sale of licences, but only if licence fee paying, ie non-Mauritian owned, vessels chose to return to the fishery. However, the long term consequences would be more serious. The public-private partnership which underlies the funding of the BIOT MPA is an experimental model designed to help achieve the ambitious global environmental targets to which the international community is committed by treaty. If the BIOT MPA were to be annulled, there would be a major disincentive in the future to invest in similar forms of environmental protection.


27. The Government has always made clear that it will respect the terms of any judgement of the European Court of Human Rights. If the Government were required by such a judgement to permit resettlement there are many aspects of United Kingdom and BIOT Administration policy which would need to be adjusted. The Government has never argued that a marine protected area would be incompatible with resettlement. That is the claimant's assertion. It is correct that the Government has argued that resettlement is not feasible other than in the short-

term and on a purely subsistence basis. The Government is still of this opinion. But this opinion is independent of whether or not there is an MPA and of whether or not there is a commercial fishery.

28. Like all FCO officials who work on BIOT matters, I am acutely aware of the painful history and the grievances of members of the Chagossian community. We invest a great deal of time engaging with the Chagossian communities in the United Kingdom, in Mauritius and in the Seychelles and enjoy good relations with many of them. I genuinely believe that the establishment of the MPA in BIOT is in the long term interest of the Territory and all its stakeholders, including the Chagossians, those who wish to resettle and those who do not. The MPA ensures that the marine environmental capital is preserved for future generations whatever policy decisions my or Ministers' successors may choose to adopt.

I believe that the facts stated in this statement are true

Signed



.....

[Signature]

1 May 2012

**UNCLASSIFIED**

Defendant  
C Roberts  
First  
"CR 1"  
1 May 2012

CO/8588/2010

IN THE HIGH COURT OF JUSTICE  
QUEEN'S BENCH DIVISION  
ADMINISTRATIVE COURT

IN THE MATTER OF A CLAIM FOR  
JUDICIAL REVIEW

R  
on the application of  
LOUIS OLIVIER BANCOULT  
Claimant

v

SECRETARY OF STATE FOR FOREIGN  
AND COMMONWEALTH AFFAIRS  
Defendant

WITNESS STATEMENT OF COLIN ROBERTS
---------------------------------------

Steven Kovats QC  
39 Essex Street  
London WC2R 3AT

Treasury Solicitor  
1 Kemble Street  
London WC2B 4TS

Ref: Q100326H/ZER/B4

**Annex 71**

Second witness statement of Joanne Yeadon,  
12 July 2012



Defendant  
J Yeadon  
Second  
12 July 2012

CO/8588/2010

IN THE HIGH COURT OF JUSTICE  
QUEEN'S BENCH DIVISION  
ADMINISTRATIVE COURT

IN THE MATTER OF A CLAIM FOR JUDICIAL REVIEW

R  
on the application of  
LOUIS OLIVIER BANCOULT

Claimant

v

SECRETARY OF STATE FOREIGN AND COMMONWEALTH AFFAIRS

Defendant

SECOND WITNESS STATEMENT OF JOANNE YEADON

I, Joanne Yeadon, civil servant, of the Foreign and Commonwealth Office, King Charles Street, London SW1A 2AH, say as follows.

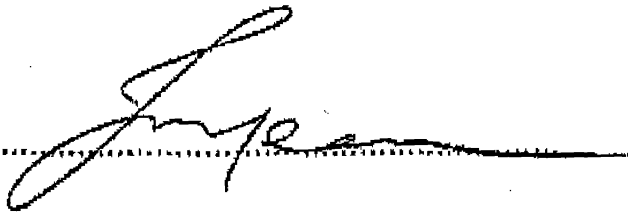
1. This is my second statement in these proceedings. I am presently deployed as Head of Governor's office in Turks and Caicos Islands. I make this second statement pursuant to the defendant's undertaking to the court at the hearing on 4 July 2012 to state what, if any, note was taken by FCO officials at the meeting with US embassy officials on 12 May 2009. I have read the second statement of Colin Roberts and the contents of that statement are true to the best of my knowledge and belief.

UNCLASSIFIED

2. I confirm that I took no note of the 12 May 2009 meeting with the US, for the reasons explained by Mr Roberts.
  
3. My recollection of the meeting accords with what Mr Roberts has said. I do not have any additional recollection of the meeting.

I believe that the facts stated in this statement are true

Signed

.....  


[Signature]

12 July 2012

UNCLASSIFIED

Defendant  
J Yeadon  
Second  
12 July 2012

CO/8588/2010

IN THE HIGH COURT OF JUSTICE  
QUEEN'S BENCH DIVISION  
ADMINISTRATIVE COURT

IN THE MATTER OF A CLAIM FOR  
JUDICIAL REVIEW

R  
on the application of  
LOUIS OLIVIER BANCOULT  
Claimant

v

SECRETARY OF STATE FOR FOREIGN  
AND COMMONWEALTH AFFAIRS  
Defendant

SECOND WITNESS STATEMENT OF JOANNE YEADON
--

Steven Kovats QC  
39 Essex Street  
London WC2R 3AT

Treasury Solicitor  
1 Kemble Street  
London WC2B 4TS

Ref: Q100326H/ZER/B4

**Annex 72**

Second witness statement of Colin Roberts,  
16 July 2012

Defendant  
C Roberts  
Second  
"CR 2"  
16 July 2012

CO/8588/2010

IN THE HIGH COURT OF JUSTICE  
QUEEN'S BENCH DIVISION  
ADMINISTRATIVE COURT

IN THE MATTER OF A CLAIM FOR JUDICIAL REVIEW

R  
on the application of  
LOUIS OLIVIER BANCOULT

Claimant

v

SECRETARY OF STATE FOREIGN AND COMMONWEALTH AFFAIRS

Defendant

SECOND WITNESS STATEMENT OF COLIN ROBERTS

I, Colin Roberts, Director, Overseas Territories Directorate, Foreign and Commonwealth Office and HM Commissioner for the British Indian Ocean Territory, of the Foreign and Commonwealth Office, King Charles Street, London, SW1A 2AH, SAY AS FOLLOWS.

1. This is my second statement in these proceedings. I make it pursuant to the defendant's undertaking to the court at the hearing on 4 July 2012 to state what, if any, note was taken by the UK side at the meeting with US embassy officials on 12 May 2009.

2. The only FCO attendees that I can recall being present at the 12 May meeting were Ms Yeadon and me. I took no note of the meeting. If a note of the meeting was to have been taken, I would have left this to Ms Yeadon and would not have taken the note myself. Ms Yeadon did not take a note of the meeting herself, as she explains in her second statement, which I have read and with which I agree.
3. Our not taking a note of the 12 May meeting was not unusual and was in accordance with FCO practice, as outlined in "Forms of Communication: Oral Communication" that is available on FCONet (the FCO intranet), a copy of which I exhibit as "CR 2".
4. The defendant maintains his position of neither confirming nor denying the authenticity or content of the three cables on which the claimant seeks to rely. What I say below applies mutatis mutandis to all three of the cables. But, as the spotlight is on the 15 May 2009 cable, it is on that cable that I focus in this statement.
5. The 15 May cable and the 12 May meeting are two distinct matters.
6. The defendant's evidence has dealt with the meeting: paragraphs 16-17 of my first statement, and paragraph 2 of Ms Yeadon's first statement.
7. My evidence about what was said at the 12 May 2009 meeting is given on the basis on my own recollection of it. Until August 2011 when the claimant served his amended grounds of claim in August 2011 and the further evidence on which

he wished to rely, including the three Telegraph articles about the cables, the 12 May 2009 meeting was not one that I had any particular reason to remember. My recollection of that meeting is informed by my overall understanding of UK policy on BIOT and of the process by which we presented the MPA proposal to the US Government and my recollection of the points and arguments that I repeated at many meetings on the MPA within the UK Government and with the US and other external interlocutors. I have of course also read the Telegraph articles. However, in all the circumstances and at this distance of time, I do not recall the 12 May 2009 meeting in sufficient detail to be sure that any particular word or phrase was or was not used or, if so, by whom.

8. The 12 May 2009 meeting was one of a number of discussions between UK and US officials both in London and in Washington. The 12 May 2009 meeting was for the UK side to brief the US Embassy and to give them more information about the prospective MPA. We would have repeated points we had already made to the US elsewhere. The meeting was an opportunity for the US Embassy to ask questions about UK ideas. The meeting did not throw up new information for the UK or matters which would materially have affected the decision-making process in respect of the prospective MPA, nor was any decision to be taken at the meeting. The UK's objective in this meeting, as in others, was to reassure the US that an MPA would have no adverse implications for them. It was and is FCO practice to take notes of meetings only where a substantive response is made that would be needed for the official record, and the 12 May 2009 meeting did not fall into this category.



9. The 12 May 2009 meeting was held at the request of the US Embassy, which wanted an update on the MPA so that they could report back to Washington. The Political Counsellor was new to the subject, though the US side, and in particular the First Secretary, was already well-informed of the issues. The US side asked us a series of questions. My objective was to reassure the US so that they did not oppose the MPA. The questioning, and much of the talking, came from the US side. The primary US concern was military security, and it was in this context that they raised the question of whether an MPA would prevent resettlement, that is both legal and illegal resettlement.
10. On the UK side, policy was still evolving. The UK policy as developed was that the MPA would not be entrenched in any way in advance of the decision of the European Court of Human Rights in the *Chagos Islanders* case. I would have had no reason to say at the 12 May 2009 meeting anything to the effect that the MPA was motivated by a desire to prevent resettlement. That was not the UK position at any time, and certainly not at the time that the Secretary of State took the decision on 31 March 2010 to create the MPA. By 2009 it was already UK policy that, subject to the outcome of the *Chagos Islanders* case, there would be no resettlement. Resettlement was simply not a factor in the decision to create the MPA, save in the negative sense that the MPA was expressly without prejudice to the outcome of the *Chagos Islanders* case: paragraph 19 of my first statement refers. This policy pre-dated and was unconnected with the MPA: paragraph 27 of my first statement refers. There is no UK document which suggests otherwise, as the documents cited below illustrate

- (a) My submission of 5 May 2009 to the Secretary of State ("CR 1" tab 5). Paragraph 16 of my first statement refers.
- (b) The 7 September 2009 note we presented to the US ("CR 1" tab 7). Paragraph 16 of my first statement refers.
- (c) Paragraph 12 of Ms Yeadon's submission of 29 October 2009 that led to the consultation exercise ("CR 1" tab 8).
- (d) The November 2009 consultation document, particularly p.7 and p.13 [C.4].
- (e) Paragraphs 7 and 16-17 of Ms Yeadon's submission of 30 March 2010 ("CR 1" tab 9).
- (f) The Private Office email of 30 March 2010 in response to Ms Yeadon's submission ("CR 1" tab 10).
- (g) Paragraph 2 of the note of the defendant's 1 April 2010 telecon with the Mauritian Foreign Minister ("CR 1" tab 16).
- (h) The first paragraph on p.2 of the FCO press release of 1 April 2010 ("CR 1" tab 17).
- (i) The Minister's letter of 17 February 2011 to the Chair of the All Party Parliamentary Group – Chagos Islands ("CR 1" tab 19).

11. There is one further matter that I wish to mention. As stated above, I do not have a detailed recollection of the 12 May meeting to be able to state with certainty that a particular word was or was not used or by whom. However, in the context of the MPA the term "footprints" was used by government, by NGOs and by scientists to refer to environmental impact. By way of illustration, I refer to the minutes of the

23 April 2009 meeting between the Chagos Environmental Network and the FCO  
at "JY 1" tab 19 p.203 under Item 4. Paragraph 5:

It was also suggested that Chagossians who were interested should be included in the conservation education and awareness-raising efforts undertaken by some CEN members. The FCO confirmed that there was no bar to Chagossians living and working on Diego Garcia, which both the UK and US encouraged. At the same time it would be a mistake to raise unrealistic expectations. The model for an effective conservation policy framework should not involve new "footprints" from installations, residents and exploitation. Visiting yachts are bring looked are carefully in the same light.

12. In the context of the 12 May 2009 meeting, the US side wished to know whether the creation of an MPA would result in wardens, tourists et al coming to the islands, as they considered that this could have security implications. I explained that the UK had considered various models. On Aldabra, a coral atoll that was part of BIOT but has since 1976 belonged to the Seychelles, there is a resident warden and limited tourism. I told the US side that the UK favoured a no footprint model for BIOT, namely that there would be no wardens or tourists et al, because any footprint would likely have an adverse environmental impact and because existing ship-based security arrangements were in our view adequate. UK officials commonly referred to this as a "no footprint" model.

I believe that the facts stated in this statement are true

Signed

.....

[Signature]

16 July 2012

**Annex 73**

Third witness statement of Joanne Yeadon,  
8 March 2013

Defendant  
J Yeadon  
Third  
“JY 2”  
8 March 2013

CO/8588/2010

IN THE HIGH COURT OF JUSTICE  
QUEEN’S BENCH DIVISION  
ADMINISTRATIVE COURT

IN THE MATTER OF A CLAIM FOR JUDICIAL REVIEW

R  
on the application of  
LOUIS OLIVIER BANCOULT

Claimant

v

SECRETARY OF STATE FOREIGN AND COMMONWEALTH AFFAIRS  
Defendant

THIRD WITNESS STATEMENT OF JOANNE YEADON
--

I, Joanne Yeadon, civil servant, of the Foreign and Commonwealth Office, King Charles Street, London SW1A 2AH, SAY AS FOLLOWS.

1. I am the same Joanne Yeadon whose first witness statement in this action is dated 1 May 2012 (“my first statement”) and whose second witness statement in this action is dated 12 July 2012 (“my second statement”). I continue to be deployed as Head of Governor’s Office in Turks and Caicos Islands. I am authorised by the Defendant Secretary of State to make this witness statement on his behalf.

2. The purpose of this witness statement is to respond to the new claim made by the Claimant at paragraph 7(d) of his re-amended grounds of claim [CB1.4.3] that the MPA decision was flawed because of “the failure to disclose that the MPA proposal, insofar as it prohibited all fishing, would adversely affect the traditional and/or historical rights of Chagossians to fish in the waters of their homeland, as both Mauritian citizens and as the native population of the Chagos Islands”. I understand from paragraphs 44, 57 and 67(c) of the re-amended grounds of claim that the Claimant bases his claim that the Chagossians enjoy fishing rights in BIOT waters in part on an understanding reached in 1965 between Her Majesty’s Government (“HMG”) and representatives of the Legislative Council of the Colony of Mauritius and in part on fishing carried out by resident Chagossians before they left the islands. I shall for convenience refer to this as the “fishing rights” point.
  
3. The Claimant’s pleading appears to say that it is the Claimant’s case that Mauritius and/or Chagossians had and have fishing rights in BIOT waters. However, I am informed by the Treasury Solicitor and believe that, at the hearing before the Divisional Court on 21 November 2012 of the Claimant’s application, the Claimant indicated that he conceded that the Administrative Court could not, or should not, make any such finding and that the Claimant put his case differently. Namely, and as recorded in paragraph 15 of the Divisional Court’s judgment of 21 November 2012, the Claimant does not contend that the traditional or historical rights relied on are legally enforceable, calling for a decision on whether there are enforceable rights under international law, but “that there is credible evidence that HMG gave an undertaking to the Government of Mauritius which has subsequently been evidenced in preferential treatment for Mauritius

flagged fishing vessels and that this was an important part of the background yet was not put before consultees, who were in consequence misled”. Putting the Claimant’s point – as I understand it – another way, it was possible that Mauritius and/or Chagossians had and have fishing rights in BIOT waters and this possibility should have been mentioned in the consultation document, and the omission to mention this possibility rendered the consultation unlawful because consultees were deprived of material information. It is on the basis of this understanding of the Claimant’s case that I make the present statement. No doubt, if I have misunderstood the Claimant’s case, the Claimant will correct my understanding, in which case I may need to file a further witness statement. Accordingly, in this statement I set out why the “fishing rights” point was not included in the consultation document.

4. The contents of this witness statement are within my own knowledge or derived from Foreign and Commonwealth Office (“FCO”) files and are true to the best of my knowledge and belief. I have also read in draft both the third statement of Colin Roberts, which deals with why he did not advise the Defendant to mention the “fishing rights” point in the consultation document, and the statement of John McManus, the current BIOT Administrator and Head of BIOT and Director of Fisheries, who provides a description of the legal and regulatory framework governing the MPA and the BIOT commercial fisheries regime which it replaced. The contents of both those statements are true to the best of my knowledge and belief.

*Consideration of “fishing rights”*

5. By the time I started engaging in discussions with representatives of Pew Environmental Group in April 2008 on the possibility of creating a marine protected area in the BIOT, described in my first statement [CB1.17], and carrying out the informal scoping work on the possibility of an MPA in 2008/2009, I was aware of the existence of the discussions at Lancaster House in September 1965 between HMG and representatives of the Legislative Council of the Colony of Mauritius and the understandings reached concerning the detachment of the Chagos Archipelago from the Colony of Mauritius, including that recorded in paragraph 22(vi) of the minutes of that meeting regarding “fishing rights” and other facilities. I was also aware that Mauritian-flagged vessels were able to fish in BIOT waters without paying a licence fee.
  
6. I was mindful that Mauritius’ “fishing rights” under the 1965 understandings was something that would need to be looked into if the MPA proposal was developed any further. We flagged up the issue of “Mauritius and inshore fishing” with Pew at the meeting on 22 April 2008. As recorded in my note of this meeting, produced as tab 7 of “JY 1”, “we explained that Mauritius did have some rights but had not exercised them recently but this was a loophole that would need looking into” [EB.3.7.152]. Another issue we flagged as potentially making an MPA politically difficult was Mauritius’ claim to the islands. We also explained that a second problem was Chagossians who wanted a fishing industry and that any comment or movement on the Pew ideas would need to await judgment being handed down in the autumn by the House of Lords in the “*Bancoult II*” case.



7. At the end of January 2009, during the informal MPA scoping process described by Mr Roberts in paragraph 12 of his first statement [CB1.16.146-147], on Mr Roberts' instructions, I sought legal advice on all legal issues potentially arising from a large scale BIOT marine park from FCO Legal Advisers. Over the following months I went back to Legal Advisers several times to seek clarification on aspects of the legal advice received and as new questions arose. The Defendant does not in these proceedings waive privilege in respect of any of this legal advice.
  
8. The term "fishing rights", used in the record of 1965 Lancaster House discussions, was used by me and others working in the BIOT Administration. In my mind, this term simply referred to the fact that Mauritian-flagged vessels obtained free licences to fish in BIOT waters. I was aware that the Lancaster House discussions and the understandings reached with representatives of the colonial legislative assembly at that time did not constitute a treaty and therefore could not see how these "rights" could be legally enforceable. Indeed, I could not see how the understanding on fishing rights and other facilities could legally oblige the UK to allow Mauritius to fish in BIOT waters given the nature of its terms, such as the fact that the understanding was only in so far as was practicable. Furthermore, I was never in any doubt that any deal done at Lancaster House was for the Government of Mauritius, not for Chagossians. Throughout my tenure as BIOT Administrator, my belief was that the Chagossians as such had no fishing rights in BIOT waters, whether as a result of the 1965 understanding on "fishing rights" between representatives of the Colony of Mauritius and HMG or based on "traditional" fishing carried out by resident Chagossians before they left the islands.

*Position of Mauritius*

9. I considered Mauritian “fishing rights” under the 1965 understanding, which had in practice taken the form of free licences for Mauritian-flagged vessels to fish in BIOT waters, to be an undertaking of a political, not legal, nature. “Fishing rights” had been one of the agenda items tabled at the UK-Mauritius bilateral discussions of 14 January 2009 on issues relating to BIOT. Mauritius was seeking a sharing of fisheries resources. We understood this to be linked to Mauritius’ claim to sovereignty, for granting fishing licences is recognised as the right of the territorial state. If the UK acceded to such a proposal, it would be, and would be seen by Mauritius to be, an acknowledgment of Mauritian sovereignty. I recall that a member of the Mauritian delegation said that Mauritius’ lack of interest in Mauritian-flagged vessels taking up licences and continuing its involvement in the British Mauritian Fisheries Commission was because it was considered those activities impacted negatively on Mauritius’ position on sovereignty. I understood this to mean that the Mauritian Government felt that encouraging their nationals to take up free licences to fish in BIOT waters or working with BIOT and UK officials in the British Mauritian Fisheries Commission would be acknowledging the UK’s sovereignty. The contents of this meeting and the events leading up to it are described in further detail by Mr Roberts in his third statement.
  
10. Thus I was alive to the question of Mauritian “fishing rights” during the informal consultation process which started in May 2009, after the Secretary of State decided to go ahead with consideration of the MPA proposal. I considered it to be a bilateral political issue between the UK and Mauritius, not a legal one. It was

potentially an issue to be addressed with Mauritius when we discussed the MPA proposal with them, as we planned to do at the second round of bilateral discussions between the UK and Mauritius on BIOT scheduled to take place in Port Louis on 21 July 2009.

*Discussions with MRAG and fishing in BIOT waters*

11. In early July 2009, as part of the preparations for the second round of bilateral talks with Mauritius, I asked MRAG Ltd (“MRAG”) for a full history of fishing in BIOT by Mauritian vessels. MRAG is a consultancy firm which specialises in designing and implementing resource management systems in marine environments. It had since 1991 contracted with the BIOT Administration to run the BIOT fisheries because we did not have the capacity or the expertise in-house. As BIOT Administrator, I was also Director of Fisheries and MRAG reported to me, but my involvement in day-to-day fishing matters was fairly limited. MRAG’s relationship to the BIOT Administration and its role is set out in more detail in John McManus’s statement. As part of its role, MRAG received and assessed applications for fishing licences (which were sent to me for signature) and kept the BIOT Administration’s records on licences, including those issued free to Mauritian-flagged vessels.
  
12. I produce MRAG’s email response of 6 July 2009 and attachment, a “Summary of the activities of Mauritian (flagged and owned) vessels in the BIOT FCMZ by year 1991 to date” as tab 1 to “JY 2”. The summary set out the numbers of inshore and purse seine net licences issued. At that time BIOT issued three types of commercial fishing licence: inshore fishing licences and licences for tuna fishing

by long line and licences for fishing tuna by purse seine net, as explained in more detail in John McManus's statement. The information provided by MRAG confirmed my impression that the take-up of fishing licences by Mauritian-flagged vessels had been very low for several years. The number of licences issued to Mauritian-flagged vessels for inshore fishing had been dropping since 1996. In 2005 and 2008 no inshore licences had been issued at all. Only one inshore fishing licence had been issued in each of the years 2006 and 2007, to one of the vessels owned by a Mauritian company, the Talbot Fishing Company. However, as the two vessels owned by the Talbot Fishing Company were flagged to Madagascar and the Comoros, not Mauritius, licence fees were charged. The data supplied by MRAG in July 2009 suggested that in the five fishing seasons between 2005 to 2009, only one inshore fishing licence had been issued free to a Mauritian-flagged vessel, in 2009. The last time a purse seine tuna fishing licence had been issued to a Mauritian-flagged vessel was in 1999. No Mauritian-flagged vessel had ever applied for a long line tuna fishing licence.

13. MRAG sent me a further email on 9 July 2009, containing their comments and advice on the proposed BIOT MPA, which largely reflects the content of MRAG's subsequent 2 February 2010 submission to the public consultation. I produce the email of 9 July 2009 and attachment as tab 2 to "JY 2". On 15 July 2009 Colin Roberts and I met MRAG for further discussion of the MPA proposal and Mauritian fishing in BIOT waters. A copy of my email correspondence with Mr Roberts the day before the meeting with MRAG on a range of issues related to the MPA proposal is produced by Mr Roberts as tab 18 to "CR 2". In the comments on the proposal, MRAG raised what it referred to as "Mauritius historical fishing

rights” (at p 6). I cannot recall what, if anything, was said in response to this point. By that stage of our preparations for the bilateral talks we had reached the clear conclusion that the UK had no legal obligations stemming from the 1965 understanding that would preclude a no-take MPA.

*Discussions and consultation in Mauritius*

14. On 21 July 2009, Colin Roberts and I, together with John Murton, the British High Commissioner in Port Louis, and an FCO Legal Adviser attended the second round of bilateral talks with Mauritius on BIOT. The MPA proposal was outlined in some detail to the Mauritian delegation, including the possibility of a complete ban on fishing in BIOT waters. These discussions are detailed by Mr Roberts in his third statement. My impression was that the Mauritian delegation’s reaction to the MPA proposal was generally positive. They did not raise the subject of “fishing rights” under the 1965 understanding or free fishing licences for Mauritian-flagged vessels in their response, which I am sure the Mauritian delegation would have done if that had been a concern for them. The proposal for joint issuing of fishing licences was on the agenda because joint management of the fishery would be an acknowledgement of Mauritian sovereignty, so the Mauritians were keen to keep the issue live for political reasons. There was no discussion of fishing outside the subject of the joint issue of fishing licences.
  
15. While I was in Mauritius for the bilateral talks in July 2009, I was also interested to speak to Alain Talbot of the Talbot Fishing Company. The Talbot Fishing Company owned and operated fishing vessels which had fished in the BIOT inshore (i.e. not tuna) fishery on and off for some years, so I wanted to hear his

views on a possible MPA and how it might affect the company. As indicated above, the Company was the only Mauritian company to take up an inshore fishery licence in 2006 and 2007 (with its Madagascar-flagged vessel), and owned one of the two vessels which had by July 2009 been issued with an inshore fishery licence for 2009 (with its Comoros-flagged vessel), and Christophe Talbot, Mr Talbot's cousin, ran Mecfish Ltd, which operated the other, Mauritian-flagged vessel which had been issued with a free inshore fishery licence earlier in 2009. Mr Talbot's first remarks were that "it would be disastrous". (Further detail about the involvement of the Talbot family in inshore fishing in BIOT is contained in Mr McManus's statement.) He did not explain what he meant and I didn't ask because he immediately began suggesting ways that he could work with an MPA, e.g. converting his boats into vessels that could carry tourists over to any eco-tourism resort that might come about or equipping the vessels to assist the scientific research being carried out in the MPA.

*Further consideration of the fishing point in the consultation*

16. Mauritian "historical fishing rights" were raised once again at the workshop on the proposed MPA held at the National Oceanography Centre at the University of Southampton. I attended the workshop on 5-6 August 2009, and refer to it at paragraph 14 of my first statement [CB1.17.164-165]. A copy of the third draft of the report of the workshop, drafted by the organisers, is produced in the agreed bundle [at CB1.34.286-297]. I was asked by the organisers to review the draft report, but I cannot recall exactly why.

17. “Fishing issues” were summarised in a section on page 5 of the draft [CB1.34.290]. It refers to “Mauritian/Chagossian historical fishing rights, at present regulated through free licences”. As I have said earlier in this statement, the issue of free fishing licences to Mauritius-flagged vessels was a consequence of the 1965 understanding. They were for the benefit of the Mauritian Government, not Chagossians. The authors of the draft report had not made or understood this distinction, as the sentence just quoted suggests, treating Mauritius and Chagossians as one and the same with reference to the issue of free licences. For this reason, I crossed out the reference to “Chagossian” and wrote “No!” in the margin, leaving the reference to “Mauritian historical fishing rights”. I made the same amendment to the reference to “Mauritian/Chagossian fishing rights” on the penultimate line on page 5. The authors accepted my comments and changed the wording in the final report of the workshop published in December 2009 [EB7.26.138-139].

*Drafting of the consultation document*

18. By the time I started drafting the MPA consultation document in the autumn, a task for which I was responsible as I explained in paragraphs 2 and 17 of my first statement [CB1.17.160-166], we were satisfied that we had no legal obligation that would preclude a no-take MPA. There was merely the arrangement for free licences for Mauritian-flagged vessels. Also, in practice, the uptake of free licenses by Mauritian-flagged vessels was very low, and Mauritius’ concerns regarding fishing in BIOT waters centred on their sovereignty claim, not any claim to fish in BIOT waters stemming from the 1965 understandings or free licenses for

Mauritian-flagged vessels. These understandings are part of the background that informed my judgement as to what should go into the consultation document.

19. I also had in mind that it was important to keep the consultation document as concise and simple as possible, in line with the accessibility requirement set out in paragraph 4.2 of the Code of Practice [EB3.26.242] (discussed in paragraph 17 of my first statement). Drawing up the impact assessment (Annex A to the consultation document [CB1.38. 309 & 318-320]), required by criterion 3 of the Code of Practice, in the clear terms appropriate to a public consultation required particular care because the range of different foreign state and private interests involved.
  
20. Uppermost in my mind at the time was that any MPA – and therefore any MPA consultation – should be without prejudice to the outcome of the *Chagos Islanders v UK* proceedings in the European Court of Human Rights. Although I did not consider that the Chagossians had any existing fishing rights under the 1965 understanding or on any other basis, I was conscious that, if the Chagossians were successful in their wish to return to the islands, they would likely need to introduce a fishing industry to have any chance of an economically sustainable settlement. The fishing sector had been identified in the “Returning Home” leaflet published in March 2008 by the Chagos Refugee Group and the UK Chagos Support Association, which I had read, as a source of revenue and employment. For this reason, I sought legal advice to make sure it was clear from my wording in the consultation document that the MPA would not interfere with any change of circumstances that might follow a judgment of the European Court of Human



Rights in *Chagos Islanders v UK*. Thus, I said on page 13 of the consultation document [CB1.38.320] that:

Following the decision of the House of Lords in *R (Bancoult) v Secretary of State for Foreign and Commonwealth Affairs* [2008] UKHL 61... the current position under the law of the BIOT is that there is no right of abode in the Territory and all visitors need a permit. Under these circumstances, the creation of a marine protected area would have no immediate impact on the Chagossian community. However, we recognise that these circumstances may change following any ruling that might be given in the proceedings currently pending before the European Court of Human Rights in Strasbourg in the case of *Chagos Islanders v UK*. Circumstances may also change when the Territory is ceded to Mauritius. In the meantime the environment will be protected and preserved.

The MPA would not be, and still is not, a bar to their return and resettlement. The MPA can be modified or repealed.

21. I was also concerned about the interests of foreign states other than Mauritius. Article 62(3) of UNCLOS requires the coastal state to take into account the interests of states whose nationals have “habitually fished” in the 200 nautical mile exclusive economic zone. At the forefront of my mind were the big companies with vessels flagged to Spain, France, Thailand, Japan and Taiwan who had fished for tuna in the BIOT FCMZ. It was mostly vessels flagged to these states that applied for the licences for purse seine and long line fishing in the BIOT FCMZ. I was not thinking about Mauritius or the Chagossians in this context, because, as I have already said, the Chagossians had no fishing rights and Mauritius-flagged vessels had not applied for purse seine licences for tuna fishing since 1999, had never applied for long line licences for tuna fishing, and applications for free inshore fishing licences had fallen to low levels.

22. I also identified the US as an interested party for the purposes of the impact assessment, because of its military base on Diego Garcia, and Mauritius, because of its claim to sovereignty over BIOT.
23. All of the above are referred to in the impact assessment in Annex A of the Consultation Document as “groups who”, “[a]s well as the international fishing community”, “would be directly or indirectly affected by the establishment of a marine protected area and any resulting restrictions or a ban on fishing” [CB1.38.319].
24. My other concern was to re-assure the Mauritians that the creation of an MPA would have no impact on their claim to sovereignty and to re-assure the US that an MPA would have no impact on the operational capability of the base at Diego Garcia. Thus it is stated in the Consultation Document that [CB1.38.314]

Access to a part of the Territory is also restricted under our Treaty obligations with the US. It is the Government’s provisional view, therefore, that we would not establish a permanent research facility in any part of the Territory. Any decision to establish a marine protected area would not affect the UK Government’s commitment to cede the Territory to Mauritius when no longer required for defence purposes.

The two points are reiterated at page 12 of the consultation document [CB1.38.319]. The joint communiqué from the July bilateral talks between Mauritius and the UK was attached as Annex C to the consultation document because it outlined Mauritius’ claim to sovereignty set out the respective views of the UK and Mauritius on sovereignty and showed that we had been talking to the Mauritians about the MPA [CB1.38.42].

25. I did not include any reference to “fishing rights” as referred to in the 1965 understandings or the issue of free licences to Mauritian-flagged vessels, because of our conclusion that the undertaking as to Mauritian “fishing rights” under the 1965 understandings was of a political not legal nature. Mauritius had not raised it as an impediment to a no-take MPA in our previous consultations with them, and the impact of a no-take MPA on the free licensing arrangements would be very small because of the low take-up of licences by Mauritian-flagged vessels. I also note that the consultation document included a link to the NOC Workshop Report [CB1.38.316], which did make reference to “Mauritian traditional fishing rights”. I did not include any reference to Chagossian “fishing rights” because these do not exist.

*Responses to the consultation document*

26. Although I understand the Claimant’s case on the “fishing rights” point to be that the consultation was flawed because the consultation document did not make reference to Mauritian/Chagossian “fishing rights” or to the possibility that such rights might exist, I would add that none of the responses received during the public consultation caused me to alter my views or to consider amending the consultation document.

27. The public consultation elicited responses from each of the groups identified in Annex A of the Consultation Document as groups which might be affected by restrictions or a ban on fishing. There were a number of responses from the international fishing community. The strongest came from Jose Angel Angelo, Managing Director of ANABAC, a Spanish association of tuna fishing companies.

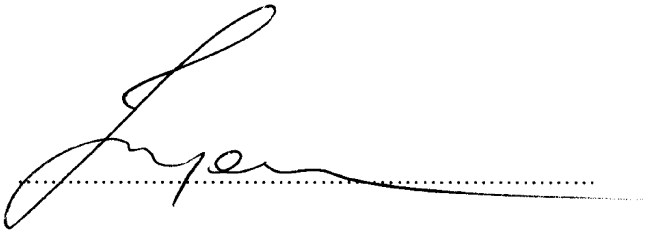
France and Spain also approached HMG independently, after the launch of the public consultation to raise their concerns about the impact of the proposal on French and Spanish nationals who had fished in the BIOT FCMZ.

28. MRAG also sent in a response, raising again the point they had made earlier, in July 2009, about the impact of an MPA on “Mauritian historical fishing rights” [EB.27.149-219 at pp.204-205]. For the reasons I have explained in this statement, including those given by Mr Roberts in his third statement, MRAG’s submission did not cause us to reconsider our views on Mauritian “fishing rights” under the 1965 understandings and the free licensing of Mauritian-flagged vessels.
29. The Claimant is recorded as saying “Are fishing rights which they need in their sea” at the videoconference convened by the independent consultation facilitator as part of the public consultation in Port Louis, on 4 March 2010. I read both the table summarising responses to the public consultation collated by the facilitator (produced as tab 3 to “JY 2”) and the facilitator’s report in draft [CB2.41], before I prepared the advice to Colin Roberts and Ministers of 30 March 2010 on “next steps” for the proposed BIOT MPA [CB2.43.378-379]. I read this as an assertion by the Claimant of Chagossian “fishing rights” that a resettled Chagossian population would require but, as I have said, no such rights existed. The report by the independent consultation facilitator, Rosemary Stevenson [CB2.41.343] does not make any reference to a claim to “fishing rights”.
30. In the dealings between Mauritius and the UK during the public consultation period, Mauritius never raised the 1965 understanding on “fishing rights” or the

issue of free licensing of Mauritius-flagged vessels. As far as I was concerned at the time, this was entirely consistent with the Mauritian stance linking management of resources and the joint issue of fishing licences in BIOT waters with sovereignty. This is confirmed in my briefing of 30 March 2010: under the heading “Relations with Mauritius” [CB2.43.377] there is no reference to “fishing rights” because, quite simply, Mauritius never raised them and my belief was that Mauritius did not have any legally enforceable fishing rights stemming from the 1965 understandings. I go on to say in paragraph 14 of the briefing, that “We do not need Mauritius’ agreement to declare an MPA”. This sentence was included in the briefing in the context of sovereignty, i.e. we don’t need Mauritian agreement because BIOT is sovereign UK territory.

I believe that the facts stated in this statement are true

Signed

A handwritten signature in black ink, appearing to be 'L. J. ...', written over a horizontal dotted line.

8 March 2013



Defendant  
J Yeadon  
Third  
“JY 2”  
8 March 2013

CO/8588/2010

IN THE HIGH COURT OF JUSTICE  
QUEEN’S BENCH DIVISION  
ADMINISTRATIVE COURT

IN THE MATTER OF A CLAIM FOR  
JUDICIAL REVIEW

R  
on the application of  
LOUIS OLIVIER BANCOULT  
Claimant

v

SECRETARY OF STATE FOR FOREIGN  
AND COMMONWEALTH AFFAIRS  
Defendant

THIRD WITNESS STATEMENT OF JOANNE YEADON
---

Steven Kovats QC  
39 Essex Street

Kieron Beal GC  
Blackstone Chambers

Penelope Nevill  
20 Essex Street

Treasury Solicitor  
1 Kemble Street  
London WC2B 4TS

Ref: Q100326H/ZER/B4

**Annex 74**

Third witness statement of Colin Roberts,  
8 March 2013



Defendant  
C Roberts  
Third  
“CR 3”  
March 2013

CO/8588/2010

IN THE HIGH COURT OF JUSTICE  
QUEEN’S BENCH DIVISION  
ADMINISTRATIVE COURT

IN THE MATTER OF A CLAIM FOR JUDICIAL REVIEW

R  
on the application of  
LOUIS OLIVIER BANCOULT

Claimant

v

SECRETARY OF STATE FOREIGN AND COMMONWEALTH AFFAIRS  
Defendant

THIRD WITNESS STATEMENT OF COLIN ROBERTS
--

I, Colin Roberts, Director, Eastern Europe & Central Asia Directorate, formerly Director Overseas Territories Directorate, Foreign and Commonwealth Office and HM Commissioner for the British Indian Ocean Territory, of the Foreign and Commonwealth Office, King Charles Street, London SW1A 2AH, SAY AS FOLLOWS.

1. I am the same Colin Roberts whose first witness statement in this action is dated 1 May 2012 (“my first statement”) and whose second witness statement in this action is dated 16 July 2012 (“my second statement”). I am authorised by the Defendant Secretary of State to make this witness statement on his behalf.
2. The purpose of this witness statement is to respond to the new claim made by the Claimant at paragraph 7(d) of his re-amended grounds of claim [CB1.4.3] that the MPA decision was flawed because of “the failure to disclose that the MPA proposal, insofar as it prohibited all fishing, would adversely affect the traditional and/or historical rights of Chagossians to fish in the waters of their homeland, as

both Mauritian citizens and as the native population of the Chagos Islands”. I understand from paragraphs 44, 57 and 67(c) of the re-amended grounds of claim that the Claimant bases his claim that the Chagossians enjoy fishing rights in BIOT waters in part on an understanding reached in 1965 between Her Majesty’s Government (“HMG”) and representatives of the Legislative Council of the Colony of Mauritius and in part on fishing carried out by resident Chagossians before they left the islands. I shall for convenience refer to this as the “fishing rights” point.

3. The Claimant’s re-amended pleading appears to say that it is the Claimant’s case that Mauritius and/or Chagossians had and have fishing rights in BIOT waters. However, I am informed by the Treasury Solicitor and believe that, at the hearing before the Divisional Court on 21 November 2012 of the Claimant’s application the Claimant indicated that he conceded that the Administrative Court could not, or should not, make any such finding and that the Claimant put his case on a different basis. Namely, and as recorded in paragraph 15 of the Divisional Court’s judgment of 21 November 2012, the Claimant does not contend that the traditional or historical rights relied on are legally enforceable, calling for a decision on whether there are enforceable rights under international law, but “that there is credible evidence that HMG gave an undertaking to the Government of Mauritius which has subsequently been evidenced in preferential treatment for Mauritius registered fishing vessels and that this was an important part of the background yet was not put before consultees, who were in consequence misled”. Putting the Claimant’s point – as I understand it – another way, it was possible that Mauritius and/or Chagossians had and have fishing rights in BIOT waters and this possibility should have been mentioned in the consultation document, and the omission to mention this possibility rendered the consultation unlawful because consultees were deprived of material information. It is on the basis of this understanding of the Claimant’s case that I make the present statement. No doubt, if I have misunderstood the Claimant’s case, the Claimant will correct my understanding, in which case I may need to file a further witness statement. Accordingly, in this statement I set out why I did not advise the Defendant to mention the “fishing rights” point in the consultation document.

4. The contents of this witness statement are within my own knowledge or derived from FCO files and are true to the best of my knowledge and belief. I have also read the draft third statement of Joanne Yeadon, which deals with the extent to which she considered fishing rights in her preparation of the consultation document and the draft statement of John McManus, the current BIOT Administrator and Head of BIOT and Director of Fisheries, who provides a description of the legal and regulatory framework governing the MPA and the BIOT commercial fisheries regime which it replaced. The contents of both of these statements are true to the best of my knowledge and belief.
  
5. Before I began detailed work on the MPA proposal in 2009, my knowledge of Mauritius' claims to sovereignty over the BIOT and of the 1965 Lancaster House discussions between HMG and the representatives of the Legislative Assembly of the Colony of Mauritius was based on the briefing I received on taking up the post of Director of the Overseas Directorate of the Foreign and Commonwealth Office ("FCO") and as HM Commissioner for the BIOT. As part of this briefing, in the autumn of 2008, I received oral briefings from the FCO Research Analyst (RA) who specialised in BIOT, on all subjects relating to the BIOT. She directed me to the key files and research analyst papers to read.
  
6. BIOT-related issues were high on the agenda at the time I took up my post, as the *Bancoult II* proceedings were then pending in the House of Lords (the hearing dates were 30 June and 1-3 July 2008 and judgment was given on 22 October), although I left one of my Deputy Directors, Andrew Allen, to deal with the running of that case because I had come into post too late in the proceedings to warrant becoming involved. I recall being directed to and reading the paper dated 11 October 1996 entitled "BIOT/Mauritius: Fishing Rights" (produced as tab 1 to "CR 1") as part of the briefing by the FCO Research Analyst, as well as Mr Justice Ouseley's judgment of 9 October 2003 in *Chagos Islanders v Attorney General* [2003] EWHC 2222 (QB), which is considered to be one of the best summaries of the creation of BIOT, and so would have become aware as part of this process of the 1965 Lancaster House discussions and the reference to "fishing rights" in paragraph 22(vi) of the record of those discussions. The FCO Research Analyst would no doubt have briefed me orally on any relevant information concerning

fishing rights for the period between October 1996 and autumn 2008, though I cannot now recall anything specific on the point. It appeared to me at that time that the fishing aspects of the 1965 understandings had never really been resolved, but that the UK Government had chosen to accord Mauritius certain privileges in BIOT waters nevertheless. By 2008/9 this amounted to a readiness to issue licences free of charge, i.e. a licence was required, but the licence fee was waived.

7. At the time, the question of Mauritian “fishing rights” in BIOT waters based on the 1965 understanding was not a live issue in relations between HMG and Mauritius concerning BIOT. The main issue was Mauritius’ wish to negotiate over sovereignty and to join the UK/US security dialogue in relation to BIOT. I would not have needed to know the details of the licensing arrangements for Mauritian flagged vessels in BIOT waters until later in the MPA scoping process, as the operation of the licensing regime was a matter for the BIOT Fisheries Officer. It would also have been a non-issue at the time of the briefing because, as I learned later, Mauritius’ flagged vessels had in recent years made few applications for licences.

*UK-Mauritius bilateral talks*

8. In the early part of 2008, at the instigation of Mauritian Prime Minister, the British Prime Minister had agreed to a dialogue between the FCO and Mauritian representatives on issues relating to the BIOT. Part of my Directorate’s role was to create a framework for these talks. We were very clear that sovereignty was a “red line” issue, but endeavoured to find other issues we could discuss with the Mauritians in order to have a worthwhile agenda. One of the issues identified, among others, was “fishing rights”, as reflected in the correspondence within the FCO and with Mauritius in 2008 and advice to Ministers. Copies of these documents are produced at tabs 2-10 of “CR 3”. What we had in mind under the rubric of “fishing rights”, and the only proposal we were prepared to advance with Mauritius at the talks on BIOT, was practical cooperation, such as sharing fisheries research and data and a joint observer programme, as we have with the Seychelles through the British-Seychelles Fisheries Commission. A similar British-Mauritian Fisheries Commission (“BMFC”) had been set up under an Agreement with Mauritius under a sovereignty umbrella in 1994, but the Mauritian side had walked

away after the last meeting (in 1999) because, as I understood it, they considered it was inconsistent with their position on sovereignty over BIOT. We could have offered Mauritius a return to this type of fisheries forum, although we judged this was likely to be a non-starter because Mauritius was only interested in using fisheries to advance its sovereignty claim. There was, however, plenty that could be done under a fisheries cooperation framework, namely exchanging fisheries data and scientific research, and other practical areas such as Mauritius-flagged vessels taking advantage of the arrangement whereby they did not have to pay for licences. These possibilities were never developed with Mauritius because, as I will shortly explain, it was made clear to us by Mauritius in the talks in January 2009 that it was only interested in fisheries concessions as a way of establishing sovereignty, it had no proposals to make under this heading, and the issue was not pursued by either side.

9. As the Pew Foundation proposal for a large scale BIOT marine reserve was by then circulating (as explained in paragraph 11 of my first witness statement ([CB1.16.145-6])), the UK-Mauritius bilateral talks were also considered an opportunity to raise the issue of additional protection of the BIOT marine environment to gauge Mauritius' reaction.

*The first round of bilateral talks*

10. The first round of bilateral talks with Mauritius took place on 14 January 2009 in London under a sovereignty umbrella. I was the head of the UK Government's delegation, which included Miss Yeadon. The Mauritius delegation was led by their Secretary to the Cabinet, Mr Seeballuck, and comprised in addition Mauritius' Solicitor-General, the High Commissioner to London, a First Secretary from their High Commission in London and its legal counsel, Professor Ian Brownlie. We allowed Mauritius, through its counsel, to present its case on sovereignty, which was also set out in a paper prepared and tabled by counsel (produced as tab 11 to "CR 3"). The focus of the Mauritian presentation was sovereignty. "Fishing rights" were raised by Mauritius' counsel, along with resettlement, rehabilitation of the economy of certain islands, protection of the environment and the resources of the continental shelf, as an aspect of the exercise of sovereign rights of Mauritius based on their argument that they had sovereignty

over BIOT by virtue of principles of international law and United Nations General Assembly resolutions.

11. The 1965 Lancaster House talks and the arrangements which resulted were referred to separately, firstly to reject them as a basis of agreement for the excision of BIOT, and, secondly, as the basis of an alternative legal framework to sovereignty and a recognition of the legal interest of Mauritius in the BIOT. It was not claimed that Mauritius had legally enforceable fishing rights and/or a right to free licences as a result of the 1965 understandings reached at Lancaster House. Rather, it was suggested in counsel for Mauritius' paper that it would be "entirely fitting if the present talks were to *involve offers from the U.K. side which reflect the content of promises* which appear in the record of the 1965 talks" (my emphasis): in my view some way short of suggesting legally enforceable fishing rights.
12. The UK delegation said that we did not accept Mauritius' case, but we would be happy to talk about other aspects of BIOT. The OTD's formal note of the meeting, which was circulated to members of the UK Government's delegation and approved by me at the time in accordance with standard procedure, is produced as tab 12 of "CR 3". The discussion of this issue, under the item of "access to natural resources", is recorded as follows:

The UK pointed out that although BIOT was a rich fishery, it was not a profitable one. Revenue from licences was lower than expenditure on administration and modest level of fishing protection. It was only made financially viable through a subsidy from HMG to BIOTA. The UK and Mauritius had a framework for discussing fisheries in the 1994 Agreement. It was not the UK's fault this had lapsed. The UK was ready to look at returning to the 1994 Agreement. But we were talking about the grant of privileged access; nothing more. The UK was also looking at more ambitious approaches to managing the marine resource.

The Mauritians explained that their lack of interest in taking up fishing rights (free licences) & continuing with the British Mauritian Fisheries Commission was that they felt this impacted on their position on sovereignty. They were, however, prepared to have a fresh look to ensure that the resources of the Chagos Archipelago were exploited in an equitable and responsible manner. This could be the subject of further talks. It became apparent during the rest of this discussion that the Mauritians were under the illusion that we were

agreeing to share resources. The UK pointed out that this was not the case. We were talking about privileged access only.

13. The reference in the joint communiqué to “mutual discussion of fishing rights” (produced as tab 13 to “CR 3”) is a reference to these sorts of arrangements and we would not have allowed it in if it had been a reference to anything else. Any claim or proposal by Mauritius to joint sharing of resources or management of fisheries was a “red line” issue for HMG because it was designed to advance Mauritius’ sovereignty claim.

*Consideration of the nature of Mauritian “fishing rights”*

14. I did not take a view in late 2008 or early 2009 on the precise legal nature, if any, of the licensing arrangements for Mauritius-flagged vessels, but I did recognise that this was something we needed to look at as part of the scoping process for the MPA proposal. The question of what rights Mauritius had, if any, stemming from the 1965 understandings struck me as unclear, but by 2008/2009 there did seem to be some kind of political commitment to issue free licences to Mauritian-flagged vessels who applied for licences under the fisheries regime then in force. I thought it necessary to confirm with the FCO Legal Advisers that the establishment of a no-take MPA would not conflict with any legal obligations owed by the UK to Mauritius.
15. Towards the end of January 2009, advice was sought from FCO Legal Advisers on all legal issues potentially arising from the BIOT marine park. We went back to Legal Advisers on several occasions over the following months to seek clarification on aspects of the legal advice received and as new questions arose. A legal adviser accompanied the delegation to the second bilateral talks with Mauritius in Port Louis, which took place on 21 July 2009. Thus my understanding of legal nature of Mauritius’ “fishing rights” firmed up over a period of time, prior to the finalisation and launch of the consultation document later that year, on 10 November. The defendant does not in these proceedings waive privilege in respect of any of this legal advice.

16. During this first part of 2009, when the scoping out work on a possible BIOT marine park was still being carried out, and before any policy decision had been taken by Ministers to progress discussions on a possible large scale MPA in BIOT with stakeholders, the FCO received a note verbale from Mauritius dated 5 March 2009 concerning the Chagos Environment Network initiative for a large scale marine reserve in BIOT covering 250,000 square miles (i.e. the entire exclusive economic zone) (produced as tab 14 to “CR 3”). According to the note verbale, Mauritius had learned of the CEN initiative from an article in *The Independent* dated 9 February 2009 (produced as tab 15). A second note verbale on the same topic was received from Mauritius dated 10 April 2009 (produced as tab 16 to “CR 3”). I was aware of these notes at the time, although the task of responding to such notes verbales fell within the remit of the Deputy Director and the BIOT Administrator. Mauritius made no reference to the impact any such proposed marine park might have on “fishing rights”, “fishing rights” under the 1965 understandings or free licenses for Mauritian-flagged vessels. Instead the notes verbales stated that the creation of a marine park or the introduction of proposals for environmental protection would require Mauritius’ consent, a position entirely consistent with its position on sovereignty.
17. My note to the Foreign Secretary of 5 May 2009 on the possibilities of a large scale BIOT MPA includes a brief summary of the position *vis à vis* Mauritius as I understood it at that time (tab 5 of “CR 1” [EB.2.5.118]):

Mauritius claims sovereignty over BIOT on the grounds that its excision from the colony of Mauritius in the independence process was unlawful. We have committed to ceding sovereignty of BIOT to Mauritius when the territory is no longer needed for the defence purposes of the UK and US. In reality this is likely to be at least a generation away. Mauritius pursues its claim for the most part in a low key, although Mauritius domestic politics can always drive it up the agenda. We are confident of our sovereignty. However, a less well-disposed Mauritian government could well succeed in securing a UN General Assembly Resolution for an ICJ Opinion. We need to deter this. We have not yet had substantive official talks with them on the marine reserve proposal, but we know they are opposed. They have formally stated their opposition on the grounds of sovereignty, but we know they are also bothered by the risk of losing forever the chance to exploit the fishery. The position is complicated by a side deal done at the time of excision which gave Mauritius the right to apply for fishing licences free of charge.



The last sentence was originally redacted in these proceedings on the grounds of relevance. An unredacted copy is produced as tab 17.

18. We planned to discuss the possibility of a large scale MPA with Mauritius as an interested stakeholder at the second round of bilateral talks on BIOT, scheduled to be held in Port Louis on 21 July 2009. In preparation for these talks, I asked Miss Yeadon to prepare a “full analysis of the history of fishing and environmental protection in BIOT... we need to have authoritative statement of what we think Mauritius’ rights today to fish in BIOT waters” (produced as tab 18 of “CR 3”). The response, received by email dated 14 July 2009 (also at tab 18 of “CR 3”), was that

Mauritian fishing rights were never defined in the Lancaster House side meetings, but what it boils down to is free access to BIOT waters. This has translated over the years, to the Mauritians being obliged to apply for a permit but getting it free. You have already seen the Research Analyst 1996 paper on the history of fishing and now Chris Mees has provided a snapshot in his recent paper on the marine park. I will also send a copy of the analysis MRAG have prepared on Mauritian fishing activities since 1991.

The MRAG analysis (produced by Miss Yeadon at tab 1 of “JY 2”) showed that the uptake of free fishing licences for BIOT waters by Mauritian-flagged vessels had fallen away and was very low, and in some years none.

19. In the run up to the second round of bilateral talks with Mauritius, my firm understanding as a result of the enquiries undertaken as part of the MPA scoping process and advice received from legal advisers, was that Mauritius did not have legal rights to fish in BIOT waters, whether as a result of the 1965 understandings or otherwise, which prevented HMG from establishing an MPA, including a complete no-take MPA. If there was a “fishing right”, it was no more than for Mauritius flagged vessels which applied to BIOTA for licences to be issued them free of charge, but only insofar as BIOTA chose to issue licences. HMG reserved the right to decide whether or not to issue a licence. In the case of a regime where no licenses were issued, the question of a free licence simply would not arise. We would not have gone into the talks with Mauritius without being clear in our own minds what the legal position was as to Mauritius’ “fishing rights”. Nothing that was said subsequently on behalf of Mauritius caused me to question our

conclusion that Mauritius had no “fishing rights” as a result of the 1965 understandings or the subsequent arrangements concerning free licences to Mauritian-flagged vessels which prevented the establishment of an MPA, including a full no-take MPA.

*The second round of bilateral talks and meetings with Mauritius, 21 July 2009*

20. On 21 July 2009, in addition to the formal talks, I had two separate meetings with high-ranking Mauritian officials. John Murton, the British High Commissioner, and I met Arvin Boolell, the Mauritian Foreign Minister, before the start of the formal talks and explained in detail HMG’s thinking on a possible BIOT MPA. Minister Boolell was positive about the proposal for a marine protected area and indicated that Mauritius would be interested if it could be presented as something with which it could be involved. It was consistent with “Île Durable”, Mauritius’ formal vision for protecting its own marine environment. My recollection is that I then raised the possibility that a formal public consultation might be conducted and invited Mauritius to join with us in the consultation, e.g. by launching an international consultation by a joint press statement by the two Governments or by referencing Mauritius in the consultation document.
  
21. John Murton and I went farther than we needed to go given the generally positive dynamics of the wider bilateral relationship. I was clear in my own mind there was no obligation to carry out a public consultation or to include Mauritius in it. This was the first internet-based international public consultation the FCO had contemplated undertaking. A precedent for this kind of internet-based public consultation was the public consultation for the airport on St Helena carried out by DfID for which, on 21 July 2009, the three month consultation period was still running. I was clear there was no prejudice to our position or risk to our sovereignty by extending an offer of cooperation in the presentation of the international public consultation to Mauritius. We were aware that an offering of public support for the BIOT MPA proposal by the Mauritian Government might receive an unpopular reception in Mauritius if it was perceived as compromising Mauritius’ sovereignty. Involvement in the public consultation was something we could offer Mauritius at no cost to us which we felt could assist the Mauritian Government.

22. The Mauritian Prime Minister's chief cabinet secretary, Mr Seeballuck, who was hosting the formal bilateral discussions, also invited me for a tête-à-tête directly beforehand. We met for around 30 minutes, during which time I also discussed the possibilities of a BIOT MPA with him. He did not mention "fishing rights" under the 1965 understanding or free licences issued to Mauritian-flagged vessels.
23. The bulk of the formal bilateral discussions, where I outlined the possibilities of a marine reserve or MPA in BIOT formally with Mauritius for the first time (as explained at paragraph 15 of my first witness statement [CB1.16.148]), was spent on this topic. It was explained that one of the ideas being mooted was that the whole of the 200 nautical mile extent of BIOT waters be a no-take zone for fishing. The Mauritian response, as recorded in the OTD's formal record of the discussions in Port Louis on 21 July 2009, dated 24 July 2009, prepared by Miss Yeadon, cleared with all members of the delegation and approved by me (produced as tab 19 of "CR 3") was as follows:

The Mauritian delegation explained that they had taken exception to the proposal from the CEN but on the basis that it implied the Mauritians had no interest in the environment. They had also found it necessary to protest on sovereignty grounds. There was a general agreement that scientific experts should be brought together. However, the Mauritians welcomed the project but would need to have more details and understand the involvement of the Mauritian government. The UK delegation explained that not many details were available as the UK wanted to talk to Mauritius before the proposals were developed. If helpful the UK could, for the purposes of discussion, produce a proposal with variations on paper for the Mauritians to look at.

On the part of the UK it was explained that,

the Foreign Secretary was minded to go towards a consultative process and that would be a standard public consultation. However, the UK had wanted to speak to Mauritius about the ideas beforehand.

24. There was a short discussion under the heading of "fishing rights", which had been tabled on the agenda by the Mauritians ahead of time. The Mauritians wanted us to consider joint issuing of fishing licences, but this – as we understood – related not to Mauritius' "fishing rights" (it was not about fishing but about the licensing process), but to their wish to establish a sovereignty "win". It was, as commented in the

OTD's record of the discussion, "all a bit surreal when we'd spent the last half hour discussi[on] the possible ban on any fishing in the territory but the Mauritians warned us this would remain an agenda item. We agreed to consider the idea but would need to take into consideration the implications of a proposed marine protected area". We understood, from our discussions with Mauritian officials beforehand, that this particular item remained on the agenda because of its importance, in view of connection to maintenance of Mauritius sovereignty, to one member of the Mauritian delegation. I was advised by the head of the Mauritian delegation that this did not affect their general interest in working with us on the MPA proposal.

25. John Murton also reported on the 21 July 2009 discussions in an internal eGram dated 21 July 2009 (produced as tab 20 to "CR 3") and his record accurately summarises my recollections, although in paragraph 4 the elliptical style conflates the meeting with Foreign Minister Boolell with the formal bilateral discussions.
26. As explained in my first witness statement, our view was that the talks went well. Hence the record of discussions concludes: "A surprisingly positive meeting... Much remains to talk about as far as a marine protected area is concerned and one of the Mauritians in the margins of the meeting explained that proposals for co-operation etc remained to be rubber-stamped at high levels. But we did not get a rebuff on sovereignty grounds and a way forward on this issue and that of a eCS [extended continental shelf] appears to be possible". No objection to the MPA proposal was raised by Mauritius on the grounds of "fishing rights" under the 1965 understandings and the issue of free licences to Mauritian-flagged vessels.
27. We agreed at the talks a number of follow up points: that there should be a third round of bilateral talks in London in about October to pursue the MPA proposal and prepare for the consultation process and that experts should meet to follow up the eCS points. We also flagged up plans for a meeting of marine scientists planned for August. A joint communiqué resulted in which the Government of Mauritius confirmed its welcome in principle for the United Kingdom's proposal for environmental protection, which was subsequently included as annex C to the public consultation document [CB1.38.323].

28. If any one of the Mauritian representatives we spoke to on 21 July 2009 thought Mauritius had rights that would be interfered with by a possible MPA, including a complete no-take marine reserve, it is bizarre that they did not raise this in the bilateral talks or either of the meetings held that day, which were an obvious opportunity for them to do so. The fact that Mauritian officials never raised “fishing rights” as a significant factor reinforced my understanding that Mauritius did not have any such legal rights, and nothing that was said by Mauritian officials caused our legal adviser, who was present throughout as a member of the UK delegation, to amend or alter the legal advice we had received previously.

*Subsequent relations with Mauritius*

29. After July 2009 we repeated on a number of occasions our offer to the Mauritians for further talks and/or forms of participation in the public consultation process, but they never came back to us. Nor did they come to London for another round of talks. At no point did Mauritian officials ever say they did not want to be involved in the public consultation – though they did want to be involved on their own terms: see paragraph 33 below. At the time, our understanding of Mauritius’ position in relation to the MPA proposal is reflected in the briefing for Ministers on public consultation on the proposed MPA prepared by Miss Yeadon dated 30 October 2009. A copy of this document with redactions on the grounds of relevance can be found at [EB.2.8.132]. The briefing records the advice from the High Commissioner in Port Louis that Prime Minister Ramgoolam could see the advantages in supporting the consultation and recommended that the Foreign Secretary telephone the Mauritian Prime Minister ahead of the launch to discuss the matter and so “help optics” in Mauritius.

30. Because of the time constraints imposed by an anticipated UK general election in 2010, the decision was taken to go ahead, without Mauritius’ involvement, with the public consultation. The public consultation document was prepared and finalised by Miss Yeadon for a launch date of 10 November 2009, as set out in her third witness statement. Mauritian “fishing rights” or the possibility of Mauritian “fishing rights” were not included in the consultation document because, as far as we were concerned, Mauritius did not have any.

*Mauritius and others' responses to public consultation*

31. Although, as I understand it, the Claimant's case on the "fishing rights point" is that the consultation was fatally flawed because there was a failure to disclose in the consultation document the possibility that Mauritius and/or Chagossians had or might have historical/traditional fishing rights, I note that no representation was made on behalf of Mauritius, or anyone else, in the period between the launch of the public consultation on 10 November 2009 and the Foreign Secretary's decision to go ahead with a full no-take MPA on 1 April 2010, or even afterwards in the period leading up to Mauritius' notification of its claim under the UN Law of the Sea Convention 1982 on 20 December 2010 [CB2.51], that caused us to question or reconsider our conclusion that that we had no legal obligation that would preclude a no-take MPA.
  
32. MRAG's submission of 2 February 2010 as part of the public consultation, which I was aware of, largely repeated its previous advice on the MPA proposal received in advance of the meetings with Mauritian officials on 21 July 2009. While we looked carefully at the core part of MRAG's advice on the scientific aspects of the three MPA proposals, in particular their submission that greater conservation could be achieved through a managed fishery, we were conscious that MRAG had a conflict of interest here because of its contract with BIOTA to manage the BIOT fisheries. The submissions made on behalf of MRAG – who are marine consultants, not lawyers – based on its understanding of "Mauritian historical fishing rights" stemming from the 1965 understandings and the practice of issuing free licences to Mauritian-flagged vessels in part 4.4.1 of its submission did not alter our understanding, which was strengthened by Mauritius' failure to suggest otherwise, that Mauritius had no legal rights which precluded the creation of a full no-take marine reserve.
  
33. I was aware that, during the period of the public consultation, it had been made clear on behalf of Mauritius on several occasions that its Government was unhappy with what was seen as a unilateral FCO consultation and that they had demanded that the MPA consultation be cancelled before they would take part in any further rounds of talks. But at no time was any claim made on behalf of Mauritius that an MPA, full

no-take or otherwise, would interfere with any legal rights stemming from the 1965 understanding or legal rights to free licences for Mauritian-flagged vessels.

34. This is reflected in the advice we submitted to Ministers on 30 March 2010 on the proposed MPA “next steps” [EB.2.138], which included a lengthy section on Mauritius. That advice made no reference is made to any 1965 “side agreement” with Mauritius, as had my briefing on the large scale marine reserve concept for BIOT of 5 May 2009 the year before [EB.2.115], because we were by then satisfied that it was simply not an issue. Rather, as recorded in the submission of 30 March 2010, our view was we did not need Mauritius’ agreement to declare an MPA and the Foreign Secretary’s response of 30 March 2010 (tab 10 of “CR 1”) reflects this. No submissions received in the public consultation and nothing that had been said by the Mauritian government in the interim period had caused us to change this view.
35. The Mauritian objections at the time, as recorded in the submission of 30 March 2010, continued to turn on their insistence “that any MPA takes account of their sovereignty claim and includes resettlement of the Chagossian community”. As far as we were concerned, this objection was met by the repeated assurances we had given Mauritius, as reflected in the consultation document, that any BIOT MPA would have no impact on the UK’s commitment to cede the BIOT when it was no longer needed for defence purposes, and HMG’s position that, as there was no right of abode in the BIOT under current BIOT law, an MPA would have no immediate impact on settlement by Chagossians, but recognising that circumstances might change following any ruling by the European Court of Human Rights in the *Chagos Islanders* case.
36. As is evident from the internal correspondence of 31 March 2010 generated in response to the Foreign Secretary’s request for additional information produced at tabs 10-15 of my first witness statement (“CR 1”), the negative reaction we anticipated from Mauritius to a proclamation of a full no-take MPA was perceived to be a political problem, not a legal one.

37. As anticipated, Mauritius did react negatively to news of the proclamation of the BIOT MPA, conveyed by a private telephone call from the Foreign Secretary to the Prime Minister on 1 April, before the public announcement (a redacted record of this conversation was produced as tab 16 of “CR 1”). However, as the record of the conversation shows, the Mauritian Prime Minister did not at any point claim that the MPA would infringe any Mauritian legal rights stemming from the 1965 understandings or rights to free licences for Mauritian-flagged vessels. Nor did a note verbale received from the Mauritian Foreign Ministry dated 2 April 2010 formally protesting the proclamation of the MPA (produced as tab 21 of “CR 3”).

*Chagossian aspects of the Claimant’s “fishing rights” point*

38. As to the Chagossian aspects of the Claimant’s “fishing rights” point, my understanding throughout was that the arrangements to issue licences free of charge applied only to certain Mauritian-flagged vessels. In practice by 2009 there were only the two vessels operated by the Talbot Fishing Company, owned by Alain Talbot and his cousin Christophe Talbot, but they had been reflagged to Madagascar and Comoros in 2006 and so did not benefit from a free licence, and the MV Etelis, operated by Christophe Talbot, which had only started inshore fishing in BIOT in 2009 (as explained by Mr McManus in his statement). We contacted Alain Talbot in Port Louis in July 2009 when we attended the second round of bilateral talks with Mauritius on the BIOT/Chagos Archipelago to discuss directly our proposals for an MPA. He did not raise the question of Mauritian or Chagossian rights. There was never any suggestion that the Chagossians were the beneficiaries of any “fishing rights” that Mauritius might have under the arrangements for free fishing licences following from the 1965 understandings.
39. To conclude, there was no reference to any historical or traditional “fishing rights” of Mauritius or the Chagossians which might stem from the 1965 understandings in the public consultation document, or the possibility that any rights might exist, because, after considering the question and receiving legal advice, we did not believe that Mauritius or the Chagossians had, or might have had, any such rights.



I believe that the facts stated in this witness statement are true.

Signed:

.....

Colin Roberts

Date:

Defendant  
C Roberts  
Third  
“CR 3”  
March 2013

CO/8588/2012

IN THE HIGH COURT OF JUSTICE  
QUEEN’S BENCH DIVISION  
ADMINISTRATIVE COURT

BETWEEN

R  
on the application of  
LOUISE OLIVIER BANCOULT  
Claimant

and

SECRETARY OF STATE FOR FOREIGN  
AND COMMONWEALTH AFFAIRS  
Defendant

THIRD WITNESS STATEMENT OF COLIN ROBERTS
---

Steven Kovats QC  
39 Essex Street

Kieron Beal QC  
Blackstone Chambers

Penelope Nevill  
20 Essex Street

Treasury Solicitor  
1 Kemble Street  
London WC2B 4TS

Ref: Q100326H/ZER/JYY/B4

**Annex 75**

Witness statement of John McManus,  
8 March 2013

Defendant  
J McManus  
First  
"JM 1"  
8 March 2013

CO/8588/2010

IN THE HIGH COURT OF JUSTICE  
QUEEN'S BENCH DIVISION  
ADMINISTRATIVE COURT

IN THE MATTER OF A CLAIM FOR JUDICIAL REVIEW

R  
on the application of  
LOUIS OLIVIER BANCOULT

Claimant

v

SECRETARY OF STATE FOREIGN AND COMMONWEALTH AFFAIRS  
Defendant

WITNESS STATEMENT OF JOHN MCMANUS

I, John McManus, civil servant, of the Foreign and Commonwealth Office, King Charles Street, London SW1A 2AH, SAY AS FOLLOWS.

1. I am a member of the Diplomatic Service and have worked at the Foreign and Commonwealth Office ("FCO") since 1977. I am currently the British Indian Ocean Territory ("BIOT") Administrator and Head of BIOT Section, a position I have held since March 2011 when I replaced Joanne Yeadon who I understand has also given witness statements on behalf of the Defendant Secretary of State in these proceedings. I am authorised by the Defendant Secretary of State to make this witness statement on his behalf.
2. My responsibilities as BIOT Administrator and Head of BIOT Section include the development and implementation of United Kingdom policy on BIOT, including foreign policy relating to BIOT and overseeing the day to day administration of

BIOT. As the BIOT Administrator I also hold the position of BIOT Director of Fisheries. Under the BIOT administrative structure the two posts are traditionally held by the same person. The Director of Fisheries will formally become the Director of Conservation when the new MPA legislation is introduced.

3. The purpose of this witness statement is to respond to the new claim made by the Claimant at paragraph 7(d) of his re-amended grounds of claim [CB1.4.3] that the MPA decision was flawed because of “the failure to disclose that the MPA proposal, insofar as it prohibited all fishing, would adversely affect the traditional and/or historical rights of Chagossians to fish in the waters of their homeland, as both Mauritian citizens and as the native population of the Chagos Islands”. I understand from paragraphs 44, 57 and 67(c) of the re-amended claim form grounds that the Claimant bases his claim that the Chagossians enjoy fishing rights in BIOT waters in part on an understanding reached in 1965 between Her Majesty’s Government (“HMG”) and representatives of the Legislative Council of the Colony of Mauritius and in part on fishing carried out by resident Chagossians before they left the islands. I shall for convenience refer to this as the “fishing rights” point.
  
4. The Claimant’s pleading appears to say that it is the Claimant’s case that Mauritius and/or Chagossians had and have fishing rights in BIOT waters. However, I am informed by the Treasury Solicitor and believe that, at the hearing before the Divisional Court on 21 November 2012 of the Claimant’s application, the Claimant indicated that he conceded that the Administrative Court could not, or should not, make any such finding and that the Claimant put his case on a different basis. Namely, and as recorded in paragraph 15 of the Divisional Court’s judgment of 21 November 2012, the Claimant does not contend that traditional or historical rights relied on are legally enforceable, calling for a decision on whether there are enforceable rights under international law, but “that there is credible evidence that HMG gave an undertaking to the Government of Mauritius which has subsequently been evidenced in preferential treatment for Mauritius registered fishing vessels and that this was an important part of the background yet was not put before consultees, who were in consequence misled”.

5. I was not involved in the preparation of the consultation document or any advice to the Defendant as to its content, which all took place before I took up my current posts, and which are addressed in third statements of Joanne Yeadon and Colin Roberts. I have, however, read both statements in draft and their contents are true to the best of my knowledge and belief.
6. The purpose of this statement is to provide a description of the legal and regulatory framework governing the MPA and the BIOT commercial fisheries regime which it replaced, which formed the backdrop to the advice given to Ministers described by Miss Yeadon and Mr Roberts. I was not Director of Fisheries at this time. My evidence is based on my understanding of BIOT fisheries operations gained since I have been in this post and from reading BIOT records. The contents of this statement are within my own knowledge or derived from FCO files and are true to the best of my knowledge and belief. I exhibit at “JM 1” documents to which I refer in this statement.

*Current and historic legislative and regulatory framework*

7. When I took up my current posts in March 2011, steps had already been taken towards the implementation of the BIOT MPA, following its proclamation by the Commissioner on 1 April 2010, and the decision taken by the Ministers of the new Coalition Government elected in May 2010 to go ahead with its implementation. The immediate step that was taken to implement the BIOT MPA, a “no-take” marine reserve, had been not to issue any more licences for fishing in BIOT waters. The last of the commercial fishing in BIOT thus ended in October 2010, when the last of the commercial fishing licences issued before the proclamation of the MPA for 2010 expired. The other step that had been taken towards implementation was to find additional funding for patrolling BIOT waters, which had previously been supported by revenue from fishing licences.
8. The legislation currently governing implementation and enforcement of the ban on commercial fishing in the MPA is the 2007 Fisheries Ordinance and Fisheries Regulations (produced as tabs 1 and 2 of “JM 1”) (together referred to as the “2007 fisheries legislation”). Fishing is prohibited unless in accordance with a licence issued by the BIOT authorities. This legislation will be repealed and replaced

when specific legislation is enacted for the MPA, but, until then, the ban on commercial fishing in the MPA is being implemented by not issuing new fishing licences and by enforcing the prohibition on fishing without a licence under the 2007 fisheries legislation.

9. The 2007 fisheries legislation is an amended and updated version of that introduced in 1991 following the proclamation of the BIOT Fisheries (Conservation and Management) Zone (“FCMZ”) (by Proclamation No. 1 of 1991, produced as tab 3 of “JM 1”). The FCMZ is a 200 nautical mile exclusive fisheries zone, measured from the baselines of the BIOT islands. Given the geographical nature of BIOT, which is made up of a series of atolls and reefs forming part of the Chagos Archipelago, it generates a huge exclusive fisheries zone compared to its land mass – some 640,000 km<sup>2</sup> – so that the territory is more than 99% sea.
10. Fish and marine resources within BIOT, and the Indian Ocean more generally, were and continue to be key aspects of the government of BIOT. The exceptionally high levels of biomass in BIOT are of benefit to the wider Indian Ocean. Fish and marine resources represent the main economic assets (other than location) which need managing. Prior to the introduction of the MPA, fisheries were practically the only revenue generator.
11. The FCMZ was established in 1991 primarily to protect both migrating (e.g. tuna) and local fish stocks throughout the 200 nautical mile zone around BIOT, by controlling the fishing activities of third country nationals in BIOT waters through the introduction of licensing.
12. Prior to the establishment of the 200 nautical mile FCMZ in 1991, BIOT had, from its establishment on 8 November in 1965, claimed a 3 nm territorial sea over which it enjoyed exclusive sovereignty. Waters outside the 3 nm territorial sea were international waters, open to the vessels and fishermen of any state. In 1969 an exclusive fisheries zone extending 9 nm beyond the 3 nm territorial sea was proclaimed (ie equalling an area of 12 nm measured from the baselines), which was fully implemented by a 1971 Fisheries Limits Ordinance (the proclamation and ordinance are produced as tabs 4 and 5 to “JM 1”). The 1969/1971 fisheries

legislation was repealed and replaced and a license system introduced in 1984 (see Proclamation No. 8 of 1984 produced as tab 6 of “JM 1” and The British Indian Ocean Territory, Ordinance No. 11 of 1984 [CB3.104.827]). The 1984 fisheries legislation was in turn replaced by the 1991 FCMZ legislation.

13. In September 2003 the BIOT proclaimed an exclusive Environment (Protection and Preservation) Zone (“EPPZ”), which is roughly coextensive in area with the FCMZ. The purpose of the EPPZ is to enable the BIOT to exercise sovereign rights and jurisdiction enjoyed under international law, including the United Nations Convention on the Law of the Sea, to protect and preserve the environment of the zone (see tab 7 of “JM 1”). Proclamation No 1 of 2010, which established the MPA, was passed by the Commissioner in exercise of his powers to exercise sovereign rights and jurisdiction in the EPPZ. The MPA is defined to cover all of BIOT’s internal waters, territorial sea and its EPPZ, but excludes Diego Garcia’s 3 nautical mile territorial sea and internal waters. The MPA thus covers an area of approximately 640,000 km<sup>2</sup>.
14. As BIOT Director of Fisheries I am, under the 2007 fisheries legislation, responsible for the administration of the BIOT fisheries. This includes responsibility for the conservation of fish stocks; the assessment of fish stocks and collection of fisheries data and statistics; the development and management of fisheries; monitoring, surveillance and control of fishing and ancillary operations; the regulation of the conduct of fishing and ancillary operations; the grant, suspension, revocation and variation of fishing licences; the collection of licence fees; and reporting to the Commissioner on fisheries matters. The 2007 Fisheries Ordinance also makes provision for the appointment of Fisheries Protection Officers by the Commissioner to enforce the legislation under the direction of the Director of Fisheries.
15. Since the establishment of the MPA, my role as Director of Fisheries has mainly involved combating illegal fishing, facilitating fisheries research, managing the MRAG contract and defending BIOT interests at the Indian Ocean Tuna Commission (“IOTC”).



16. The IOTC is one of the five regional fisheries management organisations set up under the auspices of the UN Food and Agriculture Organisation to implement the provisions of the United Nations Law of the Sea Convention 1982. The Convention requires states parties to cooperate in the management and optimum utilization of straddling and migrating fish stocks, such as tuna. The IOTC was established in 1996, when the 1993 IOTC Agreement came into force. There are 28 contracting parties to the IOTC, including the UK in respect of BIOT and Mauritius. I am the contact point on all on international fishing issues for BIOT, including the IOTC.
17. In addition to the IOTC, the UK, in respect of BIOT, has entered into bilateral arrangements concerning fisheries with other Indian Ocean states. Fisheries commissions and joint observer programmes were established with Mauritius in 1994 (the British-Mauritian Fisheries Commission) and the Seychelles (the British-Seychelles Fisheries Commission), with the objective of long-term conservation and management of fish stocks. The British-Mauritian Fisheries Commission operated between 1994 and 1999, after which time Mauritius pulled out for the reason explained in the third witness statement of Mr Roberts. The British Seychelles Fisheries Commission is still active: the last meeting was in December 2012. BIOT still has an interest in fisheries management in the Indian Ocean, even if we are a no-take MPA. The Seychelles is probably the country with the greatest similarities to BIOT in terms of fishing. We exchange information. The Seychelles is a good partner in work being done on quotas and vessel monitoring. More generally, we want to engage with our neighbours as fisheries and conservation issues clearly cannot be considered in isolation.

*Commercial fishing licensing under the 2007 fisheries legislation before the implementation of the MPA*

18. After the establishment of the FCMZ in 1991 and before the implementation of the MPA in 2010, commercial licences to fish in BIOT waters divided into three types: inshore licences, longline and purse seine licences. My understanding of BIOT's commercial fishing licensing system is based on information received

from MRAG Ltd (“MRAG”), whose role I will shortly explain, and from reading BIOT files.

19. “Inshore licences” were issued for the fishing carried out using lines and hooks in the shallower waters in and around the islands for demersal species such as snapper. BIOT inshore fishing was in practice only carried out by vessels from Mauritius as part of the fishing in the “Mauritian banks fishery”. The “Mauritian banks fishery” is the term used to describe the fishing carried out by mothership and dory operations across a number of shallow water banks (50 metres) in and around the Mascarene Ridge, which targets high-value bottom (demersal) varieties, like snapper and grouper. There was a limit of eight inshore licences per year, each up to a maximum of 80 days, with a fishing season from April to October. The number of licences might be limited if necessary for conservation reasons. For example, in the 1999 season the number of inshore fishing licences was reduced to four in response to the 1998 coral bleaching event which caused the mortality of most reefs in the Indian Ocean and significantly damaged BIOT’s reefs.
  
20. In 1991 there were approximately ten vessels owned by four or five Mauritian companies which carried out inshore fishing in BIOT waters. Not all of these vessels remained flagged to Mauritius. Those that reflagged to other States were no longer able to take advantage of the free licences issued to Mauritius-flagged vessels under the licensing arrangement explained by Mr Roberts in his third witness statement. The numbers of vessels applying for inshore fishing licences steadily dropped after 1996. The position is summarised by Miss Yeadon in her third witness statement. I understand that the reason for the reduction in the numbers of Mauritian vessels taking up inshore fishing licences was economic. The boats were aged and the Mauritian banks fishery did not produce enough to make it economically viable.
  
21. Longline or purse seine licences were issued to fish tuna in the deeper waters away from the islands. Under the IOTC Agreement, fishing was managed by limiting the number of licences, not the volume of fish caught. Longline fishing targeted relatively few fish of higher value, mainly for the sushi market. Fishing

by purse seine (a type of net) was lower value but higher volume than longline fishing, normally for the cannery market. There was an informal cap of 55 vessels that were permitted to undertake purse seine fishing. There was no cap on long line licences, because this method caught fewer fish and mostly adult ones.

22. Originally three Mauritius-flagged vessels fished for tuna in BIOT waters under purse seine licences, although one of these vessels subsequently re-flagged to France. No purse seine fishing was undertaken by a Mauritian-flagged vessel after 1999. The vessels pursuing purse seine tuna fishing in the BIOT FCMZ were predominantly French and Spanish owned, but registered in a variety of countries. No Mauritius-flagged vessels ever fished using the longline method. Vessels taking up long line licences were flagged to Taiwan, Japan, China, Korea, and the Seychelles.
23. No requirement regarding the nationality or background of crew was attached to licences and this information was not sought by BIOT.
24. In 2009 only one Mauritian-flagged vessel, the MV Etelis, was granted two licences free of charge for inshore fishing (in respect of applications dated 20 April 2009 and 26 November 2009, for two separate licence periods). I understand from MRAG that the MV Etelis had not fished the inshore fishery before 2009, and it was being used in that year to try out new hydraulic gear which would enable deeper fishing. Inshore fishing licences were also issued to the Talbot IV, which is flagged to Madagascar, and the Talbot V, which is flagged to the Comoros, in respect of applications made on 14 October 2009 and 5 April 2009 respectively. These two vessels are owned by a family company, the Talbot Fishing Company incorporated in Mauritius, and the MV Etelis was, in 2009, owned by Mecfish Ltd, a Mauritian company, and managed by Christophe Talbot. The Talbot family had been involved in fishing in BIOT waters for many years. The Talbot Fishing Company was originally run by two brothers, Robert and Claude, and is now run by their respective sons, Alain and Christophe, who are cousins. Alain and Christophe now have at least two different companies, A R Talbot Co Ltd and the Talbot Fishing Company. As the Talbot IV and Talbot V had been reflagged, fees were paid for the inshore licences issued to those vessels.

I understand that the Talbots may have had some connection with the BIOT. MRAG think the family had worked in BIOT but we don't know if any of them was born there.

25. I also understand, anecdotally, from MRAG who had staff who worked with Talbot IV and Talbot V as part of the observer programme, that the crew of these two vessels were largely Chagossian. MRAG think the majority of crew had links with BIOT and often wanted to visit graveyards on certain islands during fishing trips. But again we don't know if they or their parents were born in BIOT. However, at least one of these vessels was re-flagged to Madagascar in order to employ cheaper labour. Certainly, as already indicated, no requirement was attached to BIOT fishing licences regarding the nationality or background of crew and this information was not sought by BIOT.

*Management of the BIOT FCMZ/EPPZ before and after the MPA*

26. There are two major strands to fisheries management: (i) active surveillance and protection and (ii) the more desk-bound work on record keeping and policy. From 1991 onwards the BIOT Administration contracted with MRAG to manage the fishery because we did not have the expertise in-house on technical and scientific matters, for example, techniques for catching illegal fishers, assessment of fish stock, etc. MRAG is a private limited liability company incorporated in the United Kingdom which provides specialist consultancy services for the design and implementation of integrated resource management in marine environments. MRAG reports to the BIOT Administrator and Director of Fisheries, and briefs key members of the BIOT Administration on taking up their posts.
27. Before the implementation of the MPA and expiry of the last of the commercial fishing licences in 2010, MRAG was responsible under its contract with BIOT for the following: (i) offshore fisheries regime administration, which included licensing; communications with owners and charterers and agents about licensing procedures; setting licence fee levels and negotiating licences; (ii) information management of fisheries by maintaining databases of fishing vessel details, licences issued, activity of vessels in the FCMZ, collecting and analysing BIOT

operations reports and logbooks required to be provided by vessels licenced to fish in the BIOT FCMZ; (iii) preparing reports summarising data collected by Senior Fisheries Protection Officers and Observers; (iv) scientific representation of BIOT at international conferences (eg at IOTC meetings); (v) stock assessment and research and the provision of management and conservation advice. MRAG also recruited and supervised BIOT's Senior Fisheries Protection Officers. Commercial fishing licences on behalf of BIOT were, however, signed off by the BIOT Director of Fisheries.

28. MRAG's role in issuing commercial fishing licences ended with the proclamation of the MPA on 1 April 2010. Since then, its role has been the following: (i) provision of surveillance and compliance control, including the placement of Fisheries Protection Officers year round on the BIOT patrol vessel, and drawing up a revised surveillance strategy since the declaration of the MPA; (ii) management administration and documentation, record keeping and provision of technical support and personnel management; (iii) organisation of logistic support and procurement for surveillance platforms; (iv) management of information of recreational fishery data supplied by Morale Welfare and Recreation ("MWR") on Diego Garcia and research data, including timely submission of data to the IOTC and the maintenance of the BIOT databases; (v) provision of scientific advice related to the MPA, including to scientific expeditions and to the quota allocation process initiated by the IOTC, and participation in the scientific bodies of the IOTC and the Technical Committee on Allocation Criteria; (vi) provision of technical advice during the transition from the implementation of BIOT's fishery management regime to the MPA management regime, including the integration of the requirements of BIOT with those of regional inter-governmental bodies such as IOTC; (vii) attendance at Commission meetings; (viii) and provision of advice to BIOT Administration on the implementation of the fisheries monitoring control and surveillance.
29. MRAG continues to recruit the Senior Fisheries Protection Officers (SFPOs) who work on BIOT's patrol boat, the Pacific Marlin. SFPOs are managed by MRAG, but can be directed by the Director of Fisheries. The SFPOs rotate roughly every three months. SFPOs implement the BIOT MCS (Monitoring, Control and

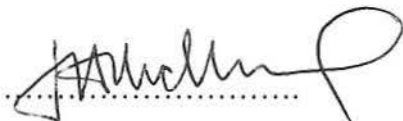
Surveillance) strategy through the organisation and implementation of patrols around the BIOT FMCZ to police the area against illegal fishing and through the conduct of foot patrols on the islands to look for signs of illegal fishing. They also issue warnings to, or arrest, any vessels found in breach of the 2007 fisheries legislation. They produce reports weekly and at the end of the SFPO's tour, outline the vessel and SFPO activity during the period in question. They provide support to scientific expeditions, Chagossian visits organised by the BIOT Administration and other ad hoc requirements as directed, and they conduct specific environmental and scientific sampling as directed.

30. Prosecutions of illegal fishing and other violations of the 2007 fisheries legislation are dealt with by BIOT staff on Diego Garcia. The Executive Officer is also a designated Fisheries Protection Officer and he or she acts as prosecutor. The Commissioner's Representative on Diego Garcia is the magistrate. Customs and Immigration staff run the detention centre where illegal fishers are kept while awaiting trial or the payment of any fine. The BIOT Administration in London receives any fines as manager of the BIOT bank account. Appeals can be made in writing to the Commissioner of BIOT.
31. Under the current MPA framework, regulated non-commercial fishing, by yachtsmen for personal consumption and recreational fishing off Diego Garcia, continues to be allowed.
32. Yacht permits are issued for passage through BIOT waters and for mooring at permitted sites off the outer islands of Peros Banhos and Salomon (Île Boddam, Île Fouquet/Takamaka, Île Diamante, Île de Coin and Fouquet). Yacht permits are signed by the BIOT Administrator, not the Director of Fisheries. Under the terms of the permit, fishing for personal consumption is allowed provided that the rules on what can be caught are observed and returns on the numbers and species of fish caught are provided.
33. Recreational fishing around Diego Garcia falls into two types, fishing from the shore, which is mostly by contract staff working on Diego Garcia for personal consumption, and sports fishing from boats by the military personnel stationed on

Diego Garcia. Permits for recreational sports fishing off Diego Garcia are administered by Morale Welfare and Recreation (“MWR”). MWR keeps records of applications and catches, and hands out information on prohibited areas and the rules on what types of fish may be caught. Catch data are collated by MRAG, and data on sports fishing is submitted to the IOTC. MRAG estimates that approximately 45 tonnes of fish per year are caught by recreational boat fishing around Diego Garcia, though the figure for 2012 is less than this after restrictions were imposed following an accident. Prior to the creation of the MPA, while commercial fishing was still going on, recreational fishing amounted to significantly less than 1% of the entire amount of fish caught in BIOT waters.

I believe that the facts stated in this witness statement are true.

Signed

A handwritten signature in black ink, appearing to read 'John McManus', written over a horizontal dotted line.

John McManus

8 March 2013

**Annex 76**

Excerpt from transcript of judicial review proceedings in *Bancoult v. Secretary of State for Foreign and Commonwealth Affairs*, 18 April 2013



<p>1 a judgmental process of what needs to be redacted.</p> <p>2 MR JUSTICE RICHARDS: Mr Fleming, is it possible to continue</p> <p>3 with other points that you wanted to raise and then come</p> <p>4 back to this as necessary?</p> <p>5 MR PLEMING: Yes.</p> <p>6 MR KOVATS: Then there's another matter -- sorry -- let's</p> <p>7 assume for the moment that I manage to get this redacted</p> <p>8 document and then disclose it. As I indicated,</p> <p>9 Ms Yeadon hasn't seen it, at least recently, so it comes</p> <p>10 as much as a surprise to her, I suspect, because</p> <p>11 everybody recalls her recollection; she has no</p> <p>12 recollection of taking a note at the meeting.</p> <p>13 Now we can have an argument as to whether or not as</p> <p>14 to whether she was saying, "I wasn't during the meeting</p> <p>15 taking a note" --</p> <p>16 MR JUSTICE RICHARDS: Well let's wait until we've all had</p> <p>17 a chance to look at the document.</p> <p>18 MR KOVATS: Ms Yeadon needs to have an opportunity to read</p> <p>19 it before she is cross-examined about it.</p> <p>20 MR JUSTICE RICHARDS: Yes, understood ... thank you.</p> <p>21 MR PLEMING: My Lord, whilst we're on documents, this is an</p> <p>22 opportunity -- I really rather put the gauntlet down,</p> <p>23 without identifying the gauntlet, when Mr Roberts was</p> <p>24 being asked questions about tab 33 of CB1, page 283.</p> <p>25 Whilst --</p> <p style="text-align: center;">Page 49</p>	<p>1 could be made of this document, in that it is a copy of</p> <p>2 a copy, and is as such inadmissible. I think that is</p> <p>3 how it is put. The transcript -- your Lordships may not</p> <p>4 have that?</p> <p>5 MR JUSTICE RICHARDS: I don't have the transcript.</p> <p>6 MR PLEMING: Can I just read it out to your Lordship, if my</p> <p>7 learned friend can find it? This is page -- yesterday's</p> <p>8 transcript at page 128, the ruling -- it is these lines:</p> <p>9 "In the circumstances [line ten] any such cable</p> <p>10 would be inadmissible in evidence and the same objection</p> <p>11 of principle applies to the use of the purported copy of</p> <p>12 it as published by the Telegraph and the Guardian."</p> <p>13 MR JUSTICE RICHARDS: So that was preceded by a statement</p> <p>14 that the relevant articles of the Convention preclude</p> <p>15 reliance on the purported copied cable as a genuine</p> <p>16 cable, yes.</p> <p>17 MR PLEMING: I hope I'm recalling what your Lordship's note</p> <p>18 would have said. The reason I just wanted to make sure</p> <p>19 is that the submission that was being made, I think, by</p> <p>20 both of us, was different; the submission I was making</p> <p>21 is that if article 24 applies, it covers the</p> <p>22 information. It is the information that is</p> <p>23 confidential. Therefore, it isn't a question of a copy</p> <p>24 of a WikiLeaks being okay -- excuse my shorthand -- but</p> <p>25 the WikiLeaks cable not being admissible: a copy of</p> <p style="text-align: center;">Page 51</p>
<p>1 MR JUSTICE RICHARDS: The redacted passage at the top of the</p> <p>2 page?</p> <p>3 MR KOVATS: Yes, that remains redacted.</p> <p>4 MR PLEMING: Could I just ensure that that has been</p> <p>5 reconsidered?</p> <p>6 MR KOVATS: It has been reconsidered.</p> <p>7 MR PLEMING: And it is redacted?</p> <p>8 MR KOVATS: And it is redacted.</p> <p>9 MR PLEMING: My Lord, then I'll do what I can, but I have</p> <p>10 a question which will affect the duration of what is to</p> <p>11 follow, my Lord, as you might have anticipated.</p> <p>12 MR JUSTICE RICHARDS: Well let's hear your question and</p> <p>13 we'll hear what Mr Kovats says the answer to it should</p> <p>14 be.</p> <p>15 MR PLEMING: I'm about to turn, no surprise to the</p> <p>16 witness -- I don't want her to leave the court -- I am</p> <p>17 about to turn to the meeting of 12th May 2009.</p> <p>18 MR JUSTICE RICHARDS: Yes.</p> <p>19 MR PLEMING: Having re-visited the ruling yesterday,</p> <p>20 although your Lordships do deal with this eventuality,</p> <p>21 there is a possible tension between the introductions of</p> <p>22 the ruling and the rest of it, and I didn't want to step</p> <p>23 where I should not step.</p> <p>24 My Lord, the ruling that your Lordships based made</p> <p>25 on article 24 of the Vienna Convention is that no use</p> <p style="text-align: center;">Page 50</p>	<p>1 a cable is just as inadmissible as if it was a physical</p> <p>2 document. So your Lordship is there saying that the</p> <p>3 document itself, as a document, is inadmissible.</p> <p>4 Your Lordships then goes on to deal with the</p> <p>5 questioning, but to this reader there seemed a tension</p> <p>6 there.</p> <p>7 MR JUSTICE RICHARDS: Would you like to carry on with what</p> <p>8 is said in the transcript about the question?</p> <p>9 MR PLEMING: My Lord, yes. Can I read it out:</p> <p>10 "It will therefore not be open to the claimant to</p> <p>11 invite the court to treat the purported copy cable as</p> <p>12 a genuine cable or to find that it contains an accurate</p> <p>13 record of the meeting. Any further cross-examination of</p> <p>14 Mr Roberts and any cross-examination of Ms Yeadon must</p> <p>15 proceed on that basis. Questions must therefore not be</p> <p>16 put on the basis that the purported copy cable is a copy</p> <p>17 of a genuine cable and the court will, moreover, allow</p> <p>18 the witnesses to answer questions on the express basis</p> <p>19 that they neither confirm nor deny the authenticity of</p> <p>20 the purported copy cable. That is our ruling."</p> <p>21 My Lord, I understand that that is the ruling, and</p> <p>22 I will carry on in that form.</p> <p>23 My concern, having re-read the ruling, is that if</p> <p>24 the document is inadmissible as a document then my</p> <p>25 learned friend's submission that I can rely on the</p> <p style="text-align: center;">Page 52</p>

<p>1 article to ask the question will also be blessing or 2 giving use of inadmissible information. That's what I'm 3 worried about.</p> <p>4 MR JUSTICE RICHARDS: Let me indicate a provisional view on 5 this, and then check with Mr Justice Mitting and we'll 6 hear from Mr Kovats, but there is a distinction between 7 putting questions on the basis that the purported copy 8 cable, the newspaper article, is a record of the 9 meeting, and asking whether matters that are set out in 10 the article are correct statements of what took place at 11 the meeting.</p> <p>12 MR PLEMING: My Lord, my concern is that if the document 13 itself is inadmissible as a document, then I shouldn't 14 be using it at all.</p> <p>15 MR JUSTICE RICHARDS: Well you may be right.</p> <p>16 MR PLEMING: That's what I wanted the court to consider. 17 (Pause).</p> <p>18 MR JUSTICE RICHARDS: Mr Fleming, subject to anything that 19 Mr Kovats may say -- I think this accords with the way 20 he was putting it to us yesterday -- it seems to us that 21 it is open to you to take the witness to the newspaper 22 publication, and to refer to the text of that and to 23 ask, "Is this what was said? Did you say this? Did 24 this happen?", without breaching our ruling. It is 25 a final dividing line, but we would not, subject, again,</p> <p style="text-align: center;">Page 53</p>	<p>1 Q. There were no notes?</p> <p>2 A. <b>No notes.</b></p> <p>3 Q. How do you remember that there were no notes without 4 having taken a note?</p> <p>5 A. <b>Sorry?</b></p> <p>6 Q. How do you remember there were no notes of the meeting?</p> <p>7 A. <b>I believe a search was conducted and no note was found. 8 I definitely didn't take a note of that meeting.</b></p> <p>9 Q. There were no notes on your side, is that what you --</p> <p>10 A. <b>No notes on my side.</b></p> <p>11 Q. I'm sorry, I thought you were telling the court that no 12 notes at all were taken at the meeting?</p> <p>13 A. <b>I can only speak for myself. I can't speak for the 14 Commonwealth Office.</b></p> <p>15 Q. Can you tell the court why the meeting was called?</p> <p>16 A. <b>It was to brief the -- I think it was the new political 17 counsellor at the US embassy and also some US State 18 Department colleagues had come over from the US to 19 discuss the proposal for the Marine Protected Area.</b></p> <p>20 Q. Was this a meeting called by the Americans or by the 21 British?</p> <p>22 A. <b>I can't recall. I think it was called by the Americans.</b></p> <p>23 Q. Do you remember where it was held?</p> <p>24 A. <b>It was held in the Foreign Office.</b></p> <p>25 Q. And had you had such meetings before with</p> <p style="text-align: center;">Page 55</p>
<p>1 to any submissions by Mr Kovats, we would not stop you 2 following that line of questioning.</p> <p>3 MR PLEMING: I'm sorry for taking your Lordship's time; 4 I just wanted to clarify.</p> <p>5 MR JUSTICE RICHARDS: No. Mr Kovats?</p> <p>6 MR KOVATS: I have nothing to add, my Lord.</p> <p>7 MR PLEMING: So the document I'm going to refer to is an 8 admissible document as an aide to questioning.</p> <p>9 MR JUSTICE RICHARDS: It remains a newspaper article.</p> <p>10 MR PLEMING: I'm just calling it a "document" to 11 avoid ---yes.</p> <p>12 Ms Yeadon, you've heard all of that exchange, I'm 13 sorry not to include you in it. I'm going to ask you 14 some questions about a meeting that took place only 15 a few days after this presentation to the Secretary 16 of State. You tell us in your second witness statement 17 that you have no real recollection of that meeting, it 18 was -- that you rely on Mr Roberts's summary of what was 19 said; is that right?</p> <p>20 A. <b>That's right.</b></p> <p>21 Q. Is that again because, applying how you understand the 22 Foreign and Commonwealth Office advice, no note was 23 taken of the meeting?</p> <p>24 A. <b>I didn't take a note of the meeting. I don't think 25 anybody -- nobody else did either.</b></p> <p style="text-align: center;">Page 54</p>	<p>1 representatives of the American Government?</p> <p>2 A. <b>I was regularly met with the First Secretary of the US 3 embassy.</b></p> <p>4 Q. And do you remember his name?</p> <p>5 A. <b>Chris Palmer.</b></p> <p>6 Q. And the political counsellor, do you remember his name?</p> <p>7 A. <b>No don't.</b></p> <p>8 Q. Does the name Richard Mills ring a bell?</p> <p>9 A. <b>Yes.</b></p> <p>10 Q. I expect you had many meetings with Mr Mills?</p> <p>11 A. <b>No I think that was the only occasion I met him.</b></p> <p>12 Q. Was he the person who didn't know about the proposal, or 13 was it somebody else?</p> <p>14 A. <b>I believe so.</b></p> <p>15 Q. On your side, that's the Foreign and Commonwealth Office 16 side, attending the meeting was yourself, Mr Roberts and 17 Mr Ashley Smith from the Ministry of Defence; does that 18 ring any bells?</p> <p>19 A. <b>Yes.</b></p> <p>20 Q. Mr Roberts has told us in his witness statement that his 21 recollection was that the meeting was a long and open 22 discussion. Is that your recollection?</p> <p>23 A. <b>I don't remember the length of the meeting. But it was 24 a fairly open one.</b></p> <p>25 Sorry, can I turn to Mr Roberts's witness statement?</p> <p style="text-align: center;">Page 56</p>

14 (Pages 53 to 56)

<p>1 Q. I'll bring you to that in a moment. I just wanted to 2 ask you one question about the note. It is the last 3 time I'll mention notes on this occasion, you'll be 4 pleased to hear. We have been told -- and this is 5 probably the moment to look at one of Mr Roberts's 6 witness statements, volume 1, that -- you should have 7 open at tab 23. This is the policy you've been telling 8 us about. I think you've told us earlier, I may have 9 misremembered, that you have recently re-read this 10 witness statement.</p> <p>11 A. Yes.</p> <p>12 Q. And at the end of the document on page 218, there's an 13 extract from the FCO Net; is that a document you've seen 14 before?</p> <p>15 A. Not recently.</p> <p>16 Q. Are you still in the Foreign Commonwealth Office?</p> <p>17 A. I am.</p> <p>18 Q. But it's -- is it advice with which you are familiar?</p> <p>19 A. Relatively familiar, yes.</p> <p>20 Q. And over the page on 219 --</p> <p>21 MR JUSTICE RICHARDS: You say 218/219 or 210/211?</p> <p>22 MR PLEMING: 210, I'm told. 210/211. I've handed-numbered 23 incorrectly more than one page.</p> <p>24 MR JUSTICE RICHARDS: I had the same puzzle before when you 25 gave a reference, but that's fine.</p> <p style="text-align: center;">Page 57</p>	<p>1 says.</p> <p>2 Again, why no record of the 12th May meeting?</p> <p>3 A. It was an information exchange. No decisions were made 4 and none were expected to be made.</p> <p>5 Q. That's the first line of the memo:</p> <p>6 "For more formal or larger meetings you should 7 produce a brief note confirming the purpose, [which you 8 are now telling us was merely an exchange of 9 information] the attendees ... and agreed actions."</p> <p>10 A. I didn't take a note.</p> <p>11 Q. Could I take you -- you can put away -- sorry, you asked 12 me, and I do apologise, I haven't shown you Mr Roberts's 13 first witness statement. It is behind tab 16. Briefly, 14 it deals with the meeting. On page -- it is 15 paragraph 16, and my clumsy attempt at numbering, it is 16 page 148. It is the first witness statement of 17 Mr Roberts, tab 16. Do you have paragraph 16? And 18 that's a document you've read recently? I don't need to 19 ask you to read it again; is that right?</p> <p>20 A. Can I have a quick flick through this paragraph?</p> <p>21 Q. Yes, if you read thorough 16, and probably you should 22 read 17 as well. I don't want to put questions that you 23 haven't -- right. (Pause).</p> <p>24 A. Okay, thank you.</p> <p>25 Q. What I'm going to put to you are a few questions to see</p> <p style="text-align: center;">Page 59</p>
<p>1 MR PLEMING: It should be something headed "FCO net" it says 2 page 1 of 3, if we go to page 3. Those sitting behind 3 my learned friend no doubt can tell us if there is 4 anything on page 3. But page 2 of 3, is a reference to 5 recording decisions, and this may explain the note we're 6 about to see of 25th March meeting. Recorded decisions: 7 "There was no need to produce verbatim record of 8 meetings. If, as a result of your discussions decisions 9 are taken that need to be recorded simply add a note to 10 the relevant file. For more formal or larger 11 meetings~..."</p> <p>12 We will pause there. Was the meeting with the 13 American Counsellor, First Secretary, a formal meeting?</p> <p>14 A. It could be described as that, yes.</p> <p>15 Q. "For more formal and larger meetings~..."</p> <p>16 And for a larger meeting, we've seen that would be 17 a fair description of the meeting with Mr Bancoult, your 18 lawyers and his lawyers, it would fit both "formal" and 19 "larger", wouldn't it?</p> <p>20 A. Yes.</p> <p>21 Q. "... for more formal or larger meetings you should 22 produce a brief note confirming the purpose of the 23 meeting, the attendees, including apologies received, 24 and agreed actions~..."</p> <p>25 So when we look at your note, that will be what it</p> <p style="text-align: center;">Page 58</p>	<p>1 if this prompts your recollection of what was discussed 2 at the meeting, you now having reminded yourself of what 3 Mr Roberts says about the meeting.</p> <p>4 Could you put away that file and open core bundle 2. 5 You should then have -- give yourself some space. 6 Tab 53 is a heading "The Telegraph", with a subheading: 7 "HMG floats proposal for marine reserve covering the 8 Chagos Archipelago".</p> <p>9 Is this a document you've seen before?</p> <p>10 A. Yes.</p> <p>11 Q. And you may have, you may not, towards the end of that 12 tab, the similar document, but this time with 13 the Guardian, which has a heading: 14 "US embassy cables, Foreign Office does not regret 15 evicting Chagos Islands"?</p> <p>16 A. Yes, I have read that report here.</p> <p>17 Q. What I want to ask you is just a few questions to see if 18 the content of the newspaper articles reminds you of 19 what was being said. I'm not going to ask you about 20 paragraph 1, save for the last few words.</p> <p>21 According to the article, there is this sentence: 22 "He [Mr Roberts] said that the BIOT's former 23 inhabitants would find it difficult if not impossible to 24 pursue their claim for resettlement on the islands if 25 the entire Chagos Archipelago were a marine reserve."</p> <p style="text-align: center;">Page 60</p>

15 (Pages 57 to 60)

<p>1 Do you remember that being said?</p> <p>2 <b>A. I can neither confirm or deny the content.</b></p> <p>3 Q. Sorry, one question is -- you can't confirm nor deny --</p> <p>4 <b>A. Sorry, you're asking me specifically about this</b></p> <p>5 <b>document.</b></p> <p>6 MR JUSTICE RICHARDS: You're being asked about your</p> <p>7 recollection about what took place at the meeting, which</p> <p>8 is a different point.</p> <p>9 <b>A. Sorry. Can you ask the question again, please?</b></p> <p>10 MR PLEMING: I'll read it out. This is what the article</p> <p>11 says:</p> <p>12 "He [which from the paragraph appears to be</p> <p>13 a reference to Mr Roberts] says that the BIOT's former</p> <p>14 inhabitants would find it difficult if not impossible to</p> <p>15 pursue their claim for resettlement on the islands if</p> <p>16 the entire Chagos Archipelago were a marine reserve."</p> <p>17 Before you answer, remember that you are giving your</p> <p>18 evidence on oath, it is important that you tell the</p> <p>19 truth at all times. Having read that sentence, does</p> <p>20 that remind you at all of anything that was said by</p> <p>21 Mr Roberts at the meeting?</p> <p>22 <b>A. No it doesn't. He didn't say that.</b></p> <p>23 Q. So two things: it doesn't remind you; and secondly, he</p> <p>24 did not say that?</p> <p>25 <b>A. He did not say that.</b></p> <p style="text-align: center;">Page 61</p>	<p>1 <b>A. It would have been a decision -- a decision on this was</b></p> <p>2 <b>wanted by ministers by the general elections, yes.</b></p> <p>3 Q. Then there's a subheading that's slightly hidden in the</p> <p>4 texts at the foot of paragraph 3, three sine qua nons:</p> <p>5 the first one, US assent. Do you remember that this is</p> <p>6 what is said:</p> <p>7 "According to Mr Roberts, three pre-conditions must</p> <p>8 be met before Her Majesty's Government could establish</p> <p>9 a park. We need to make sure the US Government is</p> <p>10 comfortable with the idea. We would need to present</p> <p>11 this proposal very clearly to the American</p> <p>12 administration. All we do should enhance the base</p> <p>13 security or leave it unchanged."</p> <p>14 Is that the kind of thing that Mr Roberts would say,</p> <p>15 first? And do you have any recollection of whether or</p> <p>16 not he did say it?</p> <p>17 <b>A. I don't recall it exactly but the Americans were</b></p> <p>18 <b>concerned that any Marine Protected Area would impact on</b></p> <p>19 <b>the security of the base at Diego Garcia.</b></p> <p>20 Q. And there's more discussion referred into in</p> <p>21 paragraphs 4 and 5 about defence, but at the end of 5</p> <p>22 you will see Mauritian assent is a subheading, in</p> <p>23 the Guardian you can see that it's a subheading which is</p> <p>24 at the end of paragraph 5. This is what appears in the</p> <p>25 article:</p> <p style="text-align: center;">Page 63</p>
<p>1 Q. Could you look at paragraph 3? This is again what</p> <p>2 appears in the article:</p> <p>3 "At the meeting Mr Roberts iterated strong</p> <p>4 'political support' for a marine park. 'Marine</p> <p>5 ministers like the idea', he said."</p> <p>6 Does that ring any bells as something Mr Roberts</p> <p>7 would have said?</p> <p>8 <b>A. It doesn't ring any bells but the ministers were keen on</b></p> <p>9 <b>the idea of a Marine Protected Area.</b></p> <p>10 Q. So there was strong United Kingdom political support for</p> <p>11 a marine park within your ministry?</p> <p>12 <b>A. They were keen.</b></p> <p>13 Q. And there was a timeline, according to the next</p> <p>14 sentence, that:</p> <p>15 "The marine park would have to be established before</p> <p>16 the next general election."</p> <p>17 Does that ring any bells?</p> <p>18 <b>A. No, that's not accurate. It would have been a decision</b></p> <p>19 <b>one way or the other whether to establish a Marine</b></p> <p>20 <b>Protected Area. The decision had not been taken at this</b></p> <p>21 <b>point.</b></p> <p>22 Q. Well, the decision hasn't been taken on 12th May 2009,</p> <p>23 we hope, close you hadn't had the consultation. Does</p> <p>24 that ring any bells as to the topic that was being</p> <p>25 discussed, the timeline?</p> <p style="text-align: center;">Page 62</p>	<p>1 "Mr Roberts outlined two other prerequisites for the</p> <p>2 establishment of a marine park. Her Majesty's</p> <p>3 Government would seek assent from the Government of</p> <p>4 Mauritius in order to avoid the Government of Mauritius</p> <p>5 raising complaints with the United Nations."</p> <p>6 So, first of all, do you remember Mr Roberts telling</p> <p>7 the Americans what was intended was that Her Majesty's</p> <p>8 Government would seek assent from the Government of</p> <p>9 Mauritius?</p> <p>10 <b>A. No I don't recall him saying that. Assent from the</b></p> <p>11 <b>Government of Mauritius would not have been necessary.</b></p> <p>12 <b>Of course we would like their cooperation.</b></p> <p>13 Q. So that's not something he would have said?</p> <p>14 <b>A. I find it very unlikely.</b></p> <p>15 Q. Then does this ring any bells? I'm using this phrase</p> <p>16 rather repeatedly but in the next sentence:</p> <p>17 "He [Mr Roberts] had asserted that the Government of</p> <p>18 Mauritius had expressed little interest in protecting</p> <p>19 the Archipelago's sensitive environment~..."</p> <p>20 Did he say that?</p> <p>21 <b>A. I cannot recall.</b></p> <p>22 Q. Would you have recorded that?</p> <p>23 <b>A. I don't know.</b></p> <p>24 Q. "... and was primarily interested in the Archipelago's</p> <p>25 economic potential as a fishery."</p> <p style="text-align: center;">Page 64</p>

16 (Pages 61 to 64)

1 Was that how you understood the Mauritian Government  
 2 to be concerned about this proposal?  
 3 **A. That would ring bells in what the Mauritians had said to**  
 4 **us during the bilaterals we had, yes.**  
 5 Q. One of their main concerns, apart from their repeated  
 6 claims about sovereignty, is, "What about our fishing?"  
 7 **A. They were interested in joint management of the fishery**  
 8 **in the joint issuing of fishing licences.**  
 9 Q. At the end of the passage, there's a sentence:  
 10 "He [Mr Roberts] said one Mauritian participant in  
 11 the talks, which are dated as January 2009, complained  
 12 that the Indian Ocean is 'the only ocean in the world  
 13 where the fish die of old age'. "  
 14 Is that a phrase you remember?  
 15 **A. I don't recall him saying -- Mr Roberts saying this at**  
 16 **the meeting, but I do remember that comment from the**  
 17 **Mauritian delegate at one of the bilaterals.**  
 18 Q. Did you give any note, any document, to the American  
 19 representatives at the time? Was there a minute for  
 20 this meeting?  
 21 **A. I can't recall entirely. We may have handed over a note**  
 22 **but I can't recall exactly.**  
 23 Q. The reason I ask is that a note had been prepared only  
 24 a few days before for the Secretary of State. It  
 25 wouldn't take much time to produce a similar note for

Page 65

1 this meeting?  
 2 **A. It may have been a discussion paper but I can't recall.**  
 3 Q. So there may be a discussion paper, but you have no  
 4 particular recollection of it?  
 5 **A. No.**  
 6 Q. Would it be unusual to have a almost a cold-call meeting  
 7 without a working document?  
 8 **A. No, not necessarily.**  
 9 Q. So not necessarily, but would it be unusual?  
 10 **A. No, not particularly. Sorry. No, it wouldn't.**  
 11 Q. Then, at the end of paragraph 6 you'll see that there's  
 12 a subheading of these words: "Chagossian assent".  
 13 Could you take that as if it is a heading? Then  
 14 there are various sentences, and I want to go through  
 15 them, if I may, line by line, to see if they trigger  
 16 your recollection of what Mr Roberts said or did not  
 17 say.  
 18 "Roberts acknowledged that 'We need to find a way to  
 19 get through the various Chagossian lobbies'. "  
 20 First of all, do you recall there being discussion  
 21 of the Chagossians at this meeting?  
 22 **A. No.**  
 23 Q. Would it be a surprise to you that the topic of the  
 24 Chagossians was discussed?  
 25 **A. No, it wouldn't.**

Page 66

1 Q. And, bearing in mind what we've been looking at on the  
 2 5th May minute for the Secretary of State, there is this  
 3 sentence:  
 4 "He [Roberts] admitted that Her Majesty's Government  
 5 is 'under pressure' from the Chagossians and their  
 6 advocates to permit resettlement of the outer islands of  
 7 the BIOT."  
 8 Again, does that trigger any recollection of what  
 9 was said?  
 10 **A. It doesn't trigger any particular recollection, but it**  
 11 **was -- it was no secret.**  
 12 Q. So it was no secret --  
 13 **A. That HMG was under pressure.**  
 14 Q. "He noted, without providing details, 'That there are  
 15 proposals for a marine park that could provide the  
 16 Chagossians warden jobs within the BIOT'. "  
 17 Is that a proposal you were aware of?  
 18 **A. I think it was in the brochure from the Chagos**  
 19 **Environment Network.**  
 20 Q. Yes. Is that proposal that you favoured?  
 21 **A. It would have gone contrary to Government policy that no**  
 22 **one had the right -- we weren't considering resettlement**  
 23 **at this time.**  
 24 Q. Why would that involve resettlement? What did you  
 25 understand the "resettlement" to mean?

Page 67

1 **A. Living and working on Diego Garcia permanently.**  
 2 Q. And the word "permanently" was the one that worried you?  
 3 **A. That would have been contrary to British policy at the**  
 4 **time, so yes.**  
 5 Q. So to be a warden on the outer islands protecting the  
 6 new MPA, would that necessarily involve permanent  
 7 residence?  
 8 **A. I think that's what the Chagossians would have**  
 9 **preferred.**  
 10 Q. I'm sure they would have preferred it, they've been  
 11 preferring it for 40 years. But was there discussion  
 12 about some form of residence?  
 13 **A. When, sorry?**  
 14 Q. At this meeting?  
 15 **A. No.**  
 16 Q. No?  
 17 **A. Not that I recall.**  
 18 Q. We were told yesterday about an arrangement in the  
 19 Ascension Islands where there can be residence without  
 20 a right of abode. You told us you were there for two  
 21 weeks or so. Are you aware that the right of abode in  
 22 the Ascension Islands was taken away in 2005?  
 23 **A. No, I wasn't aware. I was only in Ascension for four**  
 24 **weeks.**  
 25 Q. As a working member of the administration?

Page 68

<p>1 A. Yes, but --</p> <p>2 Q. Are you aware that there's a population in the Ascension</p> <p>3 Islands, if I've got the right one, of about 800 people?</p> <p>4 A. Mostly from Saint Helena, yes.</p> <p>5 Q. We call them "saints"? Do you remember that?</p> <p>6 A. Yes.</p> <p>7 Q. They come from Saint Helena, they live there, Saint</p> <p>8 Helena one-and-a-half thousand miles away, and they've</p> <p>9 been living there for years permanently, but they don't</p> <p>10 have any status because that was taken away in 2005; do</p> <p>11 you know that?</p> <p>12 A. No.</p> <p>13 Q. So I'm just mentioning the Ascension Islands, because it</p> <p>14 was raised yesterday, as a perfectly good example --</p> <p>15 applying British policy -- that you can work and live,</p> <p>16 fish, eat and sleep on the islands of the Chagos without</p> <p>17 necessarily having the right of abode?</p> <p>18 A. Well, we didn't -- that wasn't considered at the time of</p> <p>19 the MPA proposal.</p> <p>20 Q. The next sentence, this is what it says in the newspaper</p> <p>21 article:</p> <p>22 "However, Roberts stated that, according to</p> <p>23 Her Majesty's Government's current thinking on</p> <p>24 a reserve, there would be 'no human footprints' or 'Man</p> <p>25 Fridays' on the BIOT's uninhabited islands."</p> <p style="text-align: center;">Page 69</p>	<p>1 that ring any bells as to what Mr Roberts said?</p> <p>2 A. Absolutely not. Mr Roberts did not say this. If he had</p> <p>3 said it, I would have been shocked. I would probably</p> <p>4 have gone out of the room at the end of the meeting</p> <p>5 saying "I can't believe what Mr Roberts has just said."</p> <p>6 Q. So, we then come to the next sentence:</p> <p>7 "He [Mr Roberts] asserted that establishing a marine</p> <p>8 park would, in effect, put paid to resettlement claims</p> <p>9 of the Archipelago's former residents."</p> <p>10 Do you recall Mr Roberts saying that?</p> <p>11 A. No, I don't.</p> <p>12 Q. Are you telling the court that he did not say that?</p> <p>13 A. I'm telling the court he did not say that. It wouldn't</p> <p>14 have made any sense. The MPA wouldn't have done this.</p> <p>15 This was not British policy at the time. This is --</p> <p>16 Q. This is -- I'm sorry. I don't want to stop you.</p> <p>17 A. No, I was just saying that the policy was based on the</p> <p>18 2004 BIOT Orders in Council.</p> <p>19 Q. I'm sure that we're crossing lines here. The whole line</p> <p>20 of questions I'm asking you is about a hidden agenda?</p> <p>21 A. There wasn't a hidden agenda.</p> <p>22 Q. Just bear with me for a moment. So, I'm not asking you</p> <p>23 about the official policy, the published policy. I'm</p> <p>24 not asking you about the existence of an ordering</p> <p>25 council that prevents a right of abode. I'm asking you</p> <p style="text-align: center;">Page 71</p>
<p>1 Now, does that spring any form of recollection, that</p> <p>2 there was no human footprints on the island?</p> <p>3 A. A "human footprint" was a term which was used.</p> <p>4 Q. So, no surprise if that had been used?</p> <p>5 A. No.</p> <p>6 Q. And do you recall it being used?</p> <p>7 A. Not particularly.</p> <p>8 Q. The words "Man Fridays" is, you will accept from me,</p> <p>9 a term of considerable abuse, considering the history of</p> <p>10 the Chagos islands?</p> <p>11 A. I agree.</p> <p>12 Q. And you know where it comes from?</p> <p>13 A. Yes.</p> <p>14 Q. It comes from a British civil servant saying, in a memo,</p> <p>15 that would be no "Tarzans or Man Fridays". So it was</p> <p>16 a statement by a British civil servant in 1963?</p> <p>17 A. Yes.</p> <p>18 Q. And that has been echoing down the years ever since; is</p> <p>19 that right?</p> <p>20 A. It hasn't been used in the Foreign Office.</p> <p>21 Q. It is not used --</p> <p>22 A. In living memory.</p> <p>23 Q. -- in the office as a matter of policy; is that right?</p> <p>24 A. Absolutely not.</p> <p>25 Q. So, when you see this reminder of what is said, does</p> <p style="text-align: center;">Page 70</p>	<p>1 about a motive or a purpose that was not being</p> <p>2 publicised akin to -- in the sense of -- the memorandum</p> <p>3 about the Man Fridays in 1963 was not likely to be in</p> <p>4 the public domain until it was much later released. So</p> <p>5 what I'm talking about is a confidential meeting, and</p> <p>6 I'm putting to you these lines to see if they trigger</p> <p>7 a recollection, not of what the policy is -- and I ask</p> <p>8 you again -- not just to repeat the policy, but what was</p> <p>9 said.</p> <p>10 A. I don't recollect Mr Roberts ever saying that. There</p> <p>11 was no ulterior motive.</p> <p>12 Q. Then the next line:</p> <p>13 "Responding to political counsellor's observation</p> <p>14 that the advocates of the Chagossian resettlement</p> <p>15 continued to vigorously press their case, Roberts opined</p> <p>16 that the UK's environmental lobby is far more powerful</p> <p>17 than the Chagossians' advocates."</p> <p>18 Do you remember any discussion about the power of</p> <p>19 the advocates -- the environmental lobby?</p> <p>20 A. No, I don't.</p> <p>21 Q. But you would accept that that would be consistent with</p> <p>22 a message to the Secretary of State only a few days</p> <p>23 before that a way of dealing with the Chagossians was to</p> <p>24 activate the environmentalists?</p> <p>25 A. No.</p> <p style="text-align: center;">Page 72</p>

18 (Pages 69 to 72)

<p>1 Q. No? What do you disagree with?</p> <p>2 <b>A. I mean, I know that the environmental lobby are</b></p> <p>3 <b>powerful, but I don't remember this.</b></p> <p>4 Q. You do remember a plan to activate the</p> <p>5 environmentalists?</p> <p>6 <b>A. No, I don't think there was a plan. I don't recall any</b></p> <p>7 <b>plan.</b></p> <p>8 Q. But you do recall it being in the memo of 5th May?</p> <p>9 <b>A. Yes.</b></p> <p>10 Q. And why was it put in?</p> <p>11 <b>A. I don't know.</b></p> <p>12 Q. Well, you don't know why it is in the memo, there was no</p> <p>13 plan. Was it just an idea?</p> <p>14 <b>A. I can't recollect at this distance.</b></p> <p>15 Q. You can't recollect, but here I'm trying to put to you</p> <p>16 that it would make absolute sense to talk about</p> <p>17 activating the environmental lobby, because you'd told</p> <p>18 the Secretary of State only a few days ago that that was</p> <p>19 part of the plan. Why not tell the Americans?</p> <p>20 <b>A. I don't recall. I just don't recall this in</b></p> <p>21 <b>the discussion.</b></p> <p>22 Q. Then there is a subheading. I'm not suggesting that</p> <p>23 either you or Mr Roberts used the phrase "Je ne regrette</p> <p>24 rien", but there is a sentence:</p> <p>25 "Roberts observed that BIOT has served its role very</p> <p style="text-align: center;">Page 73</p>	<p>1 go to the end of the document, where there is a summary.</p> <p>2 Above paragraph 14 there is a heading "Comments", so I'm</p> <p>3 not suggesting this is either said by you or Mr Roberts.</p> <p>4 Towards the end, there is a sentence:</p> <p>5 "Establishing a marine reserve might indeed, as the</p> <p>6 FCO's Roberts stated, be the most effective long-term</p> <p>7 way to prevent any of the Chagos island former</p> <p>8 inhabitants or their descendants from resettling in the</p> <p>9 BIOT."</p> <p>10 Is that a fair summary of what was said by</p> <p>11 Mr Roberts at that meeting?</p> <p>12 <b>A. No, it isn't.</b></p> <p>13 Q. It is not a fair summary, or it is completely wrong?</p> <p>14 <b>A. I would say it's completely wrong. I don't recall him</b></p> <p>15 <b>saying that.</b></p> <p>16 Q. Is there anything that you recall Mr Roberts saying that</p> <p>17 could have been interpreted in that way?</p> <p>18 <b>A. No.</b></p> <p>19 Q. Did you speak during the meeting?</p> <p>20 <b>A. No I didn't. I don't think so, no.</b></p> <p>21 Q. Can we go back a page to paragraph 9. At the end of</p> <p>22 paragraph 9 there are these lines:</p> <p>23 "BIOT more than just Diego Garcia."</p> <p>24 It says this -- and see if this triggers your</p> <p>25 memory:</p> <p style="text-align: center;">Page 75</p>
<p>1 well advancing shared US-UK strategic security</p> <p>2 objectives for the past several decades."</p> <p>3 Does that ring a bell, that you would have said</p> <p>4 something like that?</p> <p>5 <b>A. Yes.</b></p> <p>6 Q. "The BIOT 'has had a great role in ensuring the security</p> <p>7 of the UK and the US, much more than anyone foresaw' in</p> <p>8 the 1960s."</p> <p>9 Does that again sound like something Mr Roberts</p> <p>10 would have said?</p> <p>11 <b>A. I don't recall him saying it at this particular meeting</b></p> <p>12 <b>but it is something which would have been said.</b></p> <p>13 Q. But it was a meeting to reassure the Americans; is that</p> <p>14 right?</p> <p>15 <b>A. Yes.</b></p> <p>16 Q. "Then Roberts emphasised 'We do not regret the removal</p> <p>17 of the population ..."</p> <p>18 Do you recall him saying that?</p> <p>19 <b>A. No, I don't.</b></p> <p>20 Q. No, you don't recall, or he did not say it?</p> <p>21 <b>A. I don't recall.</b></p> <p>22 Q. "... since removal was necessary for the BIOT to fulfil</p> <p>23 its strategic purpose', he said."</p> <p>24 So none of that rings a bell.</p> <p>25 Before I come to the second meeting, I want you to</p> <p style="text-align: center;">Page 74</p>	<p>1 "Following the meeting with Roberts, Joanne Yeadon,</p> <p>2 head of the FCO's Overseas Territories Director of BIOT</p> <p>3 and Pitcairn section, who also attended the meeting with</p> <p>4 Pol Carns(?) told Pol Off that the marine park proposal</p> <p>5 would not impact on the base of Diego Garcia in any way</p> <p>6 and would have no impact", et cetera.</p> <p>7 Is that something you recall saying?</p> <p>8 <b>A. Yes, it would have been something I would have said to</b></p> <p>9 <b>the Americans on frequent occasions.</b></p> <p>10 Q. Did you have a separate meeting after the meeting with</p> <p>11 Mr Roberts?</p> <p>12 <b>A. I believe so, yes.</b></p> <p>13 Q. Is that a separate meeting where, again, you took no</p> <p>14 note at all of what was said?</p> <p>15 <b>A. No.</b></p> <p>16 Q. Just again, so we can get the image of this meeting, it</p> <p>17 is a meeting in the Foreign Commonwealth Office where</p> <p>18 you are not taking a note, not intending to make any</p> <p>19 record of what you said, and it was an open discussion?</p> <p>20 <b>A. Are we talking about the first meeting, or the --</b></p> <p>21 Q. I'm now going to talk about both together.</p> <p>22 <b>A. Right. I had frequent discussions with Mr Palmer, and</b></p> <p>23 <b>so I didn't take a note of every single one of them.</b></p> <p>24 Q. Who is Mr Palmer?</p> <p>25 <b>A. He is the First Secretary of the US Embassy.</b></p> <p style="text-align: center;">Page 76</p>

19 (Pages 73 to 76)

1 Q. And he was "Pol Counsel"?

2 **A. No, that was Mr Mills.**

3 Q. And who is "Pol Off"?

4 **A. That is -- I imagine that would be Chris Palmer,**

5 **political officer.**

6 Q. So this is a meeting between you and the political

7 officer, Mr Palmer?

8 **A. Yes.**

9 Q. And do you recall the meeting?

10 **A. Vaguely.**

11 Q. Again, I am trying to emphasise, so we can understand

12 what's going on, this is a meeting where you're not

13 taking notes, a confidential meeting, and you don't ever

14 expect anything said to be seen again?

15 **A. I wouldn't call the meeting I had with Chris Palmer**

16 **confidential. We had frequent discussions, and this was**

17 **just one of them. He happened to be at that meeting, so**

18 **it was easy to have a quick discussion afterwards.**

19 Q. What do you mean, you don't think it was confidential?

20 **A. Well, I wouldn't classify any of it as a confidential**

21 **meeting.**

22 Q. So you wouldn't classify this as a confidential meeting

23 at all?

24 **A. This was a discussion between me and Chris Palmer.**

25 **That's all. I'm not saying we're going to have it on**

Page 77

1 **the street, but it was just a discussion with Chris**

2 **Palmer.**

3 Q. Then at paragraph 11 there's reference to the BIOT being

4 set aside for defence purposes, in the first line, and:

5 "Yeadon stressed the exchange of notes governed

6 more than just the atoll and expressly provided that all

7 of the BIOT was set aside for defence purposes."

8 And the note says that was correct.

9 Did you say that at the meeting?

10 **A. I don't recall that it would have been something I would**

11 **have said in a meeting with Chris Palmer.**

12 Q. But you're aware that there had been no call by the US

13 for the use of any other islands apart from Diego Garcia

14 since, ever? No other island has been called for?

15 **A. No.**

16 Q. That's right, is it?

17 **A. Yes I think so.**

18 Q. So the other islands are not set aside for defence

19 purposes?

20 **A. No --**

21 Q. -- although the BIOT itself is --

22 **A. The whole of BIOT, including the islands, everything,**

23 **they were set aside for defence purposes.**

24 Q. But the Americans have not asked for access to, or use

25 of, any of the other islands?

Page 78

1 **A. Not while I was BIOT administrator.**

2 Q. So that covers 2007-2011. Then this, see if this rings

3 any bells:

4 "She [Ms Yeadon] urged embassy officers in

5 discussions with advocates for the Chagossians,

6 including members of the all-party Parliamentary group

7 on Chagos Islands (APPG) to affirm that the USG requires

8 the entire BIOT for defence purposes. Making this point

9 would be the best rejoinder to the Chagossians assertion

10 that partial settlement of the outer islands of the

11 Chagos Archipelago would have no impact on the use of

12 Diego Garcia."

13 Did you say that?

14 **A. I don't recall at that particular meeting. I have on**

15 **occasion suggested to the US Embassy that they might**

16 **want to make their position on resettlement a bit**

17 **clearer. We were coming, as we said before, under a lot**

18 **of fire for this policy, and the US agreed with it and**

19 **we thought they should be a bit more vocal.**

20 Q. The last sentence:

21 "She [Ms Yeadon] described that assertion [that's

22 the assertion by the Chagossians] to return [partial

23 settlement] as essentially irrelevant if the entire BIOT

24 needed to be uninhabited for defence purposes."

25 Is that what you said?

Page 79

1 **A. I can't recall that.**

2 Q. Did you say it at any time?

3 **A. I can't recall, to be honest.**

4 Q. Did you say at any time, at any meeting that that would

5 make the assertion of even partial settlement

6 essentially irrelevant?

7 **A. I can't recall saying that.**

8 Q. Would you have said it?

9 **A. I don't think so, I don't remember.**

10 Q. If this also, this trigger -- again I'm emphasising it

11 to you, I hope it's clear, I'm talking about a private

12 meeting that you do not expect ever to see a note of:

13 "Yeadon dismissed the APPG as a persistent but

14 relatively non-influential group within Parliament or

15 within the wider public."

16 Was that your view?

17 **A. It would have been at that particular time. I don't**

18 **actually recall saying that. I only recall this because**

19 **of what happened a couple of days later, and I had to go**

20 **to the House of Lords as an official in the box and**

21 **every time a member of the APPG stood up to ask**

22 **a question, they made a remark about being a member of**

23 **that non-influential group.**

24 Q. As far as you were concerned, it was a non-influential

25 group?

Page 80



1 **A. That's a personal opinion, at the time.**  
 2 Q. So of no particular concern to the FCO?  
 3 **A. I think at the time they had only just been established.**  
 4 Q. "She said that the FCO received only a handful of public  
 5 inquiries regarding the status."  
 6 Then this:  
 7 "Yeadon described one of the Chagossians' most  
 8 outspoken advocates ...(Reading to the words)... as  
 9 'Entirely lacking influence within the FCO.'  
 10 Is that what you said?  
 11 **A. I believe so.**  
 12 Q. Is it something you meant?  
 13 **A. It was a personal opinion.**  
 14 Q. It was a throwaway line at the meeting?  
 15 **A. I wouldn't have just volunteered that, I would have been**  
 16 **asked what I thought.**  
 17 Q. But you wouldn't expect it ever to see the light of day?  
 18 **A. No.**  
 19 Q. A bit like Mr Roberts, if he had said, "No more Man  
 20 Fridays"?  
 21 **A. He didn't say that.**  
 22 Q. Then this:  
 23 "He also asserted that the Conservatives, if in  
 24 power after the next general election, would not support  
 25 a Chagossian right of return."  
 Page 81

1 Did you know that at the time?  
 2 **A. I didn't know it. It was a personal opinion.**  
 3 Q. Had you been told that by the Conservatives?  
 4 **A. No, I would have made it clear to Chris Palmer that this**  
 5 **would have been a personal opinion.**  
 6 Q. But you did tell him that this was something you did say  
 7 at the meeting?  
 8 **A. I can't recall if I did say exactly that.**  
 9 Q. Then there's reference in paragraph 13 to "several prior  
 10 meetings", and that there been several prior meetings  
 11 with Mr Palmer?  
 12 **A. We did meet quite a lot.**  
 13 Q. You say that HMG would argue absence of jurisdiction,  
 14 and then stressed, 12th May, that:  
 15 "The outer islands are essentially uninhabitable and  
 16 could only be rendered liveable by a modern Western  
 17 standards by a massive infusion of cash."  
 18 Was that your view at the time?  
 19 **A. Yes.**  
 20 Q. So in summary, Ms Yeadon, you have no recollection of  
 21 the meeting, and these notes remind you of some things  
 22 you might have mentioned but, overall, they don't remind  
 23 you that Mr Roberts would have said that the purpose or  
 24 motive for the no-take MPA was to prevent resettlement?  
 25 **A. He didn't say that.**  
 Page 82

1 Q. I should have asked you formally, you've answered  
 2 several times, but I'm putting to you that it is the  
 3 case that as far as you and Mr Roberts were concerned,  
 4 certainly Mr Roberts, that the decision to propose and  
 5 impose a no-take, no people MPA was motivated or  
 6 materially influenced by the purpose of a wish to  
 7 prevent and bring to an end the Chagossians' claim to  
 8 return to their home?  
 9 **A. No, that's not true.**  
 10 Q. Really one final line of questions. You had another  
 11 meeting with the US in September, and we find that in --  
 12 you can put that bundle away, Ms Yeadon. Could you find  
 13 exhibit bundle 2 please. I'm not sure if I've taken you  
 14 to this before. Tab 7, it should start at page 125.  
 15 And is this a note prepared by you, you will find -- not  
 16 your name, but you will find "BIOT administration  
 17 7th September 2009" on the last page?  
 18 **A. If I didn't actually write it myself, I would have been**  
 19 **asked to comment on it and contribute to it.**  
 20 Q. And at the top, if there's a "PW", is that --  
 21 **A. That means "put with". Put on a file but not register.**  
 22 Q. Again, if you could just --  
 23 **A. Actually we did register it, because it's got an "R" on**  
 24 **the corner.**  
 25 Q. Maybe you know this already, was this a document for the  
 Page 83

1 purpose of the meeting that took place in September  
 2 2000?  
 3 **A. With the US, yes, it would have been.**  
 4 Q. And it has a heading, "Implications for US activities in  
 5 Diego Garcia and British Indian Ocean Territory BIOT".  
 6 It is quite a lengthy note. Whereas, as I say, we  
 7 haven't seen any note at all for the meeting in May.  
 8 And when you get to page 128, there is a heading:  
 9 "Assurances: the following propositions may help  
 10 assure the US."  
 11 And one of them is at the fourth bullet:  
 12 "Diego Garcia and its three-mile territorial limit  
 13 would be included from the MPA."  
 14 So that's a pretty firm assurance; had that been  
 15 decided by then?  
 16 **A. No, I don't know why it said "will". It should have**  
 17 **said "could".**  
 18 Q. Why would it say "will"?  
 19 **A. I don't know, a typo.**  
 20 Q. Very odd to have such an important error in a message to  
 21 a foreign government?  
 22 **A. The decision definitely hadn't been taken at that point.**  
 23 Q. No, I'm not saying that the decision had been taken --  
 24 although I'm putting to you that it would be taken, for  
 25 the reasons I've been asking questions; but this is:  
 Page 84

1 "The following proposition may help reassure the US,  
 2 when it's put in place, Diego Garcia and its three-mile  
 3 territorial limit will be excluded from the MPA."  
 4 Is it your evidence that you didn't mean that?  
 5 **A. I don't know -- I don't know why it says "will".**  
 6 Q. Could it say "will" because you meant it?  
 7 **A. I don't know.**  
 8 Q. It would be very strange, would it not, to have another  
 9 word in -- to your right -- do you recall that in the  
 10 consultation document the world was told that no such  
 11 decision had been made?  
 12 **A. Well, that's why I'm wondering why it said "will".**  
 13 Q. I'm putting to you it said "will" because it was  
 14 a promise made to the US, whereas the consultation  
 15 document was a document for the world to read who  
 16 wouldn't know about the promises made to the US.  
 17 **A. No, I mean we would have -- it would have been something**  
 18 **we would mention to the US as a possibility, but not as**  
 19 **a firm decision.**  
 20 Q. So here you have a very formal document presented to the  
 21 US, and bullet point four you didn't mean?  
 22 MR JUSTICE RICHARDS: Can I just check, was this document  
 23 handed over to the US officials at the meeting?  
 24 **A. I don't know. I'm trying to recall whether or not it**  
 25 **was just something we followed ourselves or whether we**  
 Page 85

1 handed it over. I note it's -- I don't know if we  
 2 handed it over or whether it was just something  
 3 Mr Roberts was using as a reminder.  
 4 MR PLEMING: Would it be likely to have been handed over?  
 5 In other words, you have a meeting and this is the  
 6 document you're working through together?  
 7 **A. I don't know.**  
 8 Q. Would that be the normal situation?  
 9 **A. Not all the time, no.**  
 10 Q. Any reason why it would not be on the table for you to  
 11 talk through?  
 12 **A. Well, yes, but I don't know if I can comment on it.**  
 13 Q. So there is a reason, you say?  
 14 **A. It looks as if the document was classified.**  
 15 Q. And in those assurances, I've mentioned one, but there  
 16 are ten or so bullets, and the penultimate one refers to  
 17 the European Court of Human Rights. Were you using at  
 18 that time the word "entrenchment" at all?  
 19 **A. No.**  
 20 Q. Do you know what -- it is not a word you were using?  
 21 **A. I know what entrenchment means but we weren't**  
 22 **considering entrenching --**  
 23 Q. What does it mean?  
 24 **A. Does it not mean giving it some status which means it**  
 25 **cannot be undone?**  
 Page 86

1 Q. How would you do that?  
 2 **A. I suppose one would be looking at the -- I don't know,**  
 3 **giving it World Heritage status?**  
 4 Q. Just to remind you of one other point, in bundle 1,  
 5 tab 16 --  
 6 MR JUSTICE RICHARDS: Sorry, we're going back to core  
 7 bundle 1, did you say?  
 8 MR PLEMING: Yes, just to deal with this document, to  
 9 clarify of your Lordship's question. Volume 1, tab 16.  
 10 This is the witness statement of Mr Roberts.  
 11 Paragraph 16 deals with the meeting of 12th May. At the  
 12 foot of page 149, if you just read this sentence with  
 13 me:  
 14 "7th September, a note we put to the US as the basis  
 15 for the September 2009 talks, a redacted copy of which  
 16 is at tab 7", which is the one I've been shown. So this  
 17 is a note that looks as if it was sent in advance to  
 18 the US. Does that help you to remember?  
 19 **A. Yes, I just said I didn't recall whether or not it had**  
 20 **been --**  
 21 Q. Now does this help you?  
 22 **A. It looks as if it would have been that note, redacted.**  
 23 **My Lord, subject to the memorandum that's coming in**  
 24 **from the 25th March meeting --**  
 25 MR JUSTICE RICHARDS: Shall we see whether that has come in  
 Page 87

1 yet?  
 2 MR PLEMING: I've just been handed redaction --  
 3 MR JUSTICE RICHARDS: Well, shall we have a copy as well,  
 4 and we can all read it?  
 5 MR KOVATS: Yes. I'm not sure whether Ms Yeadon has been  
 6 given one yet.  
 7 **A. No.**  
 8 MR JUSTICE RICHARDS: Shall we wait until it is decided  
 9 whether questions are to be put to her by reference to  
 10 it or not?  
 11 MR KOVATS: Well, I'm entirely in the court's hands. As  
 12 I said, it was as much of a surprise to me as it is to  
 13 anybody else. I'm simply going to say --  
 14 MR JUSTICE RICHARDS: We've got copies?  
 15 MR KOVATS: Yes.  
 16 MR JUSTICE RICHARDS: If you're both agreed that Ms Yeadon  
 17 can read it at the same time, fine. (Handed).  
 18 MR PLEMING: Absolutely. Has one been passed up to you,  
 19 Ms Yeadon?  
 20 **A. No. (Handed).**  
 21 MR KOVATS: My Lord, I don't know -- I'm thinking aloud  
 22 here, perhaps I shouldn't. I don't know -- obviously  
 23 Ms Yeadon originally did see an unredacted copy -- as  
 24 I say, I'm thinking aloud -- I'm not sure whether she  
 25 should be asked to look at both the redacted and the  
 Page 88

1 unredacted or just the redacted version.  
 2 MR JUSTICE RICHARDS: I think, for present purposes, can we  
 3 just see whether we can proceed by reference to the  
 4 redacted version?  
 5 MR KOVATS: Okay, that's fine.  
 6 (Pause).  
 7 MR JUSTICE RICHARDS: Do you want to ask questions?  
 8 MR PLEMING: Absolutely not, my Lord, I'm happy to make my  
 9 contribution to the debate by way of submission.  
 10 MR JUSTICE RICHARDS: So be it.  
 11 MR PLEMING: Rather than let it move away, could I give it  
 12 a name and number so we don't lose it? It should  
 13 logically go after the note of the meeting made by  
 14 Mr Gifford and his firm.  
 15 MR KOVATS: I produced it so shouldn't it --  
 16 MR PLEMING: My Lord, I wasn't asking for a formal  
 17 production.  
 18 MR JUSTICE RICHARDS: No.  
 19 MR PLEMING: It was merely to find a convenient place to  
 20 put it.  
 21 MR JUSTICE RICHARDS: It is tab 92A of the core bundle in  
 22 a sense, isn't it?  
 23 MR PLEMING: Yes. My Lord, that's volume 2.  
 24 MR JUSTICE RICHARDS: 92 is the letter of 14th April with  
 25 the enclosures, including the note of the meeting of  
 Page 89

1 25th March, and I think it needs to follow that, but  
 2 it's best that it be treated as 92A. If it needs page  
 3 numbers, it'll be 658, A and B. That way it remains  
 4 identifiable.  
 5 MR PLEMING: Thank you.  
 6 MR JUSTICE RICHARDS: Thank you.  
 7 MR PLEMING: The only thing mine needs is holes in it.  
 8 MR JUSTICE RICHARDS: Mine too, but that's all right.  
 9 MR PLEMING: My Lord, I have no other questions.  
 10 MR JUSTICE RICHARDS: Thank you very much.  
 11 Mr Kovats, do you have any re-examination --  
 12 MR KOVATS: I have a small amount. Just a moment.  
 13 Re-examination by MR KOVATS  
 14 MR KOVATS: Ms Yeadon, towards end of his questioning,  
 15 Mr Pleming asked you -- without taking you to the  
 16 document -- about the minute attached to Mr Roberts's  
 17 memo of 5th May.  
 18 Can I just ask you to pick up core bundle 1, please,  
 19 at tab 33. Can I ask you to turn, using the page  
 20 numbering on the bottom right-hand side of the page, to  
 21 page 282. If you look just below the lower hole punch:  
 22 "Assuming we win in Strasbourg (contingency for  
 23 losing the case is dealt with in earlier submissions) we  
 24 should be aiming to calm down the resettlement debate.  
 25 Creating a reserve will not achieve this but it could  
 Page 90

1 create a context for a raft of measures designed to  
 2 weaken the movement. This could conclude ..."  
 3 And then there are a number of dashes and you'll see  
 4 the second dash is:  
 5 "Activating the environmental lobby".  
 6 It was put to you by Mr Pleming on the basis that  
 7 this was "the plan". Would you say that there was  
 8 a plan in this document --  
 9 A. No.  
 10 Q. -- to do X, Y or Z?  
 11 A. No.  
 12 Q. How would you describe what I have just read out? Would  
 13 you describe it as a plan?  
 14 A. No, they're just suggestions.  
 15 Q. You were asked those questions by Mr Pleming in the  
 16 chase of his questioning about the note prepared for the  
 17 September pol milk(?) talks in 2009. So if I ask you to  
 18 put core bundle 1 away and take out exhibit bundle  
 19 number 2. It is tab 7. Exhibit bundle number 2, do you  
 20 have that? It also says, "Exhibits to first statement  
 21 of Mr Roberts".  
 22 A. Sorry, I've forgotten the tab number.  
 23 Q. I haven't given you the tab number yet. It is tab 7.  
 24 Do you have that:  
 25 "BIOT marine reserve proposal: implications for  
 Page 91

1 US activities in Diego Garcia".  
 2 A. Yes.  
 3 Q. If you go forward to paragraph 11, page 128 on the  
 4 bottom of the page, there's the heading, "Assurances":  
 5 "The following assurances may help to reassure the  
 6 US."  
 7 Now, you have explained that you were not the author  
 8 of this document. Are you able to say precisely what  
 9 was being done by reference to this paragraph, and  
 10 specifically whether or not this is being put to the  
 11 Americans on the basis of an, "We hereby unilaterally  
 12 give you the following assurance"-type of approach, or  
 13 is it done on a different basis, for example, "If we  
 14 were to make the following assurances, would that be of  
 15 assistance", or are you unable to comment?  
 16 A. Yes, the latter. These were just suggestions.  
 17 Q. Ms Yeadon, I must apologise for this document that has  
 18 just been sprung on you, which I'm sure came as  
 19 a complete surprise to you. Mr Pleming has, for  
 20 perfectly understand reasons, chosen not to ask you any  
 21 questions about it. I don't plan to ask you any  
 22 specific questions about it, but I think in fairness --  
 23 and it may be that you don't have any comment to make,  
 24 but if you do have any comments to make about this  
 25 document, everybody understands you've only just seen it  
 Page 92

<p>1 after a long time; is there any comment that you would 2 like to make? 3 <b>A. No.</b> 4 <b>Q. Thank you.</b> 5 MR JUSTICE RICHARDS: Thank you very much. 6 Questions from the Bench 7 MR JUSTICE MITTING: Ms Yeadon, I have two questions, if 8 I may. Would you look at the last sentence of the 9 document that has just been given to you: 10 "If they do lose then any legal means of 11 resettlement, other than a complete change of policy by 12 IIMG, is at an end". 13 <b>A. Yes.</b> 14 MR JUSTICE MITTING: Is that your opinion, the opinion of 15 those within the office who dealt with BIOT or both? 16 <b>A. I believe it is my opinion.</b> 17 MR JUSTICE MITTING: Right. You were asked about the 18 alleged use by Mr Roberts of the phrase "Man Fridays", 19 and you were adamant that he did not use that phrase. 20 You said that you would have said something after the 21 meeting if he had. 22 <b>A. Yes.</b> 23 MR JUSTICE MITTING: The reason for that statement, I think, 24 is obvious to all of us. Was there any means, if 25 a superior of yours said something which you found</p> <p style="text-align: center;">Page 93</p>	<p>1 (The witness withdrew) 2 MR PLEMING: My Lord, I'm not protesting, I've been saying 3 over the last couple of days that there have been 4 distractions in terms of interesting legal developments 5 in the course of submissions. 6 What I would like to do this afternoon is focus on 7 an area where there is less controversy, which is the 8 fishing point. So that is what I propose, and I hope to 9 have a completed speaking note which will make it easier 10 for everyone. 11 MR JUSTICE RICHARDS: This is superseding the detailed 12 written submissions which you said were intended to cut 13 down on oral submissions? 14 MR PLEMING: It is to deal with -- it will cut down oral 15 submissions -- it will focus them but it will also deal 16 with the points that we haven't dealt with in our 17 submission, which is the repeated complaint that we are 18 inviting the court to find as a matter of international 19 law. 20 So that will take some time, but the question 21 that -- the reason I want a little while to talk to 22 those who represent Mr Bancourt is in the light of the 23 evidence we've now heard, what can I properly say in 24 relation to our first ground. 25 MR JUSTICE RICHARDS: Yes.</p> <p style="text-align: center;">Page 95</p>
<p>1 offensive in an official meeting with counterparts in 2 the US Embassy, of dealing with it formally? 3 <b>A. Yes, I could have reported it to the Director General of 4 that particular Cone; it was the Defence and 5 Intelligence Cone, I believe.</b> 6 MR JUSTICE MITTING: Would you have done so? 7 <b>A. Yes.</b> 8 MR JUSTICE MITTING: Why? 9 <b>A. Because I'd have been incredibly embarrassed and shocked 10 that he would have used that terminology which is just 11 not used these days.</b> 12 MR JUSTICE RICHARDS: Anything arising out of those 13 questions? 14 The time has come when we can firmly release you. 15 Thank you very much indeed. Sorry you have been here 16 for so much longer than expected, or waiting for so much 17 longer than expected. 18 Now, you wanted a bit of time. We don't want to 19 give you indigestion, Mr Fleming. How much longer, if 20 any, additional time do you need beyond the ordinary 21 luncheon adjournment? 22 Submissions by MR PLEMING 23 MR PLEMING: My Lord, could I explain what I propose to do? 24 It might assist the court. 25 Ms Yeadon, you can leave the witness box.</p> <p style="text-align: center;">Page 94</p>	<p>1 MR PLEMING: Would 2.30 be too long for your Lordships? 2 MR JUSTICE RICHARDS: I think that would be all right. We 3 could, if necessary, make up half an hour at the end of 4 the afternoon, subject to -- 5 MR PLEMING: If it assists you, again, if I can get through 6 some of the fishing -- 7 MR JUSTICE RICHARDS: Some of the fishing? 8 MR PLEMING: Well, it is -- because of the submissions made 9 on the other side, it is a lengthy point, I will ensure 10 that all of my submissions are finished, even if we have 11 normal hours, 10.30 start, 4 o'clock finish, we will 12 finish on this side, I hope, well before 1 o'clock on 13 Monday. 14 MR JUSTICE RICHARDS: On Monday? 15 MR PLEMING: Because we've got two hours this afternoon and 16 then Monday so if I'm not -- 17 MR JUSTICE RICHARDS: And if that is the position, can we 18 hope to finish everything -- except for the European 19 argument, and the questions as to whether there is any 20 final reply after that -- by lunchtime on Tuesday? Or 21 do we need to leave the whole of Tuesday free in any 22 event? 23 MR PLEMING: It is really for my learned friend. I will 24 certainly be finished by then, I will try and be 25 earlier.</p> <p style="text-align: center;">Page 96</p>

24 (Pages 93 to 96)

**Annex 77**

*Chagos News*, No. 42, July 2013

# Chagos News



The Periodical Newsletter of the Chagos Conservation Trust and the Chagos Conservation Trust US  
No 42 July 2013

ISSN 2046 7222



©Anne Sheppard

## Editorial

This issue of *Chagos News* celebrates the 20th anniversary of the founding of the Chagos Conservation Trust. We started out as the Friends of Chagos in April 1993, a small group of people dedicated to the interests of the archipelago, brought together by our founder John Topp. Since then we have grown, and what we have achieved is beyond what that first small group dreamed, a fully no-take marine protected area.



©Anne Sheppard

Everyone who has visited the archipelago has enthused about what a biological wonderland it is. Left to itself for so many years, it is what so many places could become if we wanted, and had the will to make it so. We marvel at the wondrous places on Earth, seemingly without realising that so much more could be the same. Chagos is one of those places which will, hopefully, someday allow us to regain what we have lost.



©Anne Sheppard

So together we have done a wonderful thing. Many other groups have come to help and support us in the process, including many Chagossians, and some of them have written messages of support and congratulations in this issue. We also have a poem written especially for the anniversary. The job is far from over, we have much to do to understand it and secure its unspoilt place in a declining ocean.

Keep up the good work everyone.

*Anne Sheppard*

# FROM FOTC TO CCT

*Nigel Wenban-Smith*

It's hard now to believe there was a time when only those actually serving in Diego Garcia or managing its affairs could know or do anything at all about the state of the Archipelago's environment. When I was involved officially in the early 1980s, five years had already passed since the last scientific expedition and I had never heard the name of Charles Sheppard. However John Topp, the second of 'my' Britreps, made sure that I waded ashore onto several of the outer islands, even (somewhat hazardously) onto Danger Island. He also made sure that I read David Bellamy's *Half of Paradise*. I was smitten.



The formation of the Friends of the Chagos coincided with my release from officialdom and I was at once corralled – no pun intended – by John. Those early shoestrings days were just as Simon Hughes has described them. What we learned at once was that, access to and information about the Chagos being so tightly controlled, good working relationships with the Foreign and Commonwealth Office were fundamental to securing greater focus on environmental conservation. To some extent we were knocking at an open door, successive Commissioners (most notably Richard Edis) having put immense personal effort into developing this aspect of policy. But there was a continuous need to press for greater information and also to make sure that Ministers as well as officials were aware of the globally important marine treasure house that

the Chagos represented. We had a lovely time getting them to parrot those two words 'globally important' in their anodyne replies to our letters! The appointment of a Conservation Consultant – none other than John Topp – was a huge step forward, creating the thinnest of Chinese walls between the inside and outside Chagos worlds.

This set the stage for a revival of scientific expeditions, starting with that of a multidisciplinary team in 1996, the first of a new series led by Charles Sheppard. Quite soon afterwards, the dormant issue of resettlement of the islanders removed in the 1970s returned in a succession of





highly charged legal cases. How should the Friends respond? We concluded that we could not become engaged on one side or the other of this polarised and essentially political debate. We should make clear that our task was to work for the highest possible standard of environmental protection in whatever conditions might be set by government. At the same time, we felt able to provide a forum for discussion of the issues involved and published a special edition of Chagos News (Number 19), which

included a notable article by the MP who had been the first to champion the rights of those then known as the Ilois, Tam Dalyell.

It was the time for a change of watch and the pleasure of seeing new impetus given to the association's work by William Marsden. With a change of name, the embrace of the internet, and greater collaboration with other conservation organisations (all of them made more aware of the Archipelago as a result of the FOTC/ CCT's work), I could from the sidelines watch the progressive increase in public recognition of the ecological importance of the Chagos.



Twenty years ago these achievements were just a glint in our eyes.





# We Are Now 20 Years Old

Simon Hughes

“Simon” said John,” how about a drink at my club?”

“Why not?’ says I.

After a few sherries and a very nice meal it was over coffee that John Topp, an old friend, (we had joined the Navy together on the same day), smiled: “I’m looking for a new Secretary for this charity I have set up, as Richard [Richard Martin, our current Treasurer] has to go off to Oman.” “Why not?” says I. How could I refuse after such a pleasant evening?

And so it was that I became Secretary. At first I just went to the meetings in John’s flat, wrote the minutes (accurately re-written by John of course), enjoyed the wine so thoughtfully provided, and ate afterwards in the nearby Goya restaurant (also established in 1993!) with the rest of the committee.

It was like that for a year or so; I eventually learned how to spell Peros Banhos and even where it was, but it took quite a long time to become a “conservationist”; it was Charles [Sheppard] who started it by suggesting the conservation of Chagos was worth doing if only to preserve its beauty. But what really hooked me was the friends I was making; real dedicated conservationists. I couldn’t really understand a lot of the scientific stuff, but I tried, and sent off my attempts to Charles and Anne, who quietly and generously put me right; perhaps some members might be as ignorant as me and so, eventually, the factsheets came along.

Awareness of the Ilois’ difficulties surfaced in 1999 as Chagossians took their case for resettlement to a higher level. More to learn, and it continues to need understanding, but another friend Nigel Wenban-Smith [Chairman after John] started his historical research to re-write *Peak of Limuria*, and in his forthcoming book *Chagos: A History*. Also Ted Morris had done a lot of work with his essay *A brief History of the Ilois Experience* and so it was easy to learn of the background and history with their generous help.

The next Chairman, William Marsden, with help from Pew Global Ocean Legacy, took us to another level with the Chagos Environment Group and bingo! The MPA. It was euphoric.

John very sadly died, but under Alan Huckle, our fourth Chairman, we are using the money he left us to do even better.

And so it goes on. For me it shows what a few friends and loyal members can do. I enjoy working with friends. It’s fun and very rewarding!



## Friends and Science

Charles Sheppard

I'm not sure I recall much about the very earliest days of CCT, except that our meetings were always extremely convivial and usually held in the London flat of our founder and first chairman John Topp. I had received a letter from him – before email – introducing himself as an ex-Royal Navy 'Britrep' on the islands, a botanist too, asking whether I was interested in joining a group he was starting called *Friends of the Chagos*.

"You might have some ideas about its conservation, you see"! I certainly was interested.

I had previously had the extraordinary good fortune to have lived, in tents, in some Chagos atolls 15 years and more earlier when I had accompanied primarily military expeditions that my supervisor Professor David Bellamy had helped start up. Those early trips had been in 1975 to Eagle Island on the Great Chagos Bank and then for a much longer time to the northern atolls at the end of the 1970s. We investigated the reefs and islands, and showed that the reefs were wonderful places, though maybe not so different to many reefs. But since then there had been no visits for scientists to Chagos for years, and what David Bellamy later called the 'Decades of Destruction' had affected reefs all over the world. When Friends of the Chagos started, were the Chagos reefs in the same kind of trouble?



John Topp seeded the idea of organising a science expedition and, he was himself well aware of broader environmental problems, and had a good idea that it was still in marvellous condition. There would be only one way to get there with a scientific team and that was to apply for funding from any or all government agencies. The first application bounced right back: 'Not our remit because it is not Britain you see'. The next one: 'Not our remit because it is Britain you see'! Falling between two stools like this has plagued us until relatively recently. But we got there in 1996, supported by the BIOT Government and by two generous owners of large private yachts, Mr and Mrs Heath and Mr Mike Pilling, Friends of the Chagos was just three years old. The condition of the reefs was marvellous, like I remembered

them, and quite unlike almost every other area where I had worked during the intervening decade. It had avoided the 'decades of destruction'. Friends of the Chagos then helped fund a day long conference to present our many results at the prestigious Linnean Society of London.

The earliest days of Friends of the Chagos was, for me, much more than just something to aid the science, which in any case needed much greater funding than Friends of the Chagos possessed. It was, and still probably is, the main vehicle that provides the continuity that was lacking in any other aspect of Chagos. Many of its members had served there, joined by a growing number of scientists who had accompanied the expeditions. Some were just interested in global conservation. All formed a diverse and eclectic group, which still thrives.

Chagos and BIOT was, and is, an unusual place: a military base, a place of failed coconut plantations that were developed in slaving days and subsequently. Some plantations had failed in the 1930s, but most had struggled on through occasional bankruptcies since then. It contains a history in miniature of the tropical world. Friends of the Chagos, later Chagos Conservation Trust, had amassed a large and fascinating account of this history which reflects in miniature the world of tropical small island and their reefs. Some aspects I could see on my visits, from wonderful reefs to the silent ruins of plantation buildings where the main noise came from the rustling of rats and crabs, to the deafening noise from thousands of nesting seabirds on those few small islands that were never planted.

I tell people that science I do in Chagos is just a small part of the total because most of my work is in the very damaged tropical areas of the world. But it is the contrast with Chagos which so excites me. Chagos is always the best bit and is increasingly the reference site for scores of scientists.

Encouraged by CCT in its 'middle years', the science part of the CCT enterprise developed, through forming the Chagos Environment Network incorporating many of Britain's largest science societies and NGOs, whose primary mission was to persuade the government to afford it the best possible exception. It was just too different, so much better, it simply has to be protected. That succeeded.

I have sometimes wondered whether I exaggerate when describing how good it is. Well, the data shows its condition but, more telling to me than numbers is when I take many scientists out to see it and listen to them, perhaps after their first scuba dive, when they express equal amazement, using just about every possible variation of the word "wow"! There is no exaggeration: just read what other scientists who have been there write about it.

I know the continuity developing from those early days of Friends of Chagos was central to this. John Topp died, a loss to his many friends. He left CCT a sizeable legacy so his help for it, and for the islands, continues indefinitely. In its later teens, CCT started funding an annual conference and now helps fund the more frequent expeditions to understand more about it. A common thread throughout has been the unpaid volunteers who have made up the core of the small but effective charity for this crucial place. The global prognosis for coral reefs is pretty dire, but those of Chagos stand a better chance of surviving for longer than most do. We will see - in another 20 years CCT, then middle aged, can look back and reflect again!



## 20 years protecting the Chagos Archipelago

*Sonia Rai*

CCT has come a long way since founder, John Topp set up 'Friends of Chagos' from his small flat in London back in October 1993.

"It was mostly a group of friends who had spent time in Chagos with the Navy." remembers Simon Hughes, our Secretary. Two decades on, it's a very different picture. "Now we've got people on our Board who work for some of the UK's leading environmental organisations - including RSPB, ZSL and Royal Botanic Gardens Kew. It's been an amazing and at times, a difficult journey. But I'm as keen about conserving this special part of the world now as I was back then. Possibly even more with current concerns about rising sea levels."



As the only UK charity working solely on conservation in the Archipelago, CCT now leads teams of international scientists to the region. Over 100 people have collaborated in research about the Chagos Archipelago and over 200 research publications have been produced about its amazing wildlife and environment.

### **Some of CCT's biggest achievements over the last 20 years include:**

- **Leading the campaign to establish the world's largest no-take marine reserve**
- **Finding unknown habitats including a mangrove swamp and immense seagrass beds**
- **Restoring forest at Barton Point – a habitat for animals, birds and plants**

To celebrate these and other results, CCT's first patron, Sir Bruce Macphail, kindly hosted a small evening reception on World Environment Day in June. The audience were given an exclusive screening of a new short film about Turtle Cove on Diego Garcia, and were shown the latest glorious photos from Chagos, taken on the recent CCT scientific expedition in March. Look out for these on our website soon.

Our Trustee Professor Charles Sheppard spoke at the event about the continued need to protect Chagos:

“It is the largest nearly intact reef system in the world, and it has many biological attributes which make it the perfect example - indeed one of the few remaining examples - of a tropical marine system that we can learn from. For the benefit of everywhere else.” He went on to explain how “...results consistently show, that these are the cleanest waters known in the world. Its reefs are the most resilient to warming water.”

Heather Koldewey, another Trustee described her first experience of conducting research in the Chagos Islands.

“Chagos really taught me about what our oceans should look like. As a marine biologist, I have dived in many parts of the world. But most of the places where I work are under extreme pressure. When I dive I am used to seeing habitats that have been destroyed by fishing practices such as dynamite and I have been on dives when it takes 15 minutes to see a single fish. But it’s not just the sheer abundance of fish there. It’s also the behaviour of the fish. So while you’re trying to do your scientific transect, they come up and say “hello” because they’ve never been fished. It’s quite extraordinary.”

**It’s been documented that there are six times more fish in the Chagos MPA than anywhere else in the Indian Ocean.**

Heather went on to describe the positive impact that the MPA is having on species within the reserve.

“Closing the Chagos Islands to fisheries in 2010 stopped fishing, primarily targeted at tuna but which also had a massive bycatch, particularly of shark and ray species. This has provided an incredible haven for these species in the middle of the Indian Ocean, which is one of the most targeted, over-fished and unregulated oceans in the entire world.”

To sustain this vital refuge for nature is becoming increasingly important in the face of climate change. Now more than ever, CCT is passionate and committed to continue a programme of research to find out how best to protect the exceptional ecosystem of Chagos. We are working to protect Chagos for now and for the future and look forward to doing this over the next twenty years!



## Message of congratulation from Peter Hayes, BIOT Commissioner and Director Overseas Territories, to the Chagos Conservation Trust (CCT) on their 20<sup>th</sup> Anniversary

I am delighted to send my best wishes to Chagos Conservation Trust on their 20<sup>th</sup> Anniversary. The British Indian Ocean Territory is a truly remarkable place. Members of the CCT have done great work through their commitment and enthusiasm in both environmental protection and scientific research. This has generated global scientific interest in BIOT, in line with its global environmental significance.

I welcome in particular CCT's role in involving the Chagossian community in environmental projects. Much of the success here has been down to the generous contributions of many CCT members in a wide range of ways: from sharing expertise to inspiring participants, giving training in practical skills to mentoring. Having young Chagossians participating as team members in the last three scientific expeditions is a great achievement, and their enthusiasm to continue environmental work augurs well for the future.

## The Linnean Society of London

*Professor Dianne Edwards CBE, FRS  
President of the Linnean Society of London*



Congratulations from the Linnean Society of London on the 20<sup>th</sup> anniversary of the Chagos Conservation Trust! We are proud to have shared the journey with CCT, facilitating scientific meetings to consider research findings, and also chairing the Chagos Environment Network (CEN), a collaboration of organisations and people (listed below\*) with a conservation, environmental or research vocation contributing to the environment, conservation and science in the Chagos Archipelago/British Indian Ocean Territory. The Linnean Society has convened two important conferences on Chagos, the first in 1999 resulting in a book published by the Society entitled *Ecology of the Chagos Archipelago* (edited by Sheppard & Seaward), which laid down some baseline data. A follow-up meeting at the Society in 2011 (jointly with CCT and Pew), attended by around 90 UK and international experts, presented some of the highlights arising from research in the previous decade, leading up to achieving the fully no-take marine protected area status. We look forward to convening further meetings on scientific research in the Chagos, and share the commitment of the CCT in their long term effort to protect the amazing Chagos Archipelago.

*\*Chagos Environment Network (CEN)  
partners*

The Blue Marine Foundation  
The Chagos Conservation Trust  
Coral Cay Conservation  
The Linnean Society of London  
The Marine Conservation Society  
The Pew Environment Group  
The Royal Botanic Gardens Kew  
The Royal Society for the Protection of  
Birds  
The Zoological Society of London  
Professor Charles Sheppard, University  
of Warwick



## The Role of Pew's Global Ocean Legacy

Global Ocean Legacy (GOL) is a project of the Pew Charitable Trusts and its partners, and aims to establish a worldwide system of very large, highly protected marine reserves where fishing and other extractive activities are prohibited. GOL works with local citizens, governments and scientists around the world to protect and conserve some of the Earth's most important and unspoiled marine environments.

In 2007, GOL met with William Marsden, then Chair of CCT, to speak about the idea of establishing such a reserve in the Chagos archipelago. At the time, ecosystem-scale marine reserves of hundreds of thousands of square kilometres were virtually unheard of.

These early conversations led to the formation of the Chagos Environment Network (CEN) in 2009 and the publication of "Chagos: Its Nature and the Future". Inspired by this publication, the government launched a consultation, and in 2010, the then Foreign Secretary, David Miliband announced the creation of what was and remains to this day the world's largest marine reserve that is totally protected from extractive activities: the British Indian Ocean Territory Marine Protected Area.



Whilst CCT provided the Secretariat to the CEN, it was Pew's GOL project that provided the staff and resources that ran our campaign for the marine reserve on a day to day basis. Alistair Gammell, formerly the International Director of RSPB, had been appointed as GOL's Director of the Chagos campaign in September 2009, just as the government was preparing to announce the consultation and momentum was beginning to build towards the creation of the marine reserve. We asked him a few questions about that time, and his experience of working with CCT and the CEN.

*Chagos News:* Just prior to taking up your role with Pew, you had retired after 40 years with the RSPB. What was it that persuaded you to come out of retirement to run the Chagos campaign?

*Alistair Gammell:* I knew about how wonderful the Chagos was and this, combined with it being such an ambitious project – to give full protection to an area larger than France – made it irresistible.

*CN:* You say that you knew about Chagos, however RSPB is primarily bird-focused, did you know much about the marine environment of the Chagos?

*AG:* Not much at all, but I love fish and indeed nature in general and with help from CCT colleagues, I rapidly learnt about the Chagos' amazing marine biodiversity. I was also shocked to learn how bad the crisis facing our oceans is and this left me even more determined that the Chagos must be protected.



*CN:* What was your favourite thing about running GOL's Chagos campaign?

*AG:* Working for a great cause – better ocean conservation and also the camaraderie. It was wonderful to work with so many friends in CCT and the CEN on a common cause, and today we're all still working together to ensure that the marine reserve is supported into the future. And of course the final outcome! An amazing result that we should all be proud of – all of us in the different NGOs that worked for it, the public who signed petitions, all those who responded in more detail to the consultation and also the government who made the decision.

*CN:* Since the Chagos was declared a marine reserve, Pew's GOL London team has expanded and you're now working on lots of other marine reserve projects. Can you tell us a bit about these?

*AG:* The British government has an amazing opportunity to play an important role in the protection of our oceans, more so than most other nations. Our overseas territories mean that we have the fifth largest amount of ocean under our jurisdiction of any other nation, and because it's in territories spread across the world, the different habitat types that Britain's jurisdiction covers means it possibly has the most diverse marine portfolio of any nation on earth.

We are now working with the National Geographic Society and the community of Pitcairn Island in the South Pacific Ocean. If the UK government gives the go ahead, this will become the world's largest fully protected marine reserve, about a third bigger again than the Chagos.







©Anne Sheppard

We are also working with the Bermudian government and others on the creation of a large fully protected marine reserve in the outer areas of Bermuda's EEZ. It is hoped that this will be a precursor to protecting even larger areas of the Sargasso Sea beyond Bermuda's own national waters. Another project is in South Georgia and the South Sandwich Islands (SGSSI) in the Southern Ocean. Here again we are working with other NGOs, such as the RSPB. The whole of SGSSI's EEZ is already a "marine protected area", but actually there is still industrial fishing taking place throughout. In our view we should be giving this very special area much better protection than we currently do.

We're also just started working with the community of Tristan da Cunha in the South Atlantic, but that project is still in its very early days. We and they don't yet have a view on what might be protected and we're just at the point of commissioning the first scientific and economic reports to share with the island's community.

*CN:* So coming back to Chagos, what do you think are the most important priorities for the marine reserve in the years ahead?

*AG:* We need to ensure that the government and the public feel proud of this marine reserve and understand how important it is for the health of the Indian Ocean and that it continues to be well protected. Enforcement is an issue. It is in fact better in Chagos than most of the world's oceans, but it is also undoubtedly not as effective as we would like it to be. Most importantly, we want to continue working with CCT to ensure that Chagos has a strong group of friends who are ready and willing to work together for its continued protection. To find out more about the Pew Charitable Trusts and Global Ocean Legacy visit [www.pewtrusts.org](http://www.pewtrusts.org) and [www.globaloceanlegacy.org](http://www.globaloceanlegacy.org).



©Anne Sheppard



# The Case for Large Protected Areas

*Kate West and Harriet Yates-Smith*

*Blue Marine Foundation*

Compared to our knowledge of the terrestrial environment, our understanding of the oceans is severely lacking, as more than 95 per cent of the underwater world remains unexplored<sup>1</sup>. Yet as we gain more insight into this little studied environment, signs of destructive human impact are visible everywhere. Unfortunately what we lack in our understanding of the marine environment, we do not make up for in conservation and protection. We are decades behind the advance of destructive technologies. Currently only 2.6% of the oceans are included in the worlds Marine Protected Areas (MPAs), some way off the Convention on Biological Diversity (CBD) target of 10% by 2020.

## Hope for the future?

The result of us reaching crisis point in the oceans (88% of fish stocks are fully or over-exploited or already depleted) now means that conservationists have the attention of government and the public and have an opportunity to act quickly. A study in 2010 provided an assessment of progress towards reaching the MPA target which revealed that total ocean protection had increased by over 150% since 2003<sup>2</sup>. Although some way from achieving the 10% target, this demonstrates that we can act and is evidence of a global commitment to change.

## A global increase in MPA coverage

The only way that this rapid increase has taken place has been through the creation of large MPAs, which not only contribute to this 'target' but also safeguards a wealth of ecosystems and biodiversity.

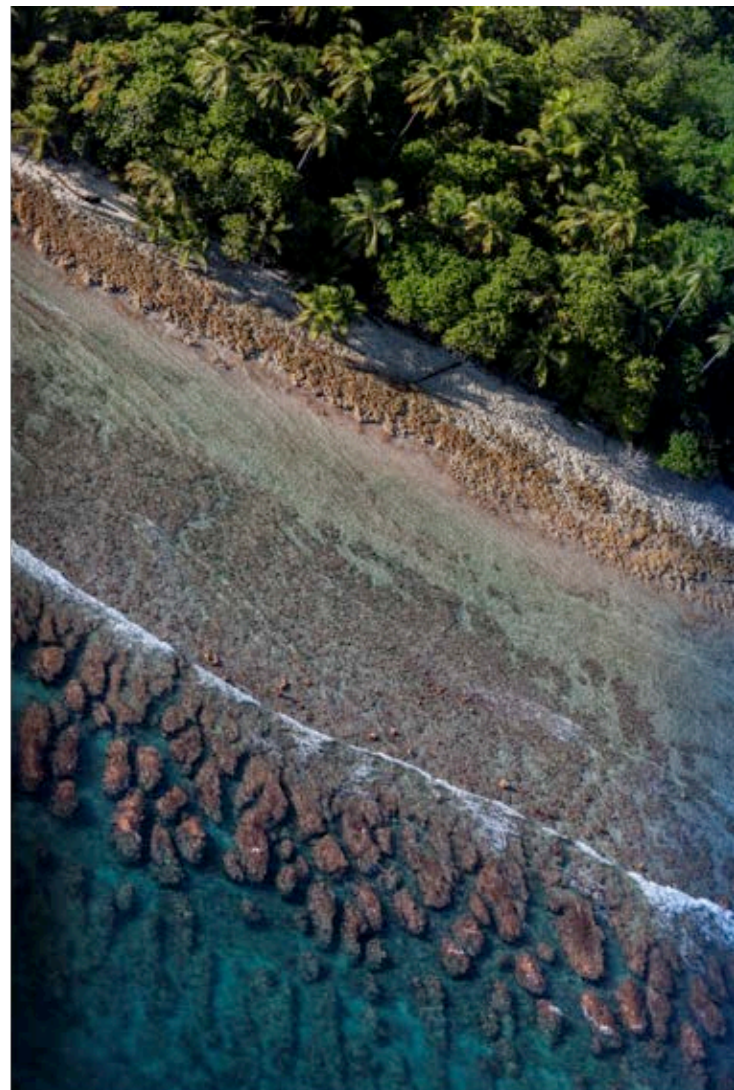


Photo: Credit George Duffield ©

Photo George Duffield



Photo: Credit George Duffield ©

Along the way large contributions to increased MPA coverage have included the creation of Papahānaumokuākea Marine National Monument by the United States in 2006, offering protection to 70% of the US's coral reefs and 7,000 species, including the critically endangered Hawaiian monk seal. Other highlights have been: the South Orkney Islands Southern Shelf MPA (2009), the Prince Edwards Islands MPA (2009), Motu Motiro Hiva MPA (2010) and of course the Chagos Archipelago MPA in 2010. The declaration of Chagos was a landmark in conservation, as the 640,000 sq km area not only became the World's largest MPA but also the World's largest fully no take zone.

Making the entirety of Chagos a no fishing area was championed by CCT and, later CEN, for many years, and it was due to their hard work that the government declared it so on April 1st 2010. But a problem that came up before this reached a conclusion was the loss of income from the tuna licences which funded much of the administration of the territory. A solution was facilitated by the Blue Marine Foundation (BLUE) a small, dynamic organisation committed to increasing the area of ocean protected. BLUE brokered a historic deal and secured the generous funding from the Bertarelli Foundation to ensure that the recently designated site could be managed, as originally intended, as a strict no-take zone, in the absence of the tuna fishery which had previously operated in its waters.

### **Why do we need large MPAs**

Chagos Archipelago is a shining example of how we can offer protection and enhancement to both biodiversity and fisheries resources. As the largest unfished, uninhabited network of coral reefs in the Indian Ocean, it acts as a global reference point for scientists around the world and as a reminder of what the oceans were like before human influence. *“Chagos is an incredible place for researchers such as myself, it's one of the few coral reef systems in the world that is insulated from most of the human influences that other reefs in the world suffer from”* said Dave Tickler of University of Western Australia when speaking about the reserve.

Scientists have reported that Chagos shows dramatic differences in the numbers, size and even behaviour of fish compared with smaller marine parks<sup>3</sup>. BLUE's co-founder, George Duffield, who recently visited Chagos said of the Archipelago: *“Chagos was unlike any place I have ever been. The diversity and density of fish, coral and birds were so astonishing that it was like entering a different world, or at least a different century. The need for large MPAs is now greater than ever, we must restore our oceans to what they once were.”*



Photo: Credit George Duffield ©



Photo: White tip reef shark, Chagos MPA. Credit George Duffield ©

Designating large MPAs not only provides us with benchmarks against which we are able to study and understand interactions with the natural world but also protects valuable fish stocks upon which we rely so heavily. The benefits of spill over effects from MPAs have been documented across the world, yet given that nearly 50 per cent of MPAs are smaller than 10 sq km these sites offer no protection to pelagic species: large MPAs could provide a solution. Our current understanding of the extent to which large MPAs protect migratory species is lacking, chiefly because large MPAs haven't existed for long enough to allow us to study them. Despite this, there is a growing body of evidence for the positive effect that reserves, like Chagos, have for pelagic species<sup>4</sup>.

Although we are some way off the 10 per cent MPA target, things are looking up for the marine environment demonstrated by the developments we have seen in just a few years. Over the next seven years and beyond, this global momentum needs to be sustained and needs to be done by adopting a holistic approach to MPA creation. This will mean protecting large (often offshore) MPAs as well as smaller sites which have greater interaction with coastal communities. Protecting large areas of the marine environment, like Chagos, offers us the former and if managed effectively will offer significant benefits to global biodiversity and the human population.

<sup>1</sup> Figure from National Oceanic and Atmospheric Administration NOAA <http://www.noaa.gov/ocean.html>

<sup>2</sup> Toropova C, Melanie I, Laffoley D, Matthews E and Spalding M, eds Global Ocean Protection: Present Status and Future Possibilities (Gland, Switzerland: IUCN, The Nature Conservancy, UNEP-WCMC, UNEP, UNU-IAS, Agence des aires marine protégées, France 2010).

<sup>3</sup> Koldewey HJ, Curnick D, Harding S, Harrison LR, Gollock M. Potential benefits to fisheries and biodiversity of the Chagos Archipelago/British Indian Ocean Territory as a no-take marine reserve (2010) Mar Pollut Bull. 60 (11):1906-15

<sup>4</sup> Sheppard, C. R. C., et al. "Reefs and islands of the Chagos Archipelago, Indian Ocean: why it is the world's largest no-take marine protected area." Aquatic Conservation: marine and freshwater ecosystems 22.2 (2012): 232-261

# 20th Anniversary Chagos Conservation Trust!



*Mike Clarke*  
Chief Executive, RSPB

The Chagos Islands are known to many people today as a world-leading example of marine protection. They hold both the world's largest living coral atoll and the world's largest no-take marine protected area. It is unlikely that the archipelago would be in this position without the ongoing interest and involvement of the Chagos Conservation Trust (CCT).

The RSPB has been involved with the CCT for many years, initially working on terrestrial site designation and island restoration, but more recently as part of the Chagos Environment Network, the group of nine leading conservation organisations who successfully campaigned to have the entire Exclusive Economic Zone of the Chagos declared a marine protected area. Without the leadership and vision displayed by members of CCT, I am sure this designation would not have happened in 2010, or perhaps ever. The research carried out by CCT members was fundamental in showing that the Chagos was a place worth protecting, and the images they showed from its underwater world were truly amazing.



In a changing world affected by climate change and biodiversity loss, the protection of places like the Chagos is increasingly important. With 80% of reefs in the Indian Ocean destroyed or

damaged, the Chagos provides an environment that safeguards species as well as giving opportunities for scientific research and the chance to show people what a healthy reef ecosystem should look like. The birds, turtles, fish, corals and other wildlife of the Chagos now have a greater chance of survival.

I wish the CCT another successful 20 years, and look forward to further collaboration to ensure nature has a lasting home in the Chagos.



# Chagos Conservation Trust and the UK Overseas Territories Conservation Forum

*Dr Mike Pienkowski Honorary Executive Director  
UK Overseas Territories Conservation Forum*



The relationship between the Chagos Conservation Trust and the UK Overseas Territories Conservation Forum has been long and productive. UKOTCF itself was founded in 1987 (as UK Dependent Territories Conservation Forum), and was able to help and encourage the late John Topp found Friends of the Chagos, CCT's forerunner, in 1993. In turn, John's involvement in UKOTCF was a great asset. He was a regular participant in UKOTCF meetings, and also a great source of advice to myself when I became involved in UKOTCF as Chairman from 1995.

UKOTCF is a UK-based charity that promotes and advances the conservation of threatened species and ecosystems, and sustainable environmental management more broadly, across the UK Overseas Territories and Crown Dependencies (herein UKOTs). It is the only body focused solely on addressing all aspects of conservation across all the UKOTs. UKOTCF is effectively a federation, working with and through its member and associate organisations (including CCT). UKOTCF operates regional working groups, maintains a website ([www.ukotcf.org](http://www.ukotcf.org)) providing a range of information on UKOT environmental issues, produces a regular newsletter, and organises meetings to facilitate the sharing of ideas and experiences. It provides reactive advice and support in response to



emerging environmental threats and opportunities, and response to the institutional needs of its partners, including development of locally-led projects, as well as integrating these into more pro-active approaches.



The mutual support between CCT and UKOTCF continued to build in the 1990s and after. CCT's then Chairman, Nigel Wenban-Smith, served also on UKOTCF's Council and strengthened communication and other links between the two organisations. This was also enhanced by CCT effectively providing, by agreement, UKOTCF's BIOT Working Group.

UKOTCF also responded to CCT's request to help with public awareness. Before CCT had its own web-site, UKOTCF provided this, at CCT's request, as a section within its own web-site. Around the same time, UKOTCF was raising awareness in UK about the UK Overseas Territories and the importance of their biodiversity – by articles, web-site, exhibitions etc. For the exhibitions, large posters about each UKOT were produced,

and UKOTCF was able to supply extra copies to CCT for its use. At CCT's request, A4 copies were also produced, with CCT information on the reverse – for one of CCT's early membership drives.

CCT has been involved too in changing emphasis to build on earlier successes. By about 20 years after UKOTCF's founding (and 14 after CCT's), the UKOTCF Council and partner organisations felt that capacity-development had generally gone so well that territory-based bodies had developed sufficiently to lead activities in most territories. Accordingly, UKOTCF reorganised its working groups from those based on individual territories to those based on regions. In fact, this had already happened in some regions. The purpose was both to increase the potential for exchange of expertise and ideas between territories and to identify common issues and needs, and we think that this has resulted in the best of both worlds. CCT has become a strong participant in the UKOTCF Southern Oceans Working Group (SOWG).

One of the greatest activities of CCT is, of course, the Chagos Marine Protected Area, and UKOTCF was very pleased to play its part in encouraging comment from all at the time of consultation on the proposed declaration. As both UKOTCF and CCT have made clear, whatever the political future, sound conservation of the natural resources is vitally important. Others much better qualified will be able to write in this issue of the superb near-pristine marine environment of Chagos, and I will not try to compete. The much smaller land environment is, of course, far from pristine and needs much management and human activity to counter the consequences of earlier activities. In this context, UKOTCF commends the work of CCT, in partnership with other UKOTCF member and associate organisations such as the Zoological Society of London, and others in CEN, in developing training courses in terrestrial and marine conservation for young persons in the Chagossian community, so that they can participate in the vital work to conserve the heritage of their islands.



Looking back over these 20 years, a huge amount has been achieved – but this is only the start, and much more needs to be done to secure conservation of this unique archipelago. So, in congratulating CCT on its achievements over its 20 years, we look forward also to even more productive collaborations in the future.

## From CCT-US to CCT

Dr Sam Purkis  
Chairman CCT-US

Chagos is the world's largest unfished marine reserve and this status owes much to 20 years of tireless efforts by the CCT. It is irrefutably important to protect large swaths of the ocean from direct human impacts as, beyond protecting fish stocks, Chagos serves a central role as a baseline against which scientists can assess the degradation that humans and global environmental change exert on the marine environment. Indeed, by studying such a vast ocean wilderness, it

might be possible to decouple the influence of direct human impact from environmental change, whilst in the rest of the world's oceans, the two are inseparably entangled. Following an invitation by William Marsden, a previous Chairman of the CCT, the Chagos Conservation Trust U.S. formed in 2008 and upon becoming a fully registered US 501(c)(3) not for profit organization in 2009, set out with the mission to extend the goals of the CCT to the United States by promoting conservation, science, education and historical research in relation to the Chagos Archipelago. The CCT US team is chaired by Sam Purkis, with Steve Snell filling the role of Vice Chair & Treasurer, Carol Garner as Secretary, Gwilym Rowlands as both Membership Secretary and Website Administrator, and Chip Batcheller serving as Outreach Director. It is a pleasure and a privilege to work alongside the CCT as they mark their 20<sup>th</sup> anniversary.



## Congratulations from Papahānaumokuākea

*Nai'a Lewis*  
*Strategic Initiatives Coordinator*  
*Papahānaumokuākea Marine National Monument*  
*and UNESCO World Heritage Site*

In honor of the 20th anniversary of the Chagos Conservation Trust, Papahānaumokuākea Marine National Monument (PMNM) and World Heritage site extends hearty congratulations! With a successful cruise to the Chagos this past February, where PMNM was able to take part in collaborative research that hopes to make a significant contribution to the understanding of climate change and its impacts to ocean ecosystems, the future is bright indeed. PMNM looks forward to further cooperative activities that will help both sites, as well as improving large-scale marine conservation world wide.



Charles and Anne Sheppard with Papahānaumokuākea collaborator Daniel Wagner, Salomons Atoll



# Kindred Spirits

*Ernesto Bertarelli*

That the Chagos Conservation Trust is celebrating its 20th birthday seems an incredible achievement. Not simply because of the significance of the anniversary itself, though it is indeed a great milestone. But rather because it provides some insight into how far ahead of their time the founders were in establishing the Trust in 1993.



Photo George Duffield

Their foresight in recognising and standing up for the absolutely unique and vital importance of the Chagos marine environment is to be applauded – loudly, and more so, all that the Trust has achieved in those two busy decades. It has been an exemplar of advocacy, education and of action. I am sure I will be but one of many offering my congratulations and grateful thanks for all that the Trust has accomplished.

My family and I first really came to know about the Trust soon before the creation of the Chagos Marine Reserve, which our Foundation is delighted to have sponsored, when George Duffield from the Blue Marine Foundation came to me and said there was a danger that the fully-protected reserve that CCT wanted was unlikely to be designated unless a substantial sum could be raised. My family has a longstanding, historic passion for the oceans. Avid sailors, my sister and I spent most of our childhoods on the water, or so it seemed, and today we both return to the sea as often as we possibly can. So, of course, we were delighted to help.

That connection with the oceans meant that we saw first-hand the destruction that was – is – being wreaked; noticeably fewer fish in areas where previously they had been abundant, declining coral, an increase in waste – a tragic story, with which we are all too familiar.



Standing in stark contrast to that bleak picture is what is happening now in Chagos. The no-take reserve there is protecting what is surely the most extraordinary and important marine environment on the planet. Home to the world's largest coral atoll, one of its healthiest reef systems and some of its cleanest waters, it also has the most stunning, staggering array of wildlife. It truly is a refuge – a unique place.

Photo George Duffield

These factors, of course, would be more than enough reason on their own for safeguarding the Chagos marine environment. But there is more. As we know largely thanks to the work of the Trust and its exceptionally knowledgeable and experienced Board, the Chagos Islands are also hugely significant in terms of the current and future health of our oceans as a whole. The reason for this is twofold. First, because of the direct impact that the waters there have on adjacent ecosystems, as well as those further afield, and second, because of the singular opportunity that they offer to marine scientists, precisely because they are so relatively healthy.

The Chagos Conservation Trust has led the way in terms of conducting, coordinating and promoting research in the Chagos Archipelago. That research has deepened our understanding of the health of the waters and reef systems there and it has also provided invaluable insight into the role of havens like Chagos in the wider marine architecture. Scientific research, of course has also crucially helped to raise awareness – indeed, it underpinned the establishment of the marine reserve in the first place. So its importance cannot be overstated.

Following the Trust's example, The Bertarelli Foundation recently took its first step – of many, I hope – into marine science. In February and March 2013, having been kindly granted permission by the territory's Commissioner, the Foundation, in partnership with Stanford University and the University of Western Australia, launched an expedition in the Archipelago. Its aim was to pilot an electronic tagging project to examine the capacity to use remote technologies to monitor the movements of large pelagics in the region and was a great success, both in terms of the results achieved and lessons learned.

It was an absolute privilege to have been involved and to have seen first-hand not only the breath-taking, almost implausibly beautiful marine environment, but also the work of the dedicated, talented and passionate marine scientists. It is their work that provides the foundation for action, for in the cold light of hard facts, decision-makers will find it ever harder to retreat from responsibility. It is only by better understanding our oceans that we can hope to safeguard their future.

As people that look to the oceans as a source of recreation and pleasure, my family and I feel very strongly that we owe a debt to them. We are all too aware that the situation is grave, that there is more to do than ever. But we take heart from the Chagos marine environment, from its beauty, wonder and relative health; from the research it is providing us with and from the shining example it provides of what can be achieved. We also take heart that there are people who care about these things in the same way and in nowhere is this better exemplified than the Chagos Conservation Trust – kindred spirits and welcome friends.



# Chagos Expedition 2013

Professor Charles Sheppard  
University of Warwick

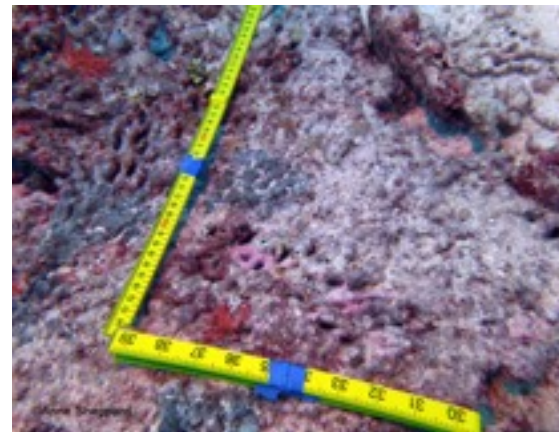
The scientific expedition in February-March 2013 was a success, (as always, I'm happy and relieved to say). There is a full 33 page report (with a lot of photos – not all words!) on the CCT website, so this is just a brief summary.



This time, half of the research budget came from a Darwin Award (DEFRA).

The lead in this was Dr John Turner of Bangor's Ocean Sciences, with Dr Heather Koldewey of ZSL and myself as what are called 'co Principal Investigators'. The other half of the funding was arranged in the same way as in earlier expeditions, namely by choosing leading scientists to come who can attract their own funds. The ship was more full than usual in fact, with 14 scientists in total. As usual, the skipper and crew of the

good ship *Marlin* were simply superb, facilitating everything like catering of course, but going well beyond their expected duties, generously giving help with diving equipment, fuel management, lifting heavy buoys fitted with instruments in and out of the ocean, and much besides. We are lucky with the crew of the ship, in our reef based diving research. Our thanks are always very sincere.



This was the first of a set of three expeditions to be done under the Darwin banner. This fund paid for new equipment as well as the travel – a block of funds to underpin an expedition makes all the difference. Of the three that are funded in this scheme, I was i/c this one, and John and Heather will each take the lead on the next two. I would emphasize that although this is a new grant, the work itself can be viewed as part of an integrated series that started years ago, developing several of the themes and starting new ones all connected with gaining a better understanding of the huge area and finding information to help with its environmental governance.

We were busy – two weeks is really not enough, and we have requested three weeks for the expeditions in the next two years – as used to be the case sometimes. But we managed to do the work we had planned – just!

Without repeating the report: some work involved coral juveniles and coral cover, and retrieval and deployment of temperature recorders from all over the archipelago, and while corals are mostly good, it does look like some areas suffered a fatal stress during the preceding year – one unexplained result is the death of most deeper corals in Salomon lagoon. We cannot say why at this stage, but warming water is my suspicion here.



We obtained more video transects, carried on with the study of the high biodiversity, small fauna (that which we call cryptic fauna) and alongside this deployed several sets of plates to record settlement of young – this is also part of an international study. We started measurement of coral growth rates in some places, and also began work on sponges, the larger algae and black corals. We continued with work on the inter-connectedness of reef organisms between Chagos and the rest of the world. I have mentioned this before and results were slow initially but have now started to come in, with several papers published since the last Chagos News, in some very prestigious journals, on corals and some invertebrates such as the coconut crab and some starfishes. It looks like Chagos is firmly part of the western Indian Ocean 'province', as well as forming a link with the eastern parts. Work on coral erosion was started too.

On islands, ornithology was continued along with vegetation work, some with a view to the now-funded restoration project which will take place next year on rat infested Ile Vache Marin island in Peros Banhos atoll. Concerning deep water, pelagic fishes, some fascinating equipment was tested and deployed in numerous places. This expedition was unusual in that we also started an extensive filming exercise, on land and underwater. Results on the CCT website soon. This complemented the collection, for scientific, outreach and archival purposes, of many hundreds of photos too.

We dived, for the first time, on extensive and newly discovered seagrass beds. These occur well away from islands, and brought home to us how little of the huge shallow area we have actually seen so far. We looked again at the relatively small area that was hit by a crown-of-thorns starfish plague last year, and started some rudimentary sea cucumber surveys to see how these are recovering from past intensive poaching.

Oh yes... we had the luxury this time, at last, of a portable laboratory that was winched aboard for the trip. Some scientists in the past have scratched their heads at how





rudimentary our facilities have been, especially considering how important this location is, but we have always managed – and I have put up with several (kindly) jibes about how basic our working facilities are compared with facilities in established institutions. Now though, thanks to the Darwin grant, we have a laboratory to work in after the dive. We can sort samples for example, without dripping sweat into them! Luxury indeed.

Our scientists came from Australia, Hawaii and California, as well as from several UK institutions too. We had another assistant of Chagossian heritage who, like others Chagossians on other expeditions have been, seemed to be indefatigable. As before, I never had to suggest that she or he might like to help with this or that – they were already doing it. I don't know why it is, because sometimes members meet up only when assembling in Singapore to get to the islands so don't know each other, but all get on extremely well. There is a magic to these trips and it is always a delight and privilege to be part of it all. The projects all succeeded in all their goals. Now, please do read the much longer account on [www.chagos-trust.org](http://www.chagos-trust.org) if you have not already done so! Shortly, we will also post an update of scientific papers on the web too, and so look also at the file which basically lists all the ongoing projects that we have ongoing. I confess I was surprised when I saw how extensive this has now become. It is appropriate, indeed barely adequate, considering the size and importance of the area, but we are getting there!



We are very pleased to have a report of a research expedition from one of our sister Big Ocean sites, that of Papahānaumokuākea Marine National Monument in the Northwestern Hawaiian Islands. We try not to be too envious of the resources that they have! Our thanks to them for this story.

## PMNM Story, June 2013

# New Discoveries Tie Northwestern Hawaiian Islands to Johnston Atoll

Members of a research expedition to Papahānaumokuākea Marine National Monument returned with specimens of new species of deep-water algae from the Northwestern Hawaiian Islands (NWHI), and the first recorded specimens of black coral from Johnston Atoll. They also saw and photographed more than 20 species of fishes never before recorded from the NWHI, and 15 species of fishes never before recorded at Johnston Atoll.

The team visited Nihoa, Mokumanamana, French Frigate Shoals and Laysan Island in Papahānaumokuākea Marine National Monument, and then [Johnston Atoll National Wildlife Refuge](#) in the [Pacific Remote Islands Marine National Monument](#), approximately 860 miles (1,390 km) west of Honolulu. Johnston is regarded as a key "stepping stone" for a number of central and south Pacific marine species to colonize the NWHI. The findings represent a significant increase in the known biodiversity of Hawaiian coral reefs, and provides insights into how Johnston Atoll contributes to the diversity of our reefs in Hawai'i.

The team spent 26 days aboard the NOAA ship Hi'ialakai conducting research dives on deep coral reefs below 200 feet in the NWHI and Johnston Atoll. Scientists collected samples of fish, corals, other invertebrates and algae for population genetics analysis; surveyed deep coral reefs and associated reef fish communities; searched for invasive alien species of coral and algae; and conducted archaeological surveys of the Howland, a late 1800s whaling ship that wrecked at Johnston Atoll.

This expedition marked NOAA's first full deployment of closed-circuit rebreathers on a research cruise. Rebreathers recycle the gases that divers breathe, removing carbon dioxide and actively managing oxygen levels, allowing for extended dive times and more efficient decompression at depths not accessible using conventional SCUBA.

The scientific team included researchers from NOAA's Office of National Marine Sanctuaries' Papahānaumokuākea Marine National Monument and Gray's Reef National Marine Sanctuary, the University of Hawai'i, the Hawai'i Institute of Marine Biology, and the Bernice P. Bishop Museum.



Jacks (*Uraspis helvola*) over deep algal bed at Johnston Atoll. Credit: Greg McFall/NOAA



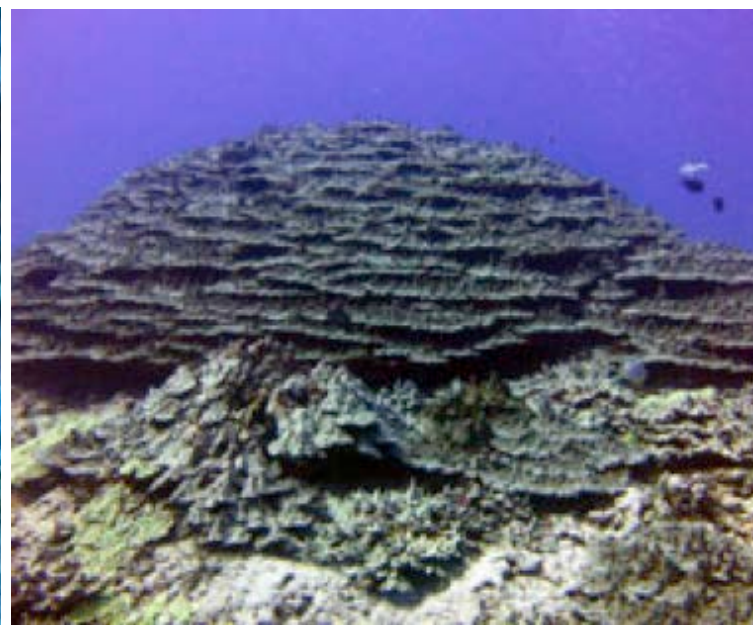
Table coral (*Acropora cytherea*) is common throughout the tropical Pacific and at Johnston, but in Hawai'i its distribution is limited to French Frigate Shoals and neighboring atolls. Credit: Greg McFall/NOAA



NOAA rebreather divers Daniel Wagner (who participated in the last Chagos expedition in February 2013) and Randy Kosaki (who spoke at the last Chagos conference at ZSL in November 2012) conduct coral, algae, and fish surveys at 200 feet at Laysan Island in Papahānaumokuākea Marine National Monument. Credit: Greg McFall/NOAA



Giant Moray (*Gymnothorax javanicus*) peeks out of coral. These very large eels, which can reach eight feet in length, are common at Johnston but rare in Hawai'i. Credit: Mark Royer/Hawai'i Institute of Marine Biology



This old growth coral colony at Laysan in Papahānaumokuākea Marine National Monument is something not often seen – it could be several hundred years old. Credit: Mark Royer/Hawai'i Institute of Marine Biology

# The Russians of Diego Garcia

Ted A. Morris, Jr.

Once upon a time, on the atoll of Diego Garcia, the big news of the day was that the Russians were just off the coast, listening and sneaking ashore at night, or that their submarines routinely entered the lagoon and their aircraft flew overhead, or worse. So says the legend.

It's been 24 years since The Wall came down, and many of us have forgotten how seriously we took such concerns during the Cold War, or why the U.S. base on the British Indian Ocean Territory was created. For that we must go back to the 1960s when the United Kingdom was pulling back from "East of Suez" as it dismantled its empire, while the United States was preoccupied in East Asia.

At the same time, the USSR was expanding its Naval presence in the Indian Ocean, using an anchorage off Socotra Island, and building a fleet support facility at Berbera, Somalia, threatening the flow of oil from the Persian Gulf through the Red Sea to Europe and America. Both the U.S. and the U.K. desired a base somewhere in the Indian Ocean to counter the ever-growing Soviet Navy presence. In the end, Diego Garcia became that base.

At first, the base was to be a Naval Communications Station, relaying radio traffic on many different frequencies. As Soviet operations in the Indian Ocean were the subjects of much of that chatter, the USSR was intensely interested in knowing what we knew. It was a cryptologist's world, with everyone recording everyone else and then trying to figure out who said what to whom. When the first SEABEES arrived on January 23, 1971 to build the base, the Soviet AGI ships (Auxiliary, General Intelligence) followed our LSTs to the atoll, and maintained a listening watch over the Communications Station for years thereafter. To the men on DGAR in the early days, 'Russians' were a constant presence, just over the horizon.

I have a website about Diego Garcia, and over the last 15 years about 400 people have sent in stories of their time on the atoll in the 1970s and 1980s. A very few have written about the Soviet Navy in the vicinity, and I've distilled those stories here in chronological order, hopefully to give an idea of the mind-set of the times. (I've cleaned up the spelling and grammar in the quotes below.)

- *SEABEE Tom Scott was a Construction Electrician 2nd Class at the time in Mobile Construction Battalion 40 (MCB-40), and arrived on Diego Garcia as part of a 26-man advance party in February 1971 aboard the USS HARLAN COUNTY (LST 1196). He wrote: "Although I was oblivious to it at the time ... there were some political ramifications to what we were doing... The other members of the Indian Ocean Rim nations were concerned about the potential for conflict between us and the Ruskies in their placid little corner of the world. We were picked up by a Russian 'trawler' (it was bristling with fish poles or antennae, I'm not sure which) as soon as we cleared the east coast [of the U.S.] and it followed us all the way, remaining stationed off of Diego the whole time we were there [through October 1971] so their concerns might not have been totally unfounded."*

- *Retired Master Chief Richard "Scotty" Scott was aboard the USS VERNON COUNTY (LST 1161) as it arrived in March 1971 and recalled that, "A Russian ship was seen and continued to shadow us. The Old Man had told us now we were off to an Island in the Chagos Archipelago called Diego Garcia."*



- Ensign Joe O'Loughlin was a crew member of the USS ANCHORAGE (LSD-36), which arrived at Diego Garcia on March 28, 1971, wrote, "I remember the Russian trawler that dogged our ship's every move in and out of the area, all the antennas she had sprouting from her topside surfaces, and all the signal traffic she generated."

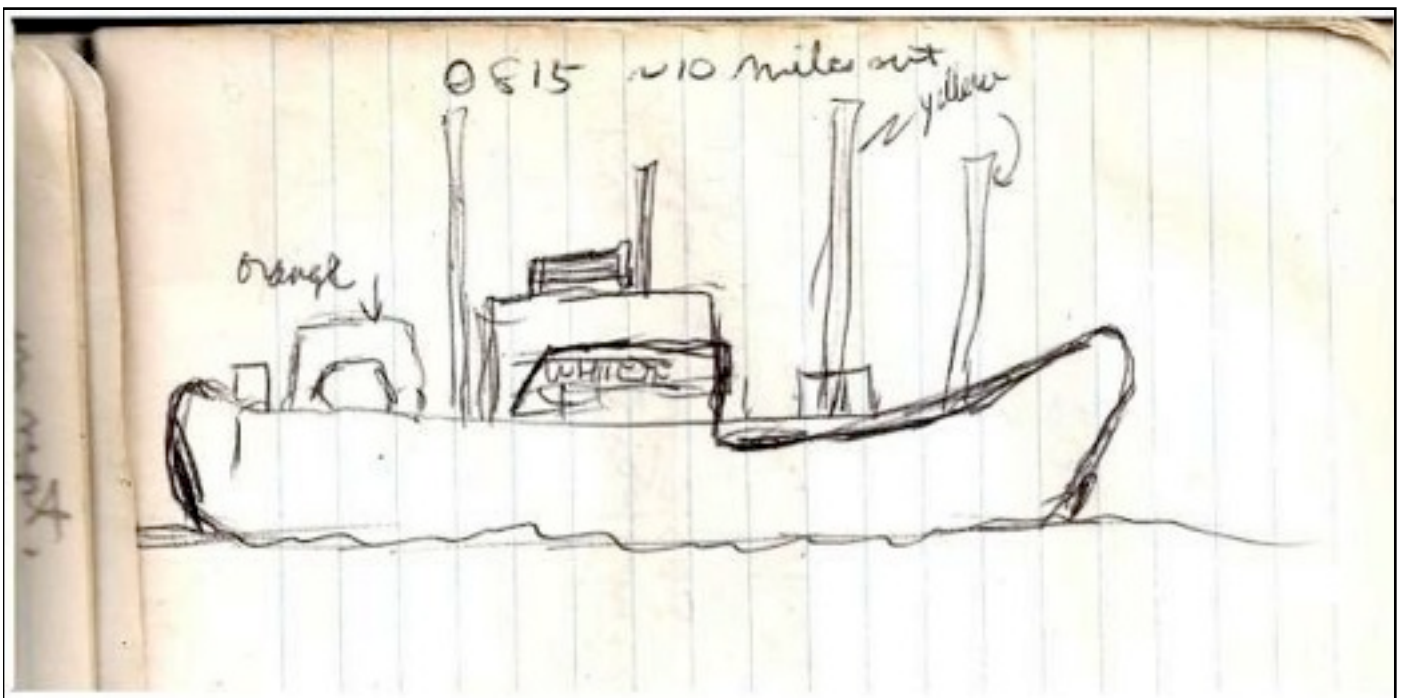
- Seaman Steve Brunette, also on the USS ANCHORAGE, said, "After leaving Freemantle, Australia, we were followed by a Russian cruiser who also stayed on the horizon while we offloaded the 2 evaporators and various other Seabee materials [on Diego Garcia]."

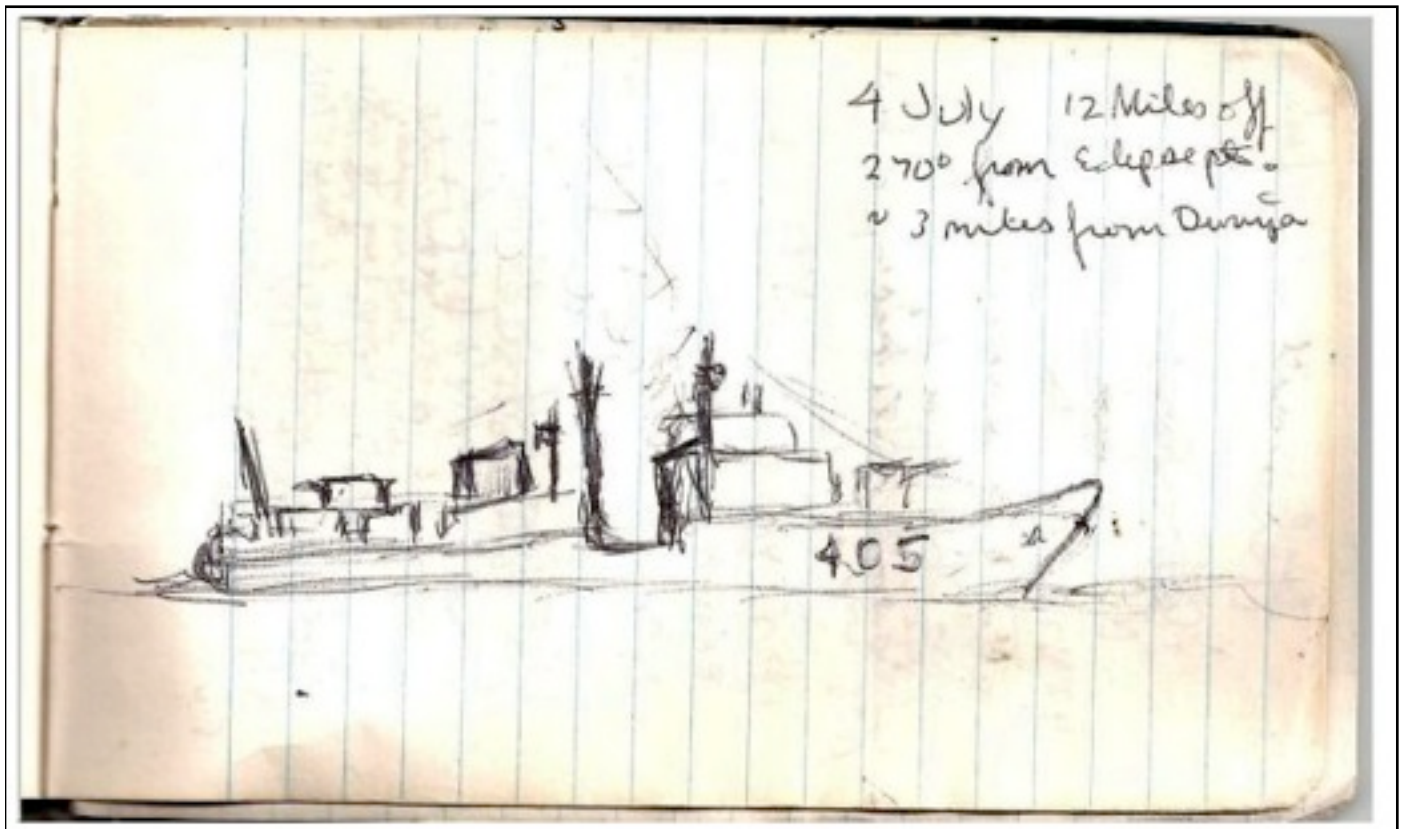
- Also arriving on the VERNON COUNTY was the "Old Man", Commander Daniel Urish. During his Command of MCB-40, he saw Soviet ships off Diego Garcia on numerous occasions.

On June 22, 1971, he spotted the Soviet Surveillance Ship DURIYA 10 miles out from Eclipse Point. The DURIYA was spotted again on June 24, and on the 30th.

On the 4th of July, 1971, Commander Urish sighted the Soviet Naval Destroyer #405 12 miles west of Eclipse Point, sailing in company with the DURIYA.

Here are the drawings of these ships made by Commander Urish at the time:





- Fred Cook, an Engineering Aide 3rd Class in MCB-40, also in the advance party, said that they spent a lot of time "watching the Russians watch us". He denied that Russian "commandos" ever came ashore, but that a practical joke involving supposed Russian rations found on a beach caused a great deal of anxiety for a while in March of 1971. He did share this story about the ever-present Soviet spy ships: "The entire time that we were on DG, the Russians had several trawlers, destroyers, and a cruiser or two that stayed out near the horizon to keep an eye on what we were doing. At first, everyone (almost) worried about them, then ignored them and finally forgot them. Somewhere in between the worrying stage and the forgetting stage, we decided to have a little fun with the Ruskies. One of the guys in Headquarters Company had done a previous stint in the Air Force as a communications tech of some sort and knew Morse code. So one evening he showed up outside H-15 (headquarters company hut 15) where yours truly and about a dozen other engineering types called home. Neatly tucked under his arm (in a plain brown wrapper) was a battle lantern he had stolen ... er ... that is 'borrowed' from one of the ships in the lagoon. As soon as it got dark enough and drunk enough, he started flashing messages to one of the Russian ships. Guess what? Pretty soon, they started talking back and real quick like, the messages were coming and going as fast as our 'expert' could handle the translations. At first the messages were simply 'Hello, how are you' types of things and the Russians were answering back very politely. Finally the appropriateness of the messages started to deteriorate (being nice got boring) and someone suggested asking if all Russian mothers wore combat boots (really!). There was a long pause in the flashes from the ship while they (apparently) double checked the message and in reply tried to change the subject. Well, this made 'the group' mad and the next message that went out had to do with everyone on the ship puckering up to our behinds. I don't know if the code was sent correctly, if the Russians believed what they

had received or if the Russian captain showed up on the bridge, but it got real dark real fast in that part of the ocean/horizon!"

- Dennis Vita also arrived in March 1971 with MCB-40's Bravo Company (in the SEABEES, Bravo Company constructs utilities and operates repair shops) and worked in the Generator 'Shack'. He asked, "Does anyone remember the Russian trawlers off our coast and our radio man playing a song for them -- Back in the USSR?" Playing this song is a recurring theme in the stories, and is reported over several years.

- Seaman Chris Ahern was a steel worker with the SEABEES of MCB-40 on DG in 1971, and had this to say about Russians on the island: "I also heard of all the stories of strange faces in the chow line, etc., etc. I did not believe there were any Russians on the Island as anyone else did. But listen to this. I did a 20 year career as a Steelworker and while I was stationed in Sigonella, Sicily in '77, I was getting something to eat at the chow hall and I sat down with this Marine SGT. I think Costa was his name. He looked at me and said hmmm Seabee huh, I was a Seabee once, well kinda he said. I replied what do you mean kinda? He began to tell me this story, I don't know if it is the truth, only that he was surely there at that time since he described happenings and the way everything was set up there. He said he was stationed at the embassy in Saigon in '71 and was told he would be going on a classified mission to Diego Garcia. This SGT spoke fluent Russian, he was told to grow out his beard and that he was going to be sent there undercover as a Seabee. He said about a month later he and two other marines were on their way. He said they went in on one of the first flights to the Island [so this was after July 28, 1971] and went on to say that they worked as if they were Seabees for about 2 months working during the day and patrolled the island at night. One night while passing Connex Box city (remember that where they kept a lot of the supplies) he and the other two marines heard whispering back in the maze of connex boxes. Costa said he whispered "over hear hurry" in Russian and sure enough two guys dressed as Seabees came running out of the maze. Costa said they apprehended them and they held somewhere outside of camp and sent back to D.C. to be interrogated. This really shocked me because of how much he knew about the island and things that happened at that time. I did not tell him that I was there until he was done with his story. I will leave to everyone else to form their own opinion."

- Some stories imply that everyone knew and accepted that there were AGIs offshore all the time. For example, Electronic Technician 2nd Class Jeff Mead who was with ACU-4, wrote, "Anybody remember the time when there was a problem with the burners on the chow hall mess kit barrels and about a 1000 guys were sicker than hell? If that Russian trawler knew that, they could have taken over the island in about ten minutes."

- Jonathan Rutka of MCB-1 Alpha Company (in the SEABEES, Alpha Company maintains all the vehicles and equipment) worked the night shift at the Equipment Repair Shop. He arrived in October 1971 and left in June 1972. He states: "I remember the day that the white Russian trawler came sailing into the bay. It appeared to be an electronics spy ship and I remember the large deck gun forward! Does anyone remember the Russian subs?" Jonathan may be mistaken; AGIs were in general not armed, and he may have seen the British sub *HMS ORPHEUS* enter the lagoon. She made a port call on October 8, 1971.

Overflight by Soviet aircraft is also a recurring theme, although Diego Garcia was so far from the nearest possible air base that such flights were more likely made by US or UK aircraft flying from aircraft carriers in the vicinity.

- In 1972, former Equipment Operator 2nd Class James Perez was on the atoll with the Chagos Detachment of MCB-133. He was a Disc Jockey on Radio Reindeer (the Armed Forces Radio Service AM station on the island). He says, "We used to play stuff for the Russians on the Trawler that was always just over the horizon during the day but it was just off the reef at night on the ocean side. I used to go out at dawn and watch them through my binoculars. We'd wave at each other then they would cruise over the horizon again. I think we had to do an emergency appendectomy for one of their crewman once, one of the first efforts at goodwill I guess.

"I also used to like watching the Russian Bear do touch and gos on the runway to check the length. We couldn't do anything about it 'cause we had no permanent aircraft there. All we could do was scramble a fighter flight out of Utaou, Thailand, and the Bear was long gone before they could get there. Kind of humorous looking back at it."

Without challenging James' memory of the events, TU-95 Bears did not have an air base in the region to support their operations until Berbera was completed in 1975.

- In 1972 - 1973, Dave Glazier worked on the concrete/masonry crew of MCB-4 during the day, and as a Disc Jockey on AFRS in the evening and, "Used to salute the Russian Trawler with 'Back in the USSR' from Beatles until the CO ordered me to cease. Remember the MIG used to flyover everyday around noon for picture taking, and do the wing dip salute to all of us?" Gregory McAdam was there then and also remembers playing 'Back in the USSR' routinely on the radio.

- Mike Bell was the Postal Clerk for the Naval Communications Station in 1973 & 1974, and wrote wanting to know if "anybody remembers the Russian sub pulling into the harbor?"

- In 1974, Anthony Baca, another SEABEE, reported that the *USS ENTERPRISE* (CVN-65) paid the island a visit in the form of aircraft fly-bys which, "gave me a sense of security since Russian ships had been the only ones around for a while."

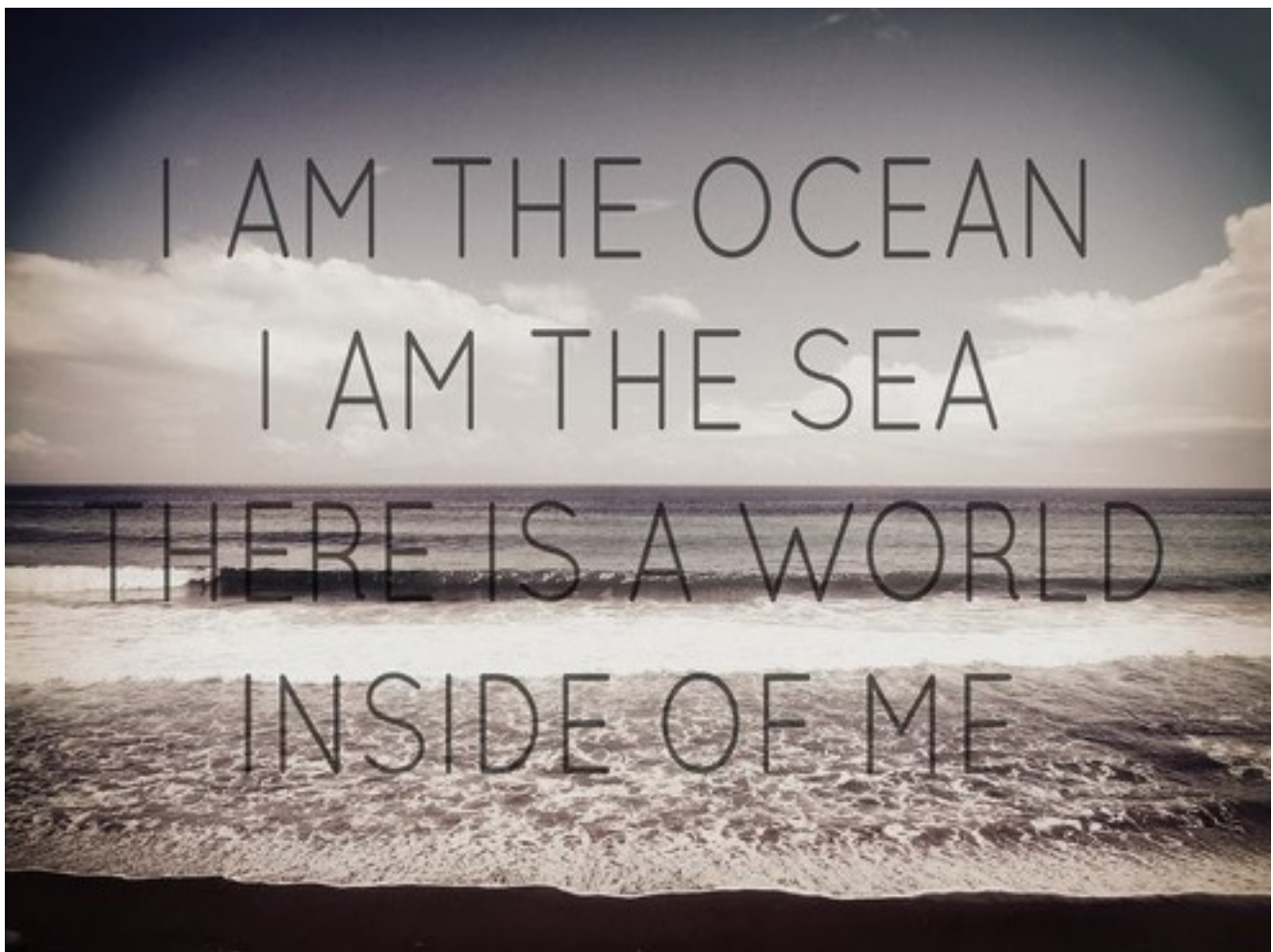
- Mike Rea, a Builder Chief with the SEABEES in 1974 claims that Russian reconnaissance aircraft flew over the island routinely, and that "...we painted words on the top of our trailer that weren't complimentary to Russia. A few weeks after we did this we were told that it caused an international incident and we had to repaint the top of the trailer."

Between February 1975 and February 1976, Frank Wables, a Chief Radioman stationed at the Communications Station, remembered that Jerry Whitworth, the spy, was there at the same time. Frank says, "I always wondered why that Russian trawler was at the same end of the island at the same day on the first two nights of the month." The FBI investigation revealed that Whitworth mailed his stolen documents to a confederate off-island, but I can't help picturing clandestine meetings on a moonless beach with black-faced men in a rubber dinghy...

- John Reed, also stationed at the Communications Station between May 1976 and June 1977 wrote that, "I remember seeing the Russian Bearcat [Bear] fly overhead, shadowing the island. You could hear the thing an hour before you saw it. And the Russian trawlers on the horizon checking us out." This is entirely possible, but if it occurred, the event probably remains classified to this day.

- Another AFRTS Disc Jockey, Tom Reilly remembered that in 1978, "I had a weekly radio show, called the R&R show on Sunday afternoons. I played rock and roll. We were always getting warnings that Soviet ships were off shore listening to all of our communications. I always wondered how many Russian sailors were introduced to rock and roll that way..."

And that is the last mention of Soviets in my records. Was that because they were kicked out of Berbera about that time, or because the average American's attention was ever-after focused on the Islamic world following the abduction of 52 Americans in Tehran and the Iranian oil embargo of 1979? No doubt, some of both. But from 1971 to 1977 the men on Diego Garcia shared exchanges with the sailors of the Red Fleet, and everyone escaped without a scratch.





## Recollections of Diego Garcia and the Chagos

Oliver Alden "CHIP" Batcheller (1979 – 1984)  
Commander United States Navy (Retired)



CO NAF: An anonymous gift from one or more of my sailors. It showed up one morning on my desk.

### The Nibble

In early November 1979, I was flying the A-6E Intruder off the USS MIDWAY (CV 41), on a short deployment to the Indian Ocean with the promise that we would be back to our home port of Yokosuka, Japan by Thanksgiving. One of our exercises was to plan a simulated attack on the air field located on Diego Garcia. The mission went as planned and I remember as we departed what an absolutely beautiful tropical island it was, having a blue lagoon, coral reef, pure white sand beaches and swaying coconut palm trees, a place that would be lovely to visit and explore. That night, 4 November, 1979, everything changed. The ship's Captain announced that there was a crisis in Iran, Americans had been taken hostage and we were headed north. We didn't get back to Japan until March, 1980. There were two more deployments to the Indian Ocean but we did not get close to Diego Garcia and the Chagos.

### The Bite .....Well Two Bites

In May of 1981, I received orders to the staff of Commander, Fleet Air Western Pacific located at Atsugi, Japan as the Operations Officer. I wasn't happy with those orders. I wanted a job that kept me in a cockpit, flying and hopefully back in the states. One of my jobs was to conduct Command Inspections of all the Naval Air Activities in the Western Pacific and Indian Ocean which included the Naval Air Facility at Diego Garcia.

During my first inspection we took advantage of a boat trip outside the lagoon. We heard some loud splashes but saw nothing when we turned to look. Scanning the area of the splash a huge manta ray soon breached then disappeared. On our return to the lagoon another one breached just ahead of our boat. Looking over the bow of the boat, I saw several more swimming just below the surface, diving to the white sandy bottom then climbing and rolling to dive again, then climbing to breach. The trip and BBQ that night were the highlights of the visit there.

Another of my duties was oversight and management of Navy targets and ranges in the Pacific. There were no targets or ranges in the Indian Ocean, and with the continuing need for the presence of Navy Battle Groups in the Indian Ocean, I lobbied for and supported the need to at least see if there might be an option to set one up in the Chagos. I got a solo trip to Diego Garcia to investigate but was only allowed two days on island to do it. While there, I arranged a flight on a P-3 Orion (Sub chaser) deployed to Diego Garcia, to fly over the Chagos and take pictures of the islands. We flew low level over many of the islands. Again, what a beautiful place. In hindsight, I'm glad that the target plan was eventually scrapped. In the photographs below, the presence of sharks was immediately apparent. The oversized shark nicknamed Hector was well known to residents of the island in the 1970s and very early 1980s. The boat was reported to be 23ft in length.



1982 Eagle Island: A candidate target for practice bombs. Note the sharks between the reef and shore.



The legendary Hector in the lagoon; date unknown,

### 'A great catch'

Early in 1983, I had the honor to be selected for orders to report in September, as Commanding Officer, Naval Air Facility, Diego Garcia, which I readily accepted. One of the rumors in the Navy was that if you really screwed up, you would get orders to Diego Garcia. I knew better. As with any orders there is the good side and the bad side. The bad side is that no family members are allowed on the island, it is a one year tour, it is considered remote duty, and it rains ..... a lot. The good side attributes were: a tropical island, warm waters, drop dead sunrises and sunsets, dedicated crew, cocktails with John Topp (BRITREP at the time), Friday nights at the BRIT Club, coconuts, beach combing for shells, exploring history, and many more.

The Island did not disappoint. Living was a bit sparse by some standards but perfect for me. Hours were long but acceptable when you considered that a walk on the beach or a swim in the lagoon were only a short walk away.

If you have young children you may be interested in the e-magazine *Sea Urchins*, written especially for them. Subscriptions are available at [www.seaurchinsmag.com](http://www.seaurchinsmag.com)

The recent issue has a beautiful and informative piece about Chagos marine life.

We have 5 copies of the first issue to give away to the first 5 children who email me at [chagosnews@chagos-trust.org](mailto:chagosnews@chagos-trust.org).

**Happy Birthday Chagos Marine Reserve!**  
www.chagos-trust.org

Latest Pictures from the World's Largest Marine Reserve to Mark the 3 Year Anniversary  
The world's largest fully 'no take' marine reserve (the British Indian Ocean Territory (Chagos) Marine Protected Area - in three years old).  
In 2010, the Chagos Conservation Trust (CCT) led the successful campaign to establish Chagos as the world's largest fully protected marine protected area.

Here are some of the best images from the team's latest scientific expedition to this remarkable archipelago. They show you why they are working to protect this globally important environment and the stunning wildlife that lives there.  
The photos were taken by one of the Trustees, Anne Sheppard.

**At over 530,000 square km, the marine reserve is twice the size of the UK and is Britain's most extensive marine ecosystem.**

**Soft coral** comes up. There are over 100 different types of coral in the Chagos Islands. In the absence of pollution and fishing, the coral is still the outstandingly precious source of the best ingredients in the world.

**Cleaner Shrimp** *Stomatopoda* found in *Squilla* Arch. The combination of tropical islands, unspoiled coral reefs and adjacent ocean depths, make this marine reserve comparable to global hotspots such as the Great Barrier Reef and the Galapagos Islands.

**A Silver shark** (each of them) *Megachasma* is one of the world's largest fish species, such as sharks, rays and swordfish. It is considered to be the last seen decades.

**Large Hawkfish** *Pterois* is a common, one of over 500 species of fish in the Chagos Archipelago.

## *Chagos*

*Little islands in the blue,  
how do you do?*

*A little more hardwood perhaps?*

*Given half a chance  
I wonder at your coral wreaths,  
your fragile waving  
palps born with such  
coloured countenance.*

*Above we suck-sip  
from the hairy coconut  
while your pipes play  
an ancient fugue today.*

*These palms beat to  
the breeze on blue-wide sea,  
underneath tube-feet dance soft bells,  
set-off alarms that  
over fishing can.*

*The coelom pulsates  
in trapped Haiku -  
the limpets holdfast still.*

*Keith MacIvor*



**Annex 78**

A/68/528: United Kingdom written statement,  
1 October 2013



United Kingdom  
Mission to the  
United Nations

1 October 2013

HE Mr John Ashe  
President of the General Assembly  
United Nations  
Rm CB0246  
New York  
NY 10017

**The Permanent Representative,  
Sir Mark Lyall Grant**  
One Dag Hammarskjold Plaza  
885 Second Avenue  
New York, NY 10017

Tel: + 1 212 745 9334  
Fax: +1 212 745 9316  
[www.ukun.fco.gov.uk](http://www.ukun.fco.gov.uk)

*Dear Mr President,*

I have the honour to enclose herewith the text of the written statement of the delegation of the United Kingdom in exercise of the right of reply to the remarks made by Dr. the Hon. Navinchandra Ramgoolam, Prime Minister of the Republic of Mauritius, on 28 September 2013 in the General Assembly.

I should be most grateful if you would arrange to have the text of the present letter and the annexed statement circulated as a document of the General Assembly under agenda item 8.

*Yours sincerely,  
Mark Lyall Grant*

Mark Lyall Grant

---

**The British Government maintains that the British Indian Ocean Territory is British, has been since 1814, and was never part of Mauritius before Independence. It does not recognise the sovereignty claim of the Mauritian Government.**

**The British Government values its close and constructive co-operation with the Government of Mauritius on a wide range of issues and would like this to include a more constructive dialogue on British Indian Ocean Territory.**

**Annex 79**

*Chagos News*, No. 43, December 2013

# Chagos News



The Periodical Newsletter of the Chagos Conservation Trust and the Chagos Conservation Trust US  
No 43 DEC 2013

ISSN 2046 7222

## Editorial

Chagos and CCT are stepping more confidently onto the international stage as an important area for conservation and scientific research. At the recent 3<sup>rd</sup> International Marine Protected Areas Congress (IMPAC3) in Marseilles, France and in the Big Ocean Managers meetings held immediately after it, it was clear to all that MPAs are critically important in our efforts to try to stave off the disastrous effects of the various chronic stresses that we are inflicting on ocean systems. And very large MPAs (VLMPAs) are of acute importance because they protect whole ecosystems.

This is not news to most of us, yet there are still those who, because they want to exploit the ocean's resources in various ways, try to negate MPA benefits. One individual at the conference said that we should not have large MPAs because they only make the (tuna) fishermen angry and resentful so that they will not cooperate elsewhere! Industrial fishing's attempts to continue to ride roughshod over conservation work is looking increasingly foolish and being seen for the greed that it is!

There is also a lot of dodgy or delaying 'science' done by, or in the name of, the exploiters. I think there are parallels with research that tried to show that smoking had no harmful effects on human health back in the 1970s. Research on the beneficial effects of MPAs on the ocean's health is showing increasingly clearly that large, properly protected areas are not only good but *necessary*.

It is difficult not to think "I told you so" about governments and other agencies who do not listen to scientists' messages, which are the results of years of research and collaboration. The Philippines have recently announced that they will be planting a lot of mangrove forests to help protect coastlines from future cyclone damage. CCT trustee Dr Heather Koldewey has been proposing exactly that for some years.

CCT trustees, as members of the Big Ocean Network, have also been involved in the drawing up of the *Guidelines for the Design and Management of Large Scale Marine Protected Areas* which will be published next year by IUCN.

Anne Sheppard  
Editor



## Monitoring Megafauna in the Chagos Marine Reserve Workshop

Dr Matthew Gollock

Zoological Society of London



Between the 11<sup>th</sup> and 13<sup>th</sup> October 2013 an international team of 25 scientists and conservationists from 18 organisations and six countries met in Geneva to develop a co-ordinated approach to megafauna science within the Chagos Marine Reserve, as part of a workshop was jointly organised by the Zoological Society of London (ZSL) and hosted by the Bertarelli Foundation.

Previous to the workshop, discussions between ZSL, CCT and the Bertarelli Foundation highlighted the need for a co-ordinated approach to monitoring megafauna, after the Bertarelli Foundation initiated a pilot tagging programme, in collaboration with researchers at Stanford University and the University of Western Australia, in March 2013. This approach would ensure that research is developed to maximise the benefits to the species and habitats of Chagos and to establish the most effective means of information flow between researchers. Many of the species that were significantly affected by the commercial tuna fishery are classed as megafauna and, despite the reserve being created over three years ago, there has still been very little research being carried out on them due to logistical and financial constraints. As such, the organisations decided to bring together scientists and institutions that had experience and expertise of working in Chagos and/or on megafauna, to develop a science plan that would benefit the species, not only within the reserve, but in the wider Indian Ocean context and beyond.

The following organisations were invited to the workshop:

Australian Institute of Marine Science  
Blue Marine Foundation  
Chagos Conservation Trust  
Ecole Polytechnique Fédérale de Lausanne  
The Manta Trust  
Oceana  
Pew Environment Group  
Save Our Seas Foundation  
Stanford University  
UK Government Foreign and Commonwealth Office  
University College London  
University of Bangor  
University of St. Andrews  
Swansea University  
University of Warwick  
University of Western Australia  
Zoological Society of London

Over three days of presentations and discussions, participants agreed a vision, mission, values and nine key objectives related to monitoring megafauna in the context of wider research in the region. On the basis of these objectives, an outline five-year science plan was developed with the required infrastructure and immediate next steps identified. A strong collaboration was built during the workshop that will form the basis of a proposed collaborative consortium to develop and implement the plan. The success of the consortium was defined by a transparent and open approach to data- and skill-sharing, common methodologies and a simple, non-bureaucratic framework. This will encompass a complementary approach of five inter-dependent thematic areas:

Monitoring megafauna  
Coastal and reef biology  
Oceanography and 'ocean observation' of key processes  
Conservation and management  
Communications and outreach

Participants recognised the value of the Chagos Marine Protected Area in ocean conservation and as an opportunity to test the success of the large marine reserve paradigm. It became apparent that greater conservation and science gains were possible by developing the Chagos Archipelago as an 'ocean observatory' that could potentially connect with similar remote sites elsewhere. The Chagos Marine Protected Area was proposed as a 'hub' for a wide range of research that would benefit conservation and management with the broader vision to highlight the importance of Chagos in the context of the Indian Ocean and the global marine ecosystem.

## Chagos 20/20: Protecting a Unique Environment in the Indian Ocean

*Damien Clarkson*  
Director, Social Chic Agency

Just last year UNESCO reported that we discovered 2,000 species of new marine life, with more species being discovered in the last decade than ever before. Sadly, despite still not fully understanding the secrets of the oceans we continue to ruthlessly exploit them for financial gain. Overfishing, pollution, tourism and climate change have pushed our oceans to the tipping point. Our oceans are in the red zone, the sirens are going off but no one is coming...

On Monday 18<sup>th</sup> November I attended the Chagos Conversation Trust's 20/20 Conference, taking a retrospective look at the conservation of the Chagos Archipelago and gazing into what the next 20 years of conservation could look like.

Professor Charles Sheppard, who has led conservation in Chagos over the past 35 years, kicked off the conference by taking a look back at changes in Chagos' reef environment since he first visited the region. Charles has done more research in Chagos than any other scientist, and has led many expeditions to the archipelago since the first in 1978. He proceeded to outline the horrific El Nino related warming events in the Indian Ocean in the late 1990s. This caused decimation of coral reefs in the Indian Ocean, reducing them by about 90% in many places.

Chagos, however, proved to be exceptional in its ability to bounce back from warming events. While the nearby Seychelles stayed at heavily depleted levels of coral coverage, by 2006 Chagos had substantially recovered.

Charles attributes this in the main to the fact that Chagos remains relatively untouched by other anthropogenic environmental stresses such as overfishing, tourism and pollution. This is also reflected strongly in the huge levels of fish biomass in the region in comparison with other Indian Ocean locations. However he warned it doesn't take much exploitation of the fish population to trigger a dramatic drop in fish biomass levels. Sadly, in Chagos, the same as globally, there has been a lot of shark poaching. This has resulted in fewer sharks but the predator release has meant that the reef fish biomass has increased.

What struck me from Charles' talk is the uniqueness of the Chagos region. In a world where other reef environments are showing little signs of recovery, the abundance and strength of Chagos provides us with such an important learning environment.

The need to learn more about the region and keep conservation a priority is now being aided by smart technology solutions. Dr Elizabeth Widman of Warwick University spoke elegantly about the establishment of The Chagos Science Portal, a new project enabling researchers, governments and the general public to map and access new and existing data in an interactive database.



was fascinating to hear from Dr Jeanne Mortimer of the University of Florida about the abundance of Green and Hawksbill turtles that make the Chagos Archipelago their home and breeding area. She has done fantastic work in surveying 89% of the Chagos coastlines. The development of technology makes the task easier and they have recently started mapping the migration patterns of turtles from Chagos using satellite tags. Again the effects of climate change pose the greatest threat to the turtles. The temperature the sand where the turtle eggs are incubated determines the sex. Warmer conditions will mean fewer male turtles that could eventually lead to extinction.

regards to our overseas territories in exactly the same way as we do with our countryside here in the UK.

The afternoon saw Alistair Gammell talk about the campaign to create the Chagos Marine Protection Area. Many respected NGOs came together for the campaign to create the reserve and the order to create it was one of the last instructions given by David Miliband the Foreign Secretary on the eve of the 2010 general election.

Dr Daniel Wagner then talked about the rare and elusive deep water organism, black coral, from the Chagos Archipelago. When asked by a member of the audience about the impacts of the climate change he said that, not having a calcium skeleton acidification will not affect them, but it has been shown that as acidity increases these corals become stressed and start to develop diseases.

Climate Change was a recurring theme throughout the conference, with the speakers highlighting the clear threat it poses to the health of reefs and the marine life that inhabits them. The latest Intergovernmental Panel on Climate Change (IPCC) report indicated the temperature of the ocean is set to continue increasing and that the oceans are warming at a faster pace than suggested in the last IPCC report and at a faster rate than at any time in the past 10,000 years. This poses a grave threat to the reefs of the World and low lying coastal regions. The projections from the report put average sea level for the period of 2080-2100 at 45cm-82cm, higher than in 2007. Furthermore, as the extra CO<sub>2</sub> in the atmosphere finds its way into the ocean, increasing acidification also occurs.



Pete Carr gave a wonderful talk about the relationship between the number of birds on the Chagos islands and the trees that grow there. Basically, they don't like the monocultures of coconut that were planted there. But on islands which were too small for a plantation, and therefore native vegetation and no rats, the birds thrive in huge numbers. Islands where the native vegetation is being restored are starting to show large numbers of birds returning to live and breed.

My own experiences of diving set me on my path of conservation. Getting across the beauty of these places has to be a key ambition of conservation organisations. I accept not everyone is going to be able to travel around the world see these beautiful areas firsthand, but those of us with a desire to preserve nature must hold our government to with





As we approached the end of the day the focus turned to history and the future of the Chagos Archipelago. Nigel Wenban Smith gave a fascinating talk outlining poor historical conservation practices. We then heard from Rudy and Louis from ZSL talk about the continuing outreach programme to the Chagos community. The Chagos Ambassadors programme gives the Chagossian community a lot of information about conservation.

The day ended with a spectacular Chagos film by filmmaker George Duffield, who made the award winning film *The End of the Line* which has proved to be very influential in fisheries conservation work.

The conference provided me with a valuable insight into a region we hear so little about in the UK media. The beauty and uniqueness of Chagos has left me with a strong conviction that the

ongoing preservation of Chagos is vital; especially as other reef areas continue to degrade under the pressures of human exploitation and climate change.

After today I certainly will be making it a 2014 resolution to dust off my PADI open water diving licence and reconnect with the beauty of our marine environment.

*Damien is a digital communications strategist and social media specialist with a track record of creating powerful campaigns that capture the imagination and inspire supporters to take action. Damien's career has so far included time working in the voluntary sector for major charities. He is a passionate about campaigning to protect the environment and is also a director of the climate change action campaigning group Climate Rush. You can connect with him on Twitter [@damienclarkson](https://twitter.com/damienclarkson) or email him at: [damien@socialchicagency.com](mailto:damien@socialchicagency.com)*



## What a Waste

Anne Sheppard  
University of Warwick

Beach litter has always been pretty abundant on the Chagos islands. During the research expeditions there in the 1970s, the main items washed onto the beaches were rubber flip flops (mainly left-footed ones for some unfathomable reason, maybe the right-footed ones circulated in the opposite direction!) and glass fishing floats with their macramé web rope covering. We happily salvaged the latter treasures and, during the long expedition of 1978-79, we frequently had to salvage some of the flip flops too.

Over the years we have noticed a great change in the items being washed up. Not such a dramatic change in 1996, but by 2006, plastic items on these beautiful and remote beaches were abundant. On the last expedition in February 2013, a particular stretch of beach caught my attention with a profusion of plastic drinking water bottles. I counted 45 plastic water bottles on a 15 metre stretch of beach on the northern spit of sand on Ile du Coin, Peros Banhos. From the labels, most came from Indonesia.



Beach litter is one of the things that have been monitored in Chagos for many years. Prof Andrew Price has covered large areas of these atolls carrying out his rapid assessment surveys. <http://onlinelibrary.wiley.com/doi/10.1002/aqc.1029/abstract>

These show that Chagos beaches have more litter than most other Indian Ocean beaches. Perhaps this is because much of it is scavenged for use or recycling by the local people in other places, but another reason that so much litter ends up on the beaches of the uninhabited Chagos islands is part of what makes this archipelago so special to marine life – it is on the route of ocean currents which bring and take the larvae of many species across the Indian Ocean. It unfortunately also brings the waste plastic.

The issue of plastic in the environment is an increasing problem globally. It takes so long to break down that it will all be with us for a long time. And we keep adding to the pile. When, after some time, it seems to have decomposed, it has done no such thing. It just breaks down into smaller, plankton-sized bits of plastic that can be ingested by smaller creatures. <http://www.sciencedirect.com/science/article/pii/S0025326X11005133>. Many plankton feeders ingest it and even zooplankton in the ocean are killed by ingesting microscopic fragments of plastic which they cannot digest and so die of lack of food. On top of that, many persistent organic pollutants (POPs) adsorb onto the surface of the plastic fragments making them toxic too. <http://rstb.royalsocietypublishing.org/content/364/1526/2027.short>

The rapid assessment survey also found that there were much lower levels of beach litter on Chagos' inhabited southern atoll of Diego Garcia. This is due to a group of environmentally conscious personnel on the island who have regular a beach clean up (see Chagos News 39). They should be commended and must be pleased to see that their efforts have a noticeable effect.

The effect of plastic in the ocean is starkly illustrated in this tragic short film shot in Midway Island in the Pacific Ocean <http://www.youtube.com/watch?v=dtJFilXp5Bo>. Please think carefully before you buy, and especially dispose of, plastic bottles. Drinking water bottles are commonly made of Polyethylene terephthalate, or PET. This can be identified by the numeral 1 inside the recyclable symbol. This material can be recycled if it is disposed of in the right place, and there is more demand for colourless



plastic waste for making into other things such as clothing, pillows, carpets and more PET bottles.

So, how can you help? The infographic here shows how much of a global problem water bottles are in the oceans. Buy yourself a re-usable bottle and carry it with you on journeys rather than buying a new bottle. If you have to buy one, please make sure that you recycle it.

M.A. Barlaz et. al. (2009). Transport and release of chemicals from plastics to the environment and to wildlife. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 364, pp 2027–2045

M.Cole, P.Lindeque, C.Halsband & T.S.Galloway (2011). Microplastics as contaminants in the marine environment: A review. *Marine Pollution Bulletin*, 62:12, pp 2588-2597

A.R.G.Price & A.Harris (2009) Decadal changes (1996–2006) in coastal ecosystems of the Chagos archipelago determined from rapid assessment. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 19:6, pp 637–644



Nelsons Island  
photo Anne Sheppard



## Big Ocean network convenes at meetings held in conjunction with the International Marine Protected Area Congress in Marseille

*Dr Daniel Wagner*

*Papahānaumokuākea Marine National Monument/  
NOAA*

On October 21-26, 2013 Big Ocean managers and scientists gathered at a series of meetings held in conjunction with the Third International Marine Protected Area Congress (IMPAC3) in Marseille, France. IMPAC is one of the largest gatherings of marine conservation professionals from around the globe, and this third congress brought together over 1,200 marine specialists to propose solutions for the conservation and sustainable development of the world's oceans. Big Ocean had a very active participation at IMPAC3, organizing two half-day sessions on (1) the historical challenges and progress of large-scale MPAs, and (2) developing practical guidance for managing large-scale MPAs. Additionally, Big Ocean participated in a plenary debate at IMPAC3 that discussed whether size matters in marine conservation.

In addition to the events at IMPAC3, Big Ocean managers and scientists convened in Marseille at a number of events that were held independently of the congress. These included the 5<sup>th</sup> Big Ocean business meeting and a full-day writing workshop. During the business meeting, all seven of the current Big Ocean member sites (Great Barrier Reef Marine Park, Papahānaumokuākea Marine National Monument, Phoenix Islands Protected Area, Mariana Trench Marine National Monument, British Indian Ocean Territory Marine Protected Area, Motu Motiro Hiva Marine Park and Cook Islands Marine Park) provided updates on their most significant achievements in the last year, and discussed future collaborative projects for the network. In particular, Big Ocean is currently working with the International Union for the Conservation of Nature (IUCN) and the World Commission on Protected Areas (WCPA) to develop a publication that will provide practical guidelines on the design and management of large-scale MPAs. For this purpose, Big Ocean hosted a full-day writing workshop in Marseille, during which marine conservation professionals were engaged to provide a substantive review of the current draft of the guideline document.

“Big Ocean: a network of the world's large-scale marine managed areas” was established in 2010

with the aim of improving marine management efforts through sharing information, expertise and resources. Currently composed of the seven largest MPAs on the globe, Big Ocean sites encompass over 3.3 million km<sup>2</sup> of ocean ecosystems, an area that is over twice the size of the Gulf of Mexico. Representatives from the British Indian Ocean Territory have been active participants in all Big Ocean meetings since the inception of the network, and thereby helped improve marine management efforts around the globe.



Big Ocean managers and scientists gathered at their 5<sup>th</sup> business meeting in Marseille, France.



Participants of the Big Ocean writing workshop that reviewed the draft guidelines for the design and management of large-scale MPAs.

## Chagos Conservation Trust - US Sponsors Scientist for 2014 BIOT Expedition

*Dr Sam Purkis  
Nova University*

In the Spring of 2014 a team of scientists, jointly led by Drs John Turner and Heather Koldewey and Prof Charles Sheppard, will travel to the Chagos Archipelago to carry out ongoing scientific work in the world's largest marine reserve. Participating in this expedition will be a scientist, based in the United States, whose travel expenditures will be sponsored in full by a grant from the Chagos Conservation Trust US (CCT- US) thanks, in part, to a generous contribution from the Kayne Foundation (Suzanne and Ric Kayne).

The CCT- US was established in 2009 to aid the protection of the Chagos Archipelago coral atolls in the Indian Ocean by preservation of the natural diversity of plant and animal species through the prevention of environmental degradation and destruction. The mission of the CCT-US is to extend the goals of Chagos Conservation Trust (UK) to the United States by promoting conservation, science, education and historical research in relation to the Chagos Archipelago.

As part of this mission, the CCT- US aims to promote the role of US-based scientists in ongoing Chagos research. To realize this aim, we will

embark on a fundraising push to provide financial support to allow a US-based scientist to join scientific expeditions to Chagos. We will cover travel costs of the CCT-US Expedition Scholar who will be an outstanding scientist whose work will deliver meaningful and lasting insight into this Indian Ocean ecosystem.

Application notices were distributed through social media and environmental membership list links that are connected to targeted audiences consisting of trained professionals with the required skills to be a successful candidate. The funded candidate must be US-based and an active member of the CCT - US. Selection of the scholar will be made on the basis of creativity, motivation, productivity, and publication record. The successful candidate will be expected to remain involved and actively contributing to research in the Chagos after their month-long field visit to the British Indian Ocean Territory.

The deadline to submit (1) a curriculum vitae, (2) a short narrative on research interests and/or possible research projects, and (3) the names and contact information for three references was November 25, 2013. Currently submitted applicants are under review by the CCT- US Executive Committee. Full details of this scholarship opportunity are available on the CCT- US website behind the following link: <http://cctus.org/conservation-science/us-expedition-scholar/>.



The Chagos Marine Protected Area protects a huge area of sea floor and seamounts from trawling.

## New Chagos reef exhibit at ZSL London Zoo

Rachel Jones

Zoological Society of London

A new 8,000 litre reef exhibit focusing on the Chagos Archipelago has opened at ZSL London Zoo. The habitat shows a mix of fish and invertebrates with a focus on species from the Indian Ocean. The stars of the show are a group of fairy wrasse (*Cirrhilabrus squamipinnis*<sup>1</sup>) which are a fantastic combination of red and purple and are often seen displaying to each other by raising their striking dorsal fins. The exhibit also houses a varied collection of coral species all confiscated by UK customs under CITES legislation. The design of the 'reef' structure has been purposely created quite low in the tank to give the maximum amount of vertical space so the corals can achieve their full potential size which will take many years of slow growth. The habitat is in the early stages of breaking in and has a long way to go before it is fully mature but it will be worth keeping an eye on as it develops over the next few years into a beautiful and complex miniature reef environment.

1. **Randall, J.E. and A.R. Emery, 1983.** A new labrid fish of the genus *Cirrhilabrus* from the Chagos Archipelago, Indian Ocean. *J. Aquaricult. Aquat. Sci.* 3(2):21-24.



*Siganus corallinus*

Photo copyright ZSL



*Zebrasoma desjardini*

Photo copyright ZSL



Reef aquarium

Photo copyright ZSL



*Cirrhilabrus rubrisquamis*

Photo copyright ZSL

## International Marine Protected Areas Congress 3<sup>rd</sup> International Conference

*Alistair Gammell  
Pew Global Ocean Legacy*

The International Marine Protected Area Congress is held every four years, and the latest, the third, was held between 21<sup>st</sup> and 25<sup>th</sup> October in Marseille, France. With only seven years remaining to reach the target to protect 10% of the world's oceans by 2020 (it was originally by 2012, but that was missed!), 1,500 participants from 87 nations attended workshops and plenary sessions aimed at increasing the effectiveness of efforts to protect the oceans.

When the second Congress was held in Washington DC in 2009, the Chagos Reserve didn't exist. In Marseille however, it was heartening to see that in numerous PowerPoints and posters, Chagos was very definitely "on the map". What was even more heartening was not only the number of scientists that had visited the Chagos on scientific expeditions and who spoke highly of its exceptional values, but the number of scientists and others who wanted to visit.

The highlight on the congress as far as Chagos is concerned, was the premiere of a short film produced by George Duffield as a result of his visit to the archipelago as part of the Bertarelli sponsored scientific expedition to tag and study the movements of large predatory fish. The showing was well attended even though it was scheduled outside of the main event agenda. The managers of the marine protected area, the BIOT Government, attended.

A paper was presented which purported to show that FADs deliberately released by the fishing industry and allowed by them to drift into the Chagos reserve, had the effect of reducing its effectiveness by luring tuna to follow the FADs as they drifted out of the reserve. Assuming this is correct, how irresponsible is it of an industry to permit their equipment to damage conservation efforts and shouldn't they

be responsible for equipment they dump overboard and pay penalties if it subsequently causes damage? Of course it makes the case for large reserves, since smaller reserves could be more easily detrimentally affected by such activities, whereas the larger the reserve the less the impact is likely to be.

At the Congress a proposal to create an 834,000km<sup>2</sup> marine reserve in Pitcairn received considerable exposure, with two Pitcairners, Simon Young and Melva Warren Evans travelling to the Congress (probably no other delegate had travelled further to be there) and speaking passionately of their Island's wish to protect their waters.

At the congress, Mission Blue announced 50 new "hope spots". Chagos was already in the initial list of hope spots, but more information on this initiative can be found at <http://newswatch.nationalgeographic.com/2013/10/22/bold-plan-for-50-ocean-hope-spots-announced-at-impac-3/>

Following the congress a meeting of the "Big Ocean" network was held to exchange experience of managing the world's largest marine protected areas. Chagos was represented at this by Charles and Anne Sheppard.



## Environment Training Course

*Audrey Blancart*

*Zoological Society of London*

Last year ZSL ran the first Chagos Environment Training Course with a team of twelve Chagos ambassadors from both the Manchester and Crawley communities. This year, we embarked upon a new intensive summer of learning and activities, with three themes: Marine conservation, Terrestrial ecology and Communication for conservation, where the eleven trainees could experience some wild outdoor adventures while building on conservation knowledge and skills. The course was set throughout the summer with a mixture of long weekends and various days away. It started at Sayers Croft where the two groups met before splitting again for a few modules.

### *Team building weekend*

This weekend provided the trainees with an introduction to the training course. It also helped to explore the concept of being Chagossian and establish a baseline of the training content. The overall aim for the weekend was to create a team dynamic through various team building outdoor games such as high ropes, team building exercises and land restoration. The weekend also aimed to establish a group baseline of knowledge on coral ecology via an introductory documentary followed by a quiz. The overall weekend was a successful introduction to the training and its team players.

### *Habitat management*

This session was about engaging the trainees in practical habitat management tasks and provided an introduction to the concepts that underpin them. It was also an introduction to problems caused by invasive species in an ecosystem. For this module, the group was split between Crawley and Manchester. The trainees explored the characteristic of a moss land at Risley Moss with the great support of Natural England. The site reflected some of the problems experienced on the Chagos islands in a UK setting, with invasive rhododendron and large areas of encroaching bracken which the trainees cut down before building a dam to assist as part of mini-moss

restoration project. During this time, the Crawley team spent a day at Hampstead Heath, with Justin and Grace from the ranger's team. They too learned about invasive species and their effects at the heath, such as Himalayan balsam and non-native Signal crayfish. They were introduced to the issue of invasive species that have to be managed carefully. They also got the chance to try out tree climbing.

### *Birds*

This module expanded on previous learning about classification, identification, and monitoring and habitat management through ornithological activities, while applying this to Chagos-specific case studies. In Wales, the group of trainees was introduced to sea bird monitoring, with the help of Kathy, a wildlife professional and expert on the local area. From the sea cliffs at the RSPB reserve of South Stack, we explored the star species of the regions: choughs, guillemots and razorbills. A quick trip over to allow the trainees to catch the last few Sandwich terns of the season, rounded off by views of a small grey seal colony and a boat trip to Puffin Island to identify some more bird species.

### *Botany*

Equipped with microscopes at the Ness Botanic Gardens, the trainees discovered plant anatomy. They had a guided tour around the gardens where they learnt about flower adaptations and pollination. The highlight of the day was discovering some of our everyday vegetables and fruits can be poisonous if consumed in large amounts. With interest, they also learned about the perfect condition and management needed to grow your own vegetable garden. They also learned the difference between growing plants in a tropical





environment compared to the UK. Aside from the beautiful flowers and varieties of trees in the garden they also learned about diseases that can affect trees and how to manage it both for the tree itself and also for the safety of the people visiting the garden. The trainees discovered how the Gardens manage their exhibits and learn about their conservation work.



### *Marine*

In this session, the marine specialist, Rebecca Short, engaged the trainees with information about Marine Protected Areas and fisheries practices, ending the session with a role play game where everyone represented a key stakeholder in marine industries. This was essential to the understanding of various challenges that NGOs, governments or fishers face every day. John Turner, from Bangor University, gave the trainees a taste of Chagos' pristine islands and marine wildlife before taking us to the sea shore for a real life biological survey. The trainees really enjoyed the adventures and identified many species.

The trainees ended their weekend in Wales with a try dive where they could experience their first feeling of being of diver.

### *Coral reefs*

The purpose of this module was to develop a basic understanding of biological identification, classification and monitoring activities, as well as introducing the idea of ecological damage through looking at context-specific examples. Corals are always one that are very challenging to understand from the basic structure to the differentiating the species. At the Deep in Hull, the Manchester trainees were immersed with the activities planned and showed high curiosity for coral identification. They were able to identify the different walls within the corals, the types of coral, and even some species.

In Crawley, the day was spent at London Zoo Aquarium, with Rachel Jones. The group learnt about the different types of corals and their vital functions. They were introduced to the concept of climate change and how it's devastating impact on the world's coral reefs.

### *Communication and careers*

In this session, we raised awareness of the pool of opportunities for skills development in conservation, going through local volunteering opportunities or bursaries available. We also build basic knowledge around social communication and event management.



In Manchester, the trainees walked around Manchester Museum where they could talk to volunteers and understand how volunteering helps to develop a set of various transferable skills. They also had a short introduction to the living collection with Andrew Gray who was very engaging and gave the trainees an opportunity to do some frog and snake handling.

Anna also introduced us to communication and event management, before they had to go and create their own 'Chagos Event' as a group. This same session was delivered at London Zoo with the team from Crawley. We had a mix of different speakers from conservation, education and zoo backgrounds describing their careers.

#### *Award ceremony*

The nine weeks of the training course closed on an inspiring note. The Award evening ceremony was held in the historic site of Manchester Museum. Forty people were present, including the trainees and their families but also our project partners such as Bangor University (John Turner), Pew (Tania Paschen) and the BIOT Administration (Tom Moody). The event opened with a talk by ZSL

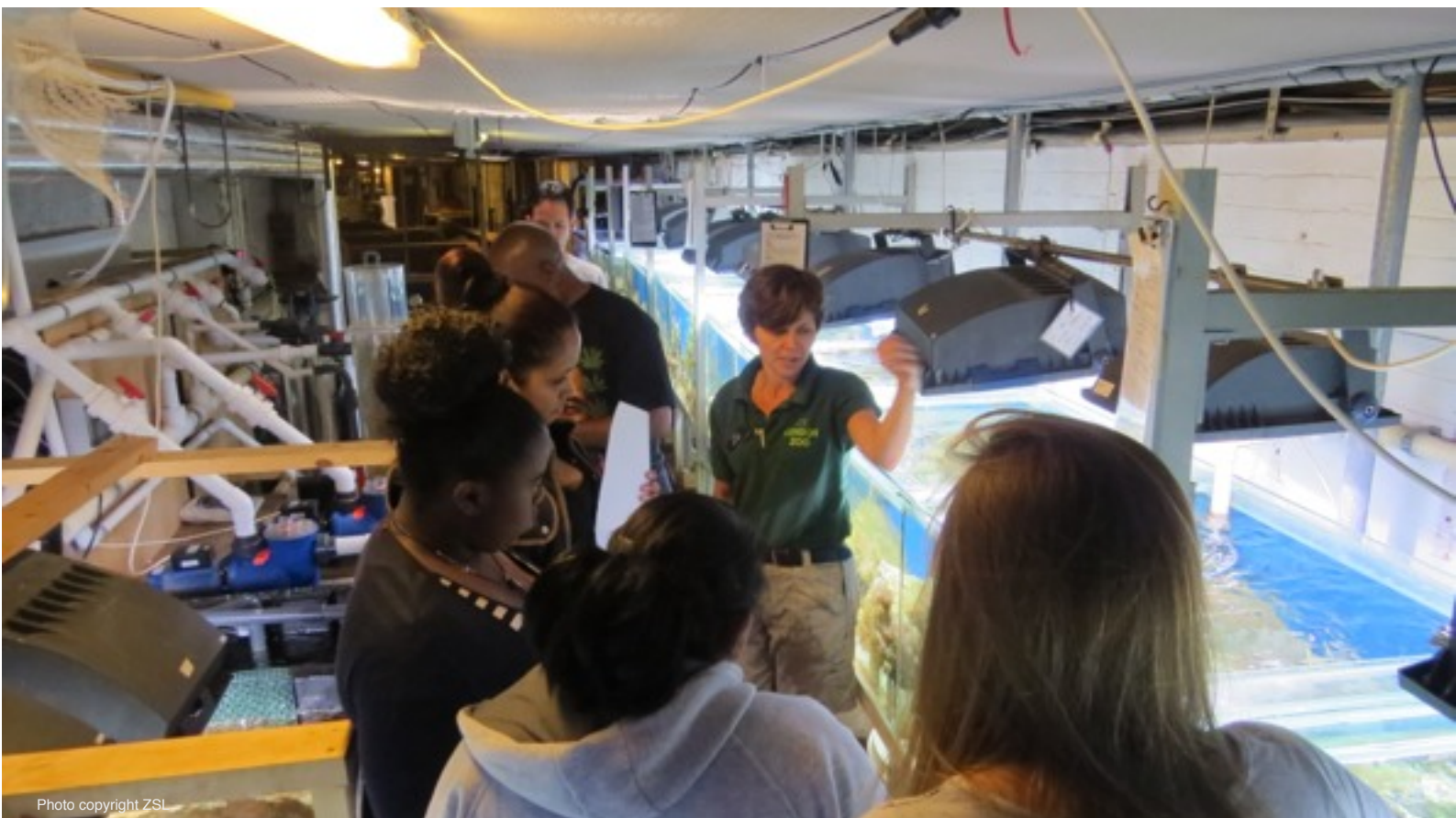
Education officer, Ana Pinto, followed by the story of her training by Lia Tallot, one of this year's trainee and Rudy Pothin, assistant ZSL outreach officer. John Turner then reminds us why the ecology of Chagos was crucial and part of an interdependent system. Heather Koldewey, ZSL, finally closed the event by awarding each trainee a certificate and a medal.

#### *Advanced skills training*

This year, a number of last year's trainees have been involved in advanced skills training – applying for bursaries to facilitate opportunities to further their skills in areas of their interest.

Following last year's course, Yannick Mandarin also participated in an expedition to the Chagos Archipelago. Aboard the Pacific Marlin, he was assisting researchers with bird monitoring activities as well as experiencing a full and varied scientific expedition.

Claudia Naraina and Cyndie Residu successfully applied for bursaries to complete their PADI Open Water SCUBA training, as well as to join Yannick on a challenging weekend with Ian Robinson of the RSPB, where they learnt the basics of chainsaw use, gaining a LANTRA CS30 qualification.



## The new IPCC report on climate change, and what it might mean for reefs and islands of Chagos.

Professor Charles Sheppard  
University of Warwick

A large publication by the Intergovernmental Panel on Climate Change (IPCC) was released a month or so ago, the fifth in the series and the first for about six years. The document published was the first of a group, with some more technical volumes to follow over the coming weeks. It does not present new research as such; rather it collates and interprets huge amounts of information from published sources, assembles them, and reports on the status of the world's climate and its effects on the world's habitats and regions. Furthermore, probably most importantly, it tries to predict where climate is heading over the next few decades, and some consequences. It is an enormous enterprise involving over a couple of thousand people to differing degrees, and a few years ago the Panel was awarded the Nobel Peace Prize for its efforts.

We know that coral reefs are one of the world's 'canaries in the cage' when it comes to climate change, meaning this tropical habitat is particularly vulnerable for several reasons. Furthermore, this habitat creates land like no other, such that several dozen nations of the world are made entirely of coral reef or have substantial portions of their land made by it. Many more gain protection from the breakwaters that reefs make as they grow up to the surface of the sea. I am particularly interested in this subject having helped with several elements of the story in a few countries. Here I summarise some of the key findings of the new IPCC report as they relate to oceans and to coral reefs, and then I relate this to the atolls and waters of the Chagos Archipelago.

In global terms, the upper ocean has warmed over the last 40 years. Strongest warming is, unsurprisingly found in the shallowest waters. This does a couple of things. Warming kills corals, and perhaps this will prove to be the most important or at least most immediate aspect of this story. Secondly, warming anything will make it expand, so that warming also increases sea levels as the ocean's water column expands. In fact, a substantial portion of sea level rise comes not from more melting water entering the world ocean, but simply by expansion of water that is already there.

Another factor is that the heat content of the oceans (as separate from temperature) has also increased. This is important to many global

weather patterns: ocean warming dominates the global energy change inventory to the extent that 93% of the increase in the Earth's heat energy is accounted for by the oceans, mostly the shallow portions. The importance of this includes expansions of and changes to the huge ocean sub-tropical gyres.

As a result, global sea level rise is accelerating: Over the last century it has averaged about 1.5 mm per year, but taking the last 25 years alone it has been over double this amount: about 3.2 mm per year. Forecasts are alarming to reefs and islands which are so close to sea level now: the new IPCC projects a further increase of the *rate* of rise later this century to over a centimeter per year or more – meaning up to half a metre or even one metre more by the end of this century, much of this happening well inside the lifetime of people now alive. Furthermore, the IPCC says, it is likely that the magnitude of extreme high sea level events has increased since 1970. It is, after all, not averages that do the damage but extreme events.

Acidification is another aspect. This happens when carbon dioxide dissolves in water, forming (initially at least but in a very complicated way) carbonic acid. Ocean acidification has become a well-researched area, with alarming forecasts of how much even a tiny amount of acidification will depress the growth of corals. Put simply, the skeletons of corals are limestone – an alkaline kind of rock – which is made by corals less effectively in seawater that is even slightly acidified.



Lagoon side of Eastern Diego Garcia, where the soil around an old tree has eroded away from its roots

Furthermore, the form of limestone that corals make is aragonite, the most susceptible of the various possible kinds.

So there are several aspects which all conspire to harm corals and reefs, but unfortunately there is more: some of us published a review earlier this year on synergies between harmful factors. Broadly, the harmful effects of one factor may be enhanced, or amplified, when acting in conjunction with others. That is not good news for reefs, unfortunately.

How will this relate to coral reefs, in particular to Chagos? Well, there are several aspects that are of immediate significance.



Ile on Peros Banhos atoll. In a few places, former, mature coconut trees have now ended up in the intertidal region.

First is continuing warming of surface ocean waters. (By surface layers, the IPCC often mean the upper few hundred metres. This is itself a complicated issue given the existence of marked thermoclines, but we can take it as including the shallow depths where corals grow.) Temperature kills corals, not smoothly but in spikes, or episodes, killing them in some years, in other years not. In a typical year and on a healthy reef, corals grow, and reefs grow too (not the same thing in fact, but they are related), and at the same time, bio-eroding animals and plants etch away at corals and at the more solid reef matrix, wearing it down. Growth of a reef is, if healthy, a tiny bit greater than erosion, which is why coral reefs and islands have developed over long periods of time. But if corals are killed, or damaged by sub-lethal bleaching only, growth is held up, while erosion continues all the time. Unfortunately it seems that

eroding and boring species don't seem to mind the warmer spells at all.

Thus reefs become eroded. We have studied this in the nearby Seychelles. Reefs are breakwaters that protect the islands: reduced breakwaters equals more wave energy striking the shores and eroding them away.

Secondly, and at the same time, is sea level rise. The global average for this is a little over 3 mm per year, and accelerating, and that for Chagos is now thought to be about the same. Chagos islands and reefs are not immune from this, as has been proposed by some in the past. So as sea levels rise, erosion of damaged reefs means their effect of protecting islands declines. Our work that I referred to in the nearby Seychelles showed us that the increased wave energy striking the shores has more to do with degrading reefs than it does with absolute sea level rise. This has not been examined in Chagos – it is one of many things that we simply have not had the opportunity or funding to do there yet.

It has been said by some that global averages don't apply to reefs and islands of Chagos (there are strong regional patterns across the world of course), but new and so far unpublished measurements show that in Chagos the sea level rise does mirror pretty closely the global average. Here too, projected rises are thought to be accelerating, and it is very likely that the frequency of extreme levels will increase by an order of magnitude or more by the end of this century – a huge amount.

The only thing at issue is the timing of it. I have watched erosion happen on several islands of Chagos over the last years. It is complicated. There is indeed one atoll, Egmont, where sand accumulations have actually joined up several islands leading to an apparent increase of land area (though other parts of that atoll have become very thin now as well). On the other hand, it is not too alarmist to say that atolls can submerge completely – Blenheim Reef in northeast Chagos is an atoll that was reported to have had three vegetated islets on it when first discovered, but it is now submerged – its islands washed away.

People have been confused by shoreline movement so let us distinguish between 'white sand' movement and 'brown earth' movement. All coral islands have pretty mobile shorelines, which ebb and flow seasonally, or perhaps on decadal timescales or longer. New sand that is washed up is white sand – freshly made from ground-up

corals for example. This is the kind that can accumulate in places, and later wash away - large banks of it can come and go. But brown earth is very 'old', its dark colour coming from humus developed over many decades - it is a thin topsoil, richer in dark organic matter. It is this that is becoming eroded in many places in Chagos - more of a one-way process. The erosion of some vegetated parts of Egmont's islands looks to be of brown earth.

Diego Garcia is an interesting case in point. Leaving aside the artificially landfilled western side where the military facility is, the eastern arm is also eroding away quite noticeably now. There was a paper published last year saying the rim of this island is increasing. I don't like to criticize authors, but that paper has been picked up and used in predictable and rather ill-informed resettlement arguments (not by the original authors I hasten to note). However, that paper was severely flawed, caused by the authors' comparing modern satellite images with a drawing of the atoll done in the late 1960s reproduced on a journal's page. That was quite inappropriate. So I obtained an aerial photo mosaic taken in 1965 and, comparing that with modern satellite images, confirmed what has been obvious to the eye on my annual visits to that atoll: far from expanding, Diego Garcia's land there is being eroded. (My note, in the same journal, will be posted on the [chagos-trust.org](http://chagos-trust.org) website when I can sort out the copyright issue.) Diego Garcia's



Eastern Diego Garcia, lagoon shore, where old hardwood trees are becoming toppled as their soils are washed away.

eastern arm is getting eroded quite noticeably. In the military base area there is a shoreline 'hardening' programme, currently costing about many millions of dollars per year.

There is a third aspect too which will affect Chagos shores. As sea levels rise, so severe stormy events are likely to get yet more severe. This is of most interest to shipping, unsurprisingly, and is more marked in colder waters than the tropical Indian Ocean, at least so far. Chagos is too close to the equator for some events like cyclones, though it certainly can become brushed by their edges. Time will tell. But it is not, all in all, good news for these gorgeous islands, nor for their reefs, let alone the ability of the latter to support a thriving and rich ecosystem. Present evidence shows that those of Chagos are doing far better than almost all others in the Indian Ocean.

Despite the climate change deniers, and those who would like to deny aspects of it for Chagos (I would like to deny it also, but as a scientist I simply can't!), warming with its attendant harms to reef growth is said by the IPCC to be unequivocal. Many of the changes observed since the middle of the last century are unprecedented over time scales of centuries and even millennia. From our work on synergistic effects, I think that it is imperative to avoid any and all local factors, such as fishing, shoreline disturbance, sewage inputs and others, in order to as much time as possible for these reefs. This seems to delay degrading effects of climate change hopefully for a few decades.



Eastern Diego Garcia, lagoon shore, where a large navigation marker now abuts the beach with undercutting of its foundation.



Photo Charles Sheppard

The track in eastern Diego Garcia. It has had to be moved inland twice in the last few years.

What of the future then? It isn't good news. In global terms, some have said that we can manage the problem. Well, we don't really seem to be able to do so. We could perhaps all these impacts in theory, and scientists do know how to, but all over the world the pressures continue to stress reefs, coming from vested interests on one hand, to the immediate needs of starving people on the other.

Human influence on the marine climate system is clear, says the IPCC. We do not appear to know how to live in a sustainable or eco-friendly way, despite the claims of many to be able to do so. While reduction of carbon dioxide is probably the most critical aspect, this is beyond any ability of the governance of BIOT, or any small State. But let us not subscribe to the view that all is doom for reefs necessarily. It clearly looks that way on present trends, but those in Chagos have probably the best chance of any at present.



Photo Charles Sheppard

Shallow edge of Turtle Cove in Diego Garcia on an outgoing tide.

## **Annex 80**

G.J. Edgar, et al, “Global conservation outcomes depend on marine protected areas with five key features”, *Nature*, vol. 506, 13 February 2014, 216

# Global conservation outcomes depend on marine protected areas with five key features

Graham J. Edgar<sup>1</sup>, Rick D. Stuart-Smith<sup>1</sup>, Trevor J. Willis<sup>2</sup>, Stuart Kininmonth<sup>1,3</sup>, Susan C. Baker<sup>4</sup>, Stuart Banks<sup>5</sup>, Neville S. Barrett<sup>1</sup>, Mikel A. Becerro<sup>6</sup>, Anthony T. F. Bernard<sup>7</sup>, Just Berkhout<sup>1</sup>, Colin D. Buxton<sup>1</sup>, Stuart J. Campbell<sup>8</sup>, Antonia T. Cooper<sup>1</sup>, Marlene Davey<sup>1</sup>, Sophie C. Edgar<sup>9</sup>, Günter Försterra<sup>10</sup>, David E. Galván<sup>11</sup>, Alejo J. Irigoyen<sup>11</sup>, David J. Kushner<sup>12</sup>, Rodrigo Moura<sup>13</sup>, P. Ed Parnell<sup>14</sup>, Nick T. Shears<sup>15</sup>, German Soler<sup>1</sup>, Elisabeth M. A. Strain<sup>16</sup> & Russell J. Thomson<sup>1</sup>

**In line with global targets agreed under the Convention on Biological Diversity, the number of marine protected areas (MPAs) is increasing rapidly, yet socio-economic benefits generated by MPAs remain difficult to predict and under debate<sup>1,2</sup>. MPAs often fail to reach their full potential as a consequence of factors such as illegal harvesting, regulations that legally allow detrimental harvesting, or emigration of animals outside boundaries because of continuous habitat or inadequate size of reserve<sup>3-5</sup>. Here we show that the conservation benefits of 87 MPAs investigated worldwide increase exponentially with the accumulation of five key features: no take, well enforced, old (>10 years), large (>100 km<sup>2</sup>), and isolated by deep water or sand. Using effective MPAs with four or five key features as an unfished standard, comparisons of underwater survey data from effective MPAs with predictions based on survey data from fished coasts indicate that total fish biomass has declined about two-thirds from historical baselines as a result of fishing. Effective MPAs also had twice as many large (>250 mm total length) fish species per transect, five times more large fish biomass, and fourteen times more shark biomass than fished areas. Most (59%) of the MPAs studied had only one or two key features and were not ecologically distinguishable from fished sites. Our results show that global conservation targets based on area alone will not optimize protection of marine biodiversity. More emphasis is needed on better MPA design, durable management and compliance to ensure that MPAs achieve their desired conservation value.**

A multitude of socio-economic and biological factors influence the responses of species to protection within MPA networks, adding considerable uncertainty when making specific predictions regarding the conservation benefits of new MPAs. Even within well-designed MPAs, populations of marine species can respond quite differently to prohibitions on fishing as a consequence of species-specific factors such as mobility, larval dispersal, fecundity, longevity, indirect interactions among species, environmental context, and overall level of exploitation before protection<sup>5,6</sup>. To assess the extent to which MPAs fulfil their ecological potential, we used a database unprecedented in geographic scale to investigate how conservation value, characterized by ecological response of fish communities within MPAs, is affected by the cumulative effects of five key planning and management features: (1) degree of fishing permitted within MPAs; (2) level of enforcement; (3) MPA age; (4) MPA size; and (5) presence of continuous habitat allowing unconstrained movement of fish across MPA boundaries<sup>6-10</sup>. Although previous studies have considered these factors independently, this is the first study, to

our knowledge, that considers them simultaneously, using data collected globally with standardized methods.

Observations from the subset of MPAs that seem to work effectively—that is, they include at least four of five ‘NEOLI’ (no take, enforced, old, large and isolated) features—are additionally used to infer ecological condition associated with unfished reefs. For this aspect, we used the global network of MPAs as a vast ecological experiment, where effective no-take areas represent human predator exclusion plots within a matrix of fished coasts<sup>11</sup>.

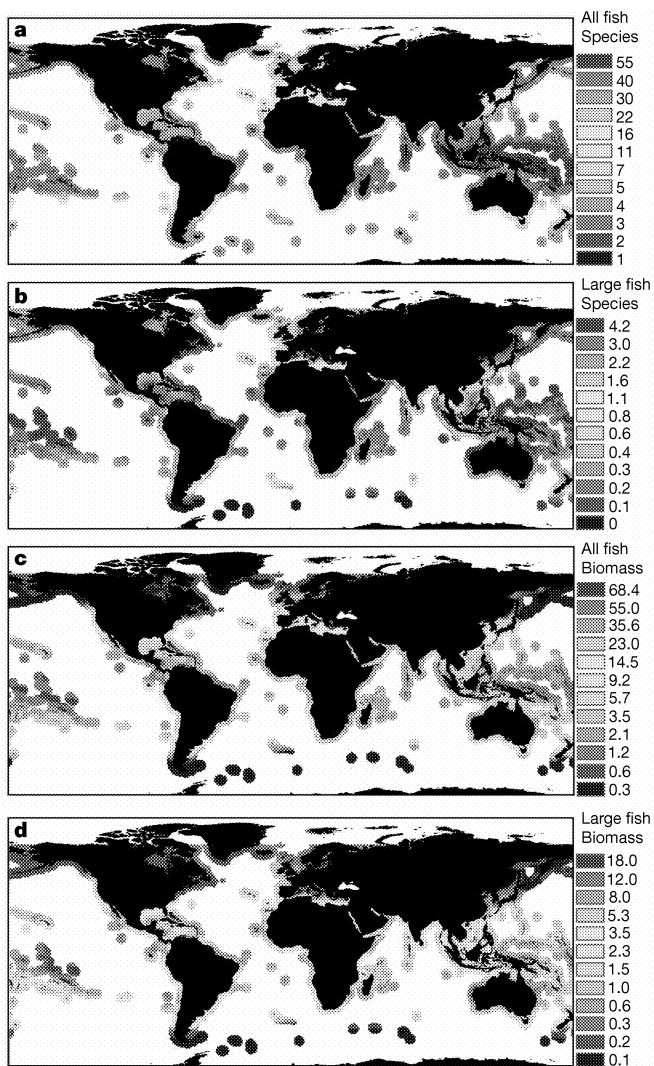
Eight community-level metrics were assessed using data from 40 nations on shallow reef fish densities and sizes provided by researchers and trained volunteer divers participating in the Reef Life Survey (RLS) programme<sup>12</sup>. A total of 964 sites in 87 MPAs were surveyed (Extended Data Fig. 1a), with data aggregated into 121 MPA/ecoregion groupings for analysis. MPA means were compared with statistical predictions for fished coasts using data from 1,022 non-MPA sites surveyed in 76 of the 232 Marine Ecoregions of the World<sup>13</sup> (Extended Data Fig. 1b and Supplementary Data Table 1). The four community metrics investigated, each widely considered to respond to MPA declaration<sup>14,15</sup>, were: (1) total biomass of all fishes; (2) total biomass of large (>250 mm length) fishes; (3) species richness of all fishes (number of species sighted per transect); and (4) species richness of large fishes. We also estimated the total biomass of three commercially important taxa (sharks, groupers and jacks), with unexploited damselfishes providing a control group for effects evident on targeted fishery groups. Effect size was calculated using the log ratio of measured values in MPAs relative to values predicted using global models for fished coasts.

Among 14 environmental and socio-economic covariates used in random forest models<sup>16</sup> to develop predictions for fished coasts, mean sea surface temperature, annual temperature range, photosynthetically active radiation, and latitude consistently exerted the strongest influence on the global distribution of species richness and biomass metrics (Extended Data Fig. 2). Biomass of groupers and jacks was also greatly influenced by human population density, and the biomass of sharks and groupers was influenced by phosphate concentration.

Fish species richness along fished coasts peaked in the southeast Asian ‘coral triangle’ region (Fig. 1a), as expected<sup>12,17</sup>. However, when only the number of large fishes sighted along transects was considered (Fig. 1b), the global centre of species richness shifted to more isolated locations within the Indo-Pacific region. Overfishing of large predatory fishes presumably contributed to these geographical patterns. Sharks, groupers and other large fishes were present within the coral triangle

<sup>1</sup>Institute for Marine and Antarctic Studies, University of Tasmania, GPO Box 252-49, Hobart, Tasmania 7001, Australia. <sup>2</sup>Institute of Marine Sciences, School of Biological Sciences, University of Portsmouth, Ferry Road, Portsmouth PO4 9LY, UK. <sup>3</sup>Stockholm Resilience Centre, Stockholm University, Kräftriket 2B, SE-106 91 Stockholm, Sweden. <sup>4</sup>School of Plant Science, University of Tasmania, GPO Box 252, Hobart, Tasmania 7001, Australia. <sup>5</sup>Charles Darwin Foundation, Puerto Ayora, Galapagos, Ecuador. <sup>6</sup>The Bites Lab, Natural Products and Agrobiological Institute (IPNA-CSIC), 38206 La Laguna, Tenerife, Spain. <sup>7</sup>Elwandle Node, South African Environmental Observation network, Private Bag 1015, Grahamstown 6140, South Africa. <sup>8</sup>Wildlife Conservation Society, Indonesia Marine Program, Jalan Atletik No. 8, Bogor Jawa Barat 16151, Indonesia. <sup>9</sup>Department of Water, Perth, Western Australia 6000, Australia. <sup>10</sup>Facultad de Recursos Naturales, Escuela de Ciencias del Mar, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile. <sup>11</sup>Centro Nacional Patagónico, Consejo Nacional de Investigaciones Científicas y Técnicas, Bvd Brown 2915, 9120 Puerto Madryn, Argentina. <sup>12</sup>Channel Islands National Park, United States National Park Service, 1901 Spinnaker Dr., Ventura, California 93001, USA. <sup>13</sup>Instituto de Biologia, Universidade Federal do Rio de Janeiro, Av. Carlos Chagas Filho 373, Rio de Janeiro 21941-902, Brazil. <sup>14</sup>Scripps Institution of Oceanography, UC San Diego, Mail Code 0227, 9500 Gilman Dr., La Jolla, California 92093-0227, USA. <sup>15</sup>Leigh Marine Laboratory, University of Auckland, 160 Goat Island Road, Leigh 0985, New Zealand. <sup>16</sup>Dipartimento di Scienze Biologiche, Geologiche ed Ambientali, Università di Bologna, Via San Alberto, Ravenna 163-48123, Italy.





**Figure 1 | Predicted global distribution of four community metrics for fishes associated with coral and rocky reefs outside of MPAs.** Predictions are from random forest models developed using data from 1,022 sites in fished locations worldwide. **a.** Species richness of all fishes (number of species sighted per 250 m<sup>2</sup>). **b.** Species richness of large (>250 mm total length) fishes (per 250 m<sup>2</sup>). **c.** Total biomass of all fishes (kg per 250 m<sup>2</sup>). **d.** Total biomass of large fishes (kg per 250 m<sup>2</sup>).

region but had been exploited to near absence on most reefs, and so were rarely recorded on transects; consequently, observed species richness of large fishes was relatively low.

Our predictive models indicated that total fish and large fish biomass were highest in French Polynesia and the nearby Line Islands (Figs 1c, d), and sharks, groupers and jacks also had disproportionately high biomass in that region (Extended Data Figs 3a–c). Shark biomass on fished coasts was also very high off the Pitcairn Island group, and northeastern and northwestern Australia. Reassuringly, high shark and grouper biomass was accurately predicted for Galapagos, regardless that no data from fished sites in the oceanic tropical eastern Pacific region were used to generate the predictive models. At the time of the surveys, all islands in the region (Galapagos, Cocos and Malpelo) were within MPAs; however, data obtained before fishing restrictions in Galapagos indicate anomalously high shark and grouper biomass for fished coasts in that archipelago (S.B. and G.J.E., unpublished data). Damselfishes occurred in relatively high abundance in all tropical ocean basins (Extended Data Fig. 3d).

Across all 87 MPAs investigated, species richness of large fishes was 36% greater inside MPAs compared to fished areas (95% confidence

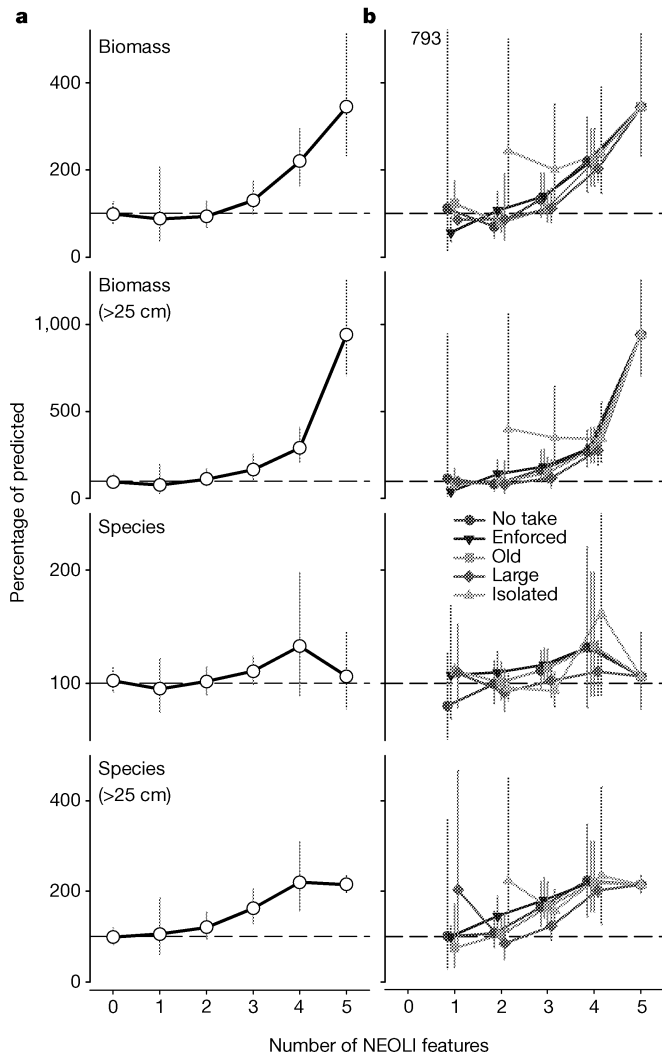
interval (CI), 16–60% increase), biomass of large fishes was 35% greater (CI 3–78% increase) and sharks 101% greater (CI 17–239% increase). Nevertheless, for species richness of all fishes and the other four biomass metrics investigated, no significant difference ( $P > 0.05$ ) was found between levels observed in MPAs and those predicted for fished coasts. Moreover, many MPAs possessed fish biomass well below predicted regional averages, as indicated by the large percentage of MPAs with negative log ratios for total biomass, ranging from 25% of MPAs for large fishes to 31% for sharks to 47% for groupers. These negative values indicate considerable site-scale variability in fish densities, with some MPA sites exhibiting low fish biomass due to local habitat variability between survey sites and, in other cases, a bias resulting from stakeholder consultation processes before MPA declaration aimed at minimizing lost fishing opportunity<sup>18</sup>.

The poor overall performance of MPAs worldwide in terms of recovery of fish biomass relative to fished sites was due to a high frequency of ineffective MPAs and high spatial variability in fish densities, rather than an absence of recovery in all MPAs. The efficacy of MPAs was strongly influenced by the five NEOLI planning and management features (no take, enforced, old, large and isolated), with MPAs that scored highly with multiple NEOLI features typically having highly elevated biomass of exploitable fishes compared to fished sites (Fig. 2). MPAs with at least four NEOLI features were distributed across six countries in three oceans (Extended Data Fig. 1a) and a range of environmental conditions, indicating that model outputs and conclusions were not strongly regionally biased.

No significant differences were evident between fished sites (zero features) and MPAs with one or two NEOLI features; however, effect sizes rose rapidly when the number of features increased from three to five (Fig. 2 and Extended Data Fig. 4). For example, the measured rises in mean values within MPAs relative to fished areas for total fish biomass, total large fish biomass and shark biomass with three NEOLI features were 30%, 66% and 104%, respectively. These increases were, however, modest compared to values when all five NEOLI features were present, with large increases of 244%, 840% and 1,990%, respectively. Similar marked increases in biomass were evident for groupers (882%) and jacks (864%). Non-fished damselfishes showed a smaller mean increase of 111% at MPAs with five NEOLI features. This increase was on the margins of statistical significance, lying outside the 95% confidence interval (Extended Data Fig. 4) but nonsignificant ( $P < 0.05$ ) when assessed with a *t*-test, which adjusts for small sample size.

All four MPAs with five NEOLI features were small oceanic islands (Cocos, Costa Rica; Malpelo, Colombia; Kermadec Islands, New Zealand; and Middleton Reef, Australia), raising a potential concern that calculated effect sizes were biased by plankton and pelagic fish subsidies that enlarge food webs at isolated oceanic locations. ‘Oceanic island’ was, however, included as a categorical covariate in random forest models, therefore model predictions should accommodate small island effects. Regardless, further investigation into the contribution of external subsidies to food webs at isolated MPAs is warranted. Alternative explanations for elevated damselfish numbers in the most effective MPAs compared with poorly protected MPAs include reduced fishing-related habitat deterioration such as dynamite damage to coral, and trophic cascades involving smaller predators that consume damselfishes and are prey to sharks and groupers.

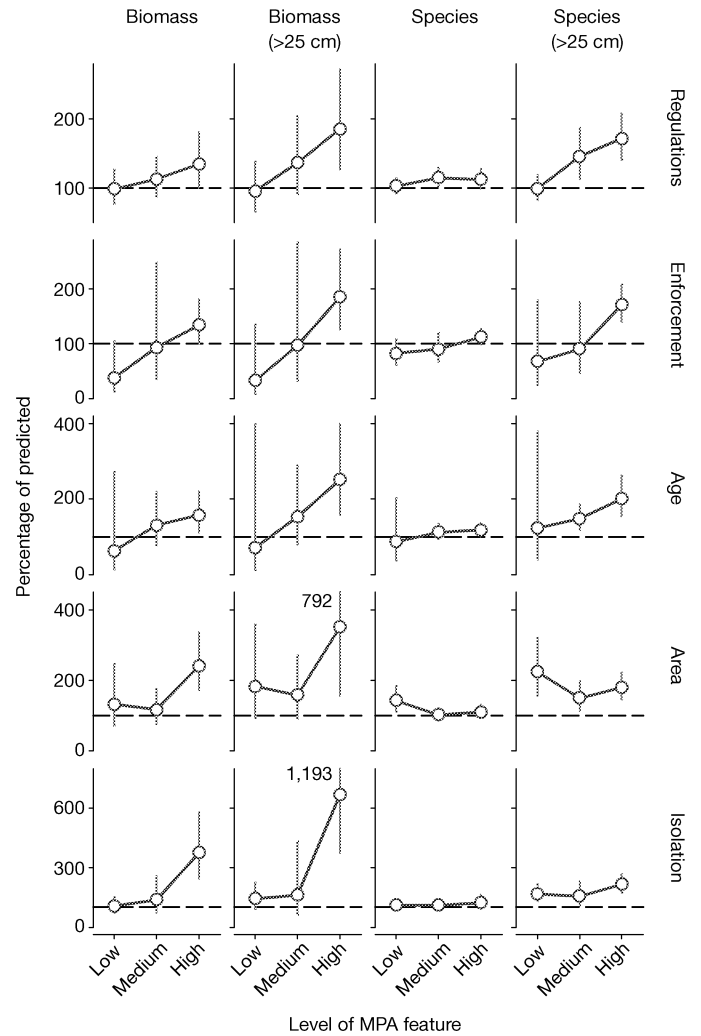
No-take regulations, efficient enforcement, large area (>100 km<sup>2</sup>) and old age (>10 years) each contributed similar increases in fish biomass within MPAs (Fig. 2). However, isolation, a categorical factor that distinguished MPAs with reef habitat surrounded by deep (>25 m) water or large expanses of sand from MPAs with shallow reef habitat extending to fished areas, seemed to exert a stronger influence for community-level biomass and richness metrics than the other four features. For example, the mean increase (95% CI) for total fish biomass associated with MPAs with three NEOLI features was 100% (14–252%) when one of the three features was isolation, compared to 14% (–18%–58%) for three NEOLI MPAs when isolation was not included. Compliance



**Figure 2 | Mean response ratios for MPAs with different numbers of NEOLI (no take, enforced, old, large, isolated) features.** Mean ratio values have been back transformed from logs and expressed as percentages with 95% confidence intervals, with 100% equivalent to fished coasts. Sites on fished coasts have 0 NEOLI features. **a**, Mean response ratios for four community metrics. **b**, Mean response ratios for community metrics where each NEOLI feature was included within the set examined. The 'no-take' plot with two features, for example, depicts the mean response for no-take MPAs with a single other NEOLI feature. 95% confidence limits that lie off-scale are shown by number. Samples sizes are shown in Extended Data Table 1.

may have contributed to the isolation effect, in that isolated MPAs are generally well demarcated for control purposes. They are readily recognized by fishers and more easily policed than coastlines with complicated mosaics of no take, restricted take and fishing zones. Although very important, the effect of isolation was similar in magnitude—rather than clearly superior—to other MPA features for biomass of sharks, groupers and jacks (Extended Data Fig. 4).

When MPAs that are no take and well enforced are considered, differences were evident in how the other MPA features affect different components of the fish community (Fig. 3 and Extended Data Fig. 5). Total fish biomass increased significantly from low to high levels for all five MPA features, and these same trends were magnified for large fishes (Fig. 3). Regardless of general concerns that large pelagic species move such great distances that few individuals are fully protected within MPAs<sup>19</sup>, sharks and jacks seem to receive considerable protection from fishing mortality within the large, well-enforced, no-take MPAs studied here. The biomass of sharks and groupers rose exponentially when MPAs were fully isolated, and also greatly increased with area and age. The



**Figure 3 | Mean response ratios with 95% confidence intervals for four community metrics and low, medium and high levels of five MPA features.** Values have been back transformed to per cent scale, with 100% equivalent to fished coasts. The feature 'regulations' was analysed using data from 82 MPAs with high enforcement; the feature 'enforcement' was analysed using data from 75 MPAs that are no-take; and the features 'isolation', 'age' and 'area' were analysed using data from 52 MPAs that are both no take and well enforced. 95% confidence limits that lie off-scale are shown by number. Samples sizes are shown in Extended Data Table 1.

biomass of jacks showed little isolation and age effects, but rose greatly in MPAs that were large, well enforced and no take. Damselfish biomass did not increase significantly with the accumulation of individual NEOLI features.

The large number of MPAs investigated here has allowed relatively subtle and higher order interactive MPA effects to be detected. Previous studies of MPAs have shown, for example, negligible or weak patterns associated with MPA size<sup>6,9,14,15,20</sup>, and those detected here were only evident for MPAs with at least three of the NEOLI features. However, MPA size was very important for such metrics as jack biomass, which showed a stronger response to MPA area than to other metrics (Extended Data Fig. 5). This response probably resulted from time spent by actively-swimming fishes outside park boundaries, which increases probability of capture for fishes associated with small MPAs.

Species richness of large fishes exhibited a highly significant difference between MPAs with five NEOLI features and fished locations (115% increase relative to predicted, CI 95–137%; *t*-test,  $P < 0.0001$ ; Fig. 2). By contrast, MPAs with five NEOLI features did not differ significantly in total species richness (6% increase relative to predicted)

from fished locations ( $t$ -test,  $P = 0.42$ ; Fig. 2), nor did any of the five features individually have a clear effect on species richness (Fig. 3). Thus, total species richness along transects did not detectably increase in effective MPAs, despite the presence of additional large fish species, perhaps because of food web changes in the form of reduced presence of small fish species that comprised prey of the larger predatory species<sup>5,21,22</sup>. Regardless of these transect-scale effects, species richness at regional scales probably increased in areas with a mosaic of fished and effective MPAs because of the additional presence of large fishery-targeted species within the seascape<sup>18</sup>.

Of the 87 MPAs investigated, only four possessed all five NEOLI features, whereas five MPAs possessed four features, and 39, 57 and 16 MPAs possessed three, two and one feature, respectively. The low proportion of MPAs possessing four or five NEOLI features (10%), and thus regarded here as effective, probably overstates the true proportion of effective MPAs worldwide. Our survey strategy deliberately targeted well-known and well-regarded MPAs, with most large and long-established MPAs included in this study.

Although only a small subset of MPAs are ever likely to qualify as large, most MPAs could achieve the remaining four NEOLI features. MPAs require additional time to age, and sufficient will among stakeholders, managers and politicians for increased implementation of no-fishing zones, increased levels of compliance, and extension of boundaries past the limits of reef systems or to deep water. If these could be achieved in tandem with current trends for declaration of large remote 'wilderness' MPAs<sup>23,24</sup>, then conservation benefits from the global MPA network should increase markedly. However, the current base is very low with only 0.08% of the world's oceans within no-take MPAs in 2008 (ref. 25), and with opportunities for an expanded network diminishing as establishment and opportunity costs for large isolated MPAs escalate in line with human population growth<sup>24,26</sup>.

By using effective MPAs as an unfished standard, our study allows the first global assessment of the magnitude of fishing effects on temperate as well as tropical reef communities. Fish biomass was greatly reduced overall, with 63% of all fish biomass, 80% of large fish biomass, 93% of sharks, 84% of groupers and 85% of jacks apparently removed from reefs by fishing.

In spite of their huge magnitude, these estimates are probably conservative because they are based on the assumption that MPAs with four or five NEOLI features provide an accurate non-fished baseline for inferring historical patterns. Yet fish populations are unlikely to have fully recovered from previous impacts of fishing in four NEOLI MPAs, which were found to be less effective than five NEOLI MPAs for some metrics. Moreover, high fishing mortality rates for sharks and wide-ranging predatory fishes outside MPAs will negatively influence total numbers within boundaries through reduced immigration rates, and further recovery of fish biomass within MPAs probably continues over much longer time spans than the 10-year threshold used here to define old MPAs<sup>18</sup>. Our estimates for effective MPAs include uncertainty associated with the low number of effective MPAs surveyed, most notably for sharks, as only five of the nine category 4 and 5 NEOLI MPAs had sharks present. Also, biomass may be overestimated because of diminished flee responses from divers of large fishes in well-enforced no-take MPAs<sup>27</sup>. Regardless, fishing clearly exerts a very large and ubiquitous impact on shallow reefs.

The 80% reduction in biomass of large fishes outside effective MPAs coincides with the threshold value used by the International Union for Conservation of Nature (IUCN) to categorize species as Critically Endangered for Red List assessments<sup>28</sup>. Although recognizing that application of current Red List thresholds to exploited fish stocks remains contentious<sup>28</sup>, the high number of large-bodied species that together average 80% decline indicates that innumerable threatened fish species probably exist, and that effective MPAs probably have a large role in safeguarding populations of many of these species<sup>4</sup>. Even nations with relatively well-managed fisheries have few sharks and other large predatory coastal fishes outside well-designed and mature MPAs. Given

the huge scale of fishing impacts, the rate of fish extinctions is likely to increase greatly through this century unless a refugial network of effective MPAs exists to allow persistence of large-bodied species and associated predator-dominated food webs, and broad-scale fisheries management practices significantly improve<sup>29</sup>.

## METHODS SUMMARY

Surveys were based on Reef Life Survey methodology<sup>12,30</sup>, with support from volunteer SCUBA divers trained individually to scientific data collection standards. All fishes observed within 50 m × 5 m transect blocks were counted, and total fish lengths estimated, during swims on adjoining blocks up one side and down the other side of 50-m lines. Each transect was set along a depth contour, with two depth contours (mean 2.4) generally surveyed at each site. Sites located within 87 MPAs were investigated, with approximately half located in Australia (36) and New Zealand (8). In total, 48 MPAs were complete no take, 18 MPAs allowed limited fishing, whereas 21 MPAs were multi-zoned with interspersed no-take and limited fishing zones. Data were compiled from 171,331 underwater abundance counts of 2,544 species in 9,544 transect blocks at 1,986 sites.

We assessed effects of five MPA features (fishing regulations, enforcement, age, area and isolation), each categorized at low, medium and high levels, on eight fish community metrics (species richness of all fishes and large (>250 mm) fishes; total biomass of all fishes, large fishes, sharks, groupers, jacks and damselfishes). The magnitudes of effects were quantified using the log ratio of observed value within the MPA to predicted value at that location if the MPA did not exist (for example,  $\log[B_m/B_p]$ , where  $B_m$  is measured fish biomass and  $B_p$  is biomass predicted if the site was fished). Predictions were produced using random forest procedures<sup>16</sup>, where each forest was created by generating 2,000 regression trees from a bootstrap sample of the data. Relationships were initially established between 14 covariates (environmental and socio-economic) and measured values of the eight response metrics at fished sites. These relationships were then used, with known covariate values at each MPA, to predict each of the eight community metrics at that MPA location.

**Online Content** Any additional Methods, Extended Data display items and Source Data are available in the online version of the paper; references unique to these sections appear only in the online paper.

Received 9 September 2013; accepted 13 January 2014.

Published online 5 February; corrected online 12 February 2014 (see full-text HTML version for details).

- Hilborn, R., Micheli, F. & De Leo, G. A. Integrating marine protected areas with catch regulation. *Can. J. Fish. Aquat. Sci.* **63**, 642–649 (2006).
- Gell, F. R. & Roberts, C. M. Benefits beyond boundaries: the fishery effects of marine reserves. *Trends Ecol. Evol.* **18**, 448–455 (2003).
- Edgar, G. J. Does the global network of marine protected areas provide an adequate safety net for marine biodiversity? *Aquat. Conserv.* **21**, 313–316 (2011).
- Mora, C. *et al.* Coral reefs and the global network of Marine Protected Areas. *Science* **312**, 1750–1751 (2006).
- Babcock, R. C. *et al.* Decadal trends in marine reserves reveal differential rates of change in direct and indirect effects. *Proc. Natl Acad. Sci. USA* **107**, 18256–18261 (2010).
- Claudet, J. *et al.* Marine reserves: size and age do matter. *Ecol. Lett.* **11**, 481–489 (2008).
- Guidetti, P. *et al.* Italian marine reserve effectiveness: does enforcement matter? *Biol. Conserv.* **141**, 699–709 (2008).
- Le Quesne, W. J. F. Are flawed MPAs any good or just a new way of making old mistakes? *ICES J. Mar. Sci.* **66**, 132–136 (2009).
- Vandeperre, F. *et al.* Effects of no-take area size and age of marine protected areas on fisheries yields: a meta-analytical approach. *Fish. Fish.* **12**, 412–426 (2011).
- Forcada, A., Bayle-Sempere, J. T., Valle, C. & Sanchez-Jerez, P. Habitat continuity effects on gradients of fish biomass across marine protected area boundaries. *Mar. Environ. Res.* **66**, 536–547 (2008).
- Walters, C. J. & Holling, C. S. Large-scale management experiments and learning by doing. *Ecology* **71**, 2060–2068 (1990).
- Stuart-Smith, R. D. *et al.* Integrating abundance and functional traits reveals new global hotspots of fish diversity. *Nature* **501**, 539–542 (2013).
- Spalding, M. D. *et al.* Marine ecoregions of the world: a bioregionalization of coastal and shelf areas. *Bioscience* **57**, 573–583 (2007).
- Côté, I. M., Mosqueira, I. & Reynolds, J. D. Effects of marine reserve characteristics on the protection of fish populations: a meta-analysis. *J. Fish Biol.* **59** (Suppl. A), 178–189 (2001).
- Halpern, B. S. The impact of marine reserves: do reserves work and does reserve size matter? *Ecol. Appl.* **13** (Suppl.), 117–137 (2003).
- Breiman, L. Random forests. *Mach. Learn.* **45**, 15–32 (2001).
- Roberts, C. M. *et al.* Marine biodiversity hotspots and conservation priorities for tropical reefs. *Science* **295**, 1280–1284 (2002).
- Edgar, G. J., Barrett, N. S. & Stuart-Smith, R. D. Exploited reefs protected from fishing transform over decades into conservation features otherwise absent from seascapes. *Ecol. Appl.* **19**, 1967–1974 (2009).

19. Grüss, A., Kaplan, D. M., Guénette, S., Roberts, C. M. & Botsford, L. W. Consequences of adult and juvenile movement for marine protected areas. *Biol. Conserv.* **144**, 692–702 (2011).
20. Guidetti, P. & Sala, E. Community-wide effects of marine reserves in the Mediterranean Sea. *Mar. Ecol. Prog. Ser.* **335**, 43–56 (2007).
21. Graham, N. A. J., Evans, R. D. & Russ, G. R. The effects of marine reserve protection on the trophic relationships of reef fishes on the Great Barrier Reef. *Environ. Conserv.* **30**, 200–208 (2003).
22. Willis, T. J. & Anderson, M. J. Structure of cryptic reef fish assemblages: relationships with habitat characteristics and predator density. *Mar. Ecol. Prog. Ser.* **257**, 209–221 (2003).
23. Pala, C. Giant marine reserves pose vast challenges. *Science* **339**, 640–641 (2013).
24. Graham, N. A. J. & McClanahan, T. R. The last call for marine wilderness? *Bioscience* **63**, 397–402 (2013).
25. Wood, L. J., Fish, L., Laughren, J. & Pauly, D. Assessing progress towards global marine protection targets: shortfalls in information and action. *Oryx* **42**, 1–2 (2008).
26. Mora, C. *et al.* Global human footprint on the linkage between biodiversity and ecosystem functioning in reef fishes. *PLoS Biol.* **9**, e1000606 (2011).
27. Cole, R. G. Abundance, size structure, and diver-oriented behaviour of three large benthic carnivorous fishes in a marine reserve in northeastern New Zealand. *Biol. Conserv.* **70**, 93–99 (1994).
28. IUCN Standards and Petitions Working Group. *Guidelines for Using the IUCN Red List Categories and Criteria Version 7.0* (downloaded 18 November 2013 from <http://intranet.iucn.org/webfiles/doc/SSC/RedList/RedListGuidelines.pdf>, 2008).
29. Mora, C. & Sale, P. F. Ongoing global biodiversity loss and the need to move beyond protected areas: a review of the technical and practical shortcomings of protected areas on land and sea. *Mar. Ecol. Prog. Ser.* **434**, 251–266 (2011).
30. Edgar, G. J. & Stuart-Smith, R. D. Ecological effects of marine protected areas on rocky reef communities: a continental-scale analysis. *Mar. Ecol. Prog. Ser.* **388**, 51–62 (2009).

**Supplementary Information** is available in the online version of the paper.

**Acknowledgements** We thank the many Reef Life Survey (RLS) divers who contributed to data collection. Development of the RLS data set was supported by the former Commonwealth Environment Research Facilities Program, whereas analyses were supported by the Australian Research Council, a Fulbright Visiting Scholarship (to G.J.E.), the Institute for Marine and Antarctic Studies, and the Marine Biodiversity Hub, a collaborative partnership funded under the Australian Government's National Environmental Research Program. Surveys were assisted by grants from the National Geographic Society, Conservation International, Wildlife Conservation Society, Winifred Violet Scott Trust, Tasmanian Parks and Wildlife Service, the Winston Churchill Memorial Trust, University of Tasmania, and ASSEMBLE Marine. We are grateful to the many park officers who assisted the study by providing permits and assisting with field activities, and to numerous marine institutions worldwide for hosting survey trips.

**Author Contributions** G.J.E. and R.D.S.-S. conceived the project; G.J.E., R.D.S.-S., M.A.B., A.T.F.B., S.C.B., S.B., S.J.C., A.T.C., M.D., S.C.E., G.F., D.E.G., A.J.I., S.K., D.J.K., R.M., G.S., E.M.A.S. and many others collected the data; G.J.E., R.J.T., T.J.W., S.K. and S.C.E. prepared figures; G.J.E. drafted the initial manuscript; all authors contributed to analyses and interpretation.

**Author Information** Reprints and permissions information is available at [www.nature.com/reprints](http://www.nature.com/reprints). The authors declare no competing financial interests. Readers are welcome to comment on the online version of the paper. Correspondence and requests for materials should be addressed to G.J.E. ([g.edgar@utas.edu.au](mailto:g.edgar@utas.edu.au)).

## METHODS

**Survey methodology.** Standardized visual census counts were made at 1,986 sites using Reef Life Survey (RLS) methodology (see RLS methods manual 'Standardised survey procedures for monitoring rocky and coral reef ecological communities' at [http://reeflifesurvey.com/files/2008/09/NEW-Methods-Manual\\_15042013.pdf](http://reeflifesurvey.com/files/2008/09/NEW-Methods-Manual_15042013.pdf)). Divers made counts and estimates of total lengths of all fish species observed during swims at  $\sim 2 \text{ m s}^{-1}$  along the centre of a 5-m-wide swathe up one side and then down the other side of 50-m transect lines. Fishes sighted in transect blocks were recorded on an underwater slate, with abundance estimates made by counting individuals of less abundant species and, in locations with high fish densities, estimating the number of more abundant species. The abundance of schooling fishes was recorded by counting a subset within the school which was combined with an estimate of the proportion of the total school. Nearly all fishes were recorded to species level, with exceptions classified at the highest taxonomic resolution possible. The use of digital photography typically allowed later identification of most unidentified species, with assistance of taxonomic experts as required.

Experienced scientists and skilled recreational divers both contributed data to the RLS programme, all divers having either substantial previous experience in fish surveys or extensive one-on-one training by R.D.S.-S. or G.J.E. To provide a major element of consistency in diver contributions at the global scale, G.J.E. and R.D.S.-S. participated in most surveys, providing 31% of all data analysed. Validation tests indicated no difference in quality or composition of data provided by volunteers participating in this programme when compared to professional biologists<sup>30</sup>.

Each transect was set along a depth contour, with two depth contours generally surveyed at each site (mean of 2.4 depths per site; minimum, maximum, mean  $\pm$  s.d. depth contours surveyed: 0.1 m, 42 m,  $7.5 \pm 4.1$  m, respectively). Sites located within 87 MPAs were investigated, with approximately half located in Australia (36) and New Zealand (8). In total, 48 MPAs were no take where all fishing was prohibited, 18 MPAs allowed limited fishing, whereas 21 MPAs were multi-zoned with interspersed no-take and limited fishing zones. Data were compiled from 171,331 underwater abundance counts of 2,544 species in 9,544 transect blocks (50 m  $\times$  5 m).

**MPA features and community metrics investigated.** We assessed the influence of five MPA features on eight fish community metrics calculated using field survey data. The MPA features investigated were each categorized at three levels: low (L), medium (M) and high (H). (1) Regulations. Extent that regulations restrict fishing at survey site. L, site can be openly fished with no fishing restrictions additional to those generally applied within the state; M, site located within an MPA but with some fishing methods allowed; H, no-take area within an MPA. (2) Enforcement. Extent of compliance to regulations that restrict fishing, both through overt policing and through community support for regulations. Level was decided at the time of surveys after discussion with local park authorities, and on the basis of observations of the extent of infractions while conducting fieldwork. L, little attempt at control, a 'paper park'; M, a moderate level of policing attempted, although infractions were apparent; H, appears to be well enforced, although clandestine poaching may occur. (3) Age. Period between when regulations restricting fishing were first enacted and field surveys undertaken. L, MPA zone <5 years old; M, MPA zone 5–10 years old; H, MPA zone >10 years old. (4) Area. MPA zone area, as described in management plan or documents provided locally to users. L, <1 km<sup>2</sup>; M, 1–100 km<sup>2</sup>; H, >100 km<sup>2</sup>. (5) Isolation. Degree that reef habitat surveyed is isolated by habitat boundaries from adjacent fished reef. L, shallow (<25 m) reef habitat extends continuously across MPA boundary; M, a small (1–20%) percentage of zone boundary breached by continuous shallow reef habitat; H, MPA zone isolated from fishing areas by depth (>25 m) or sand barriers of at least 20 m width.

We investigated eight community metrics. (1) Species richness of all fishes. Total number of all fish species sighted within 50 m  $\times$  5 m transect blocks. (2) Species richness of large fishes. Total number of fish species sighted within 50 m  $\times$  5 m transect blocks for the set of individuals observed on transects exceeding the 250 mm size class bin (that is, 300 mm size and above). (3) Total fish biomass. Total biomass of all fishes sighted in 50  $\times$  5 m transect blocks. Estimated by combining abundance counts with size estimates using length-weight relationships provided for total length of each fish species (in some cases genus and family) in Fishbase (<http://www.fishbase.org>). Bias in divers' perceptions of fish size underwater was additionally corrected using relationships presented in ref. 31. (4) Total biomass of large fishes. Total biomass of individuals sighted in 50  $\times$  5 m transect blocks that exceeded the 250 mm size class bin. (5) Total biomass of sharks. Sum of biomass of all fishes in transect that belong to orders Carcharhiniformes, Heterodontiformes, Lamniformes and Orectolobiformes. (6) Total biomass of groupers. Sum of biomass of all fishes in transect that belong to family Serranidae, genera *Dermatolepis*, *Epinephelus*, *Gracila*, *Mycteroperca*, *Paralabrax*, *Plectropomus*, *Trachypoma* and *Variola*. Small serranids such as *Pseudanthias* spp. were not considered. (7) Total biomass of jacks. Sum of biomass of all fishes in transect that belong to family Carangidae. (8) Total biomass of damselfishes. Sum of biomass of all fishes in transect that belong to family Pomacentridae.

**Data aggregation.** To reduce spatial confounding resulting from highly clumped distribution of sites surveyed, data were aggregated before analyses as means for each ecoregion, MPA and zone type. Thus, fished sites were aggregated as mean values for each of 76 Marine Ecoregions of the World<sup>13</sup>, whereas MPA data were aggregated into 121 MPA zones by ecoregion combinations. Multi-zoned MPAs contributed two data points to analyses (no-take sites and restricted fishing sites), whereas very large MPAs that extended across ecoregional boundaries (for example, Great Barrier Reef Marine Park, Galapagos Marine Reserve) were also partitioned with aggregated data from each ecoregion.

**Global models.** Models were developed using random forest procedures<sup>16</sup>, as available in the 'extendedForest' packages for R (<https://r-forge.r-project.org/projects/gradientforest/>), to predict the distribution of the eight community metrics in inshore habitats globally, including the MPA locations investigated. Each random forest consisted of numerous (2,000 in this case) regression trees, where each tree is fit to a bootstrap sample of the biological data using a recursive partitioning procedure. Random forest analyses also contain cross-validation routines based on random subsets of survey sites and covariate predictors that are excluded during development of each tree (the 'out-of-bag' data). Cross-validation using out-of-bag data allows estimation of prediction performance ( $R^2$ ).

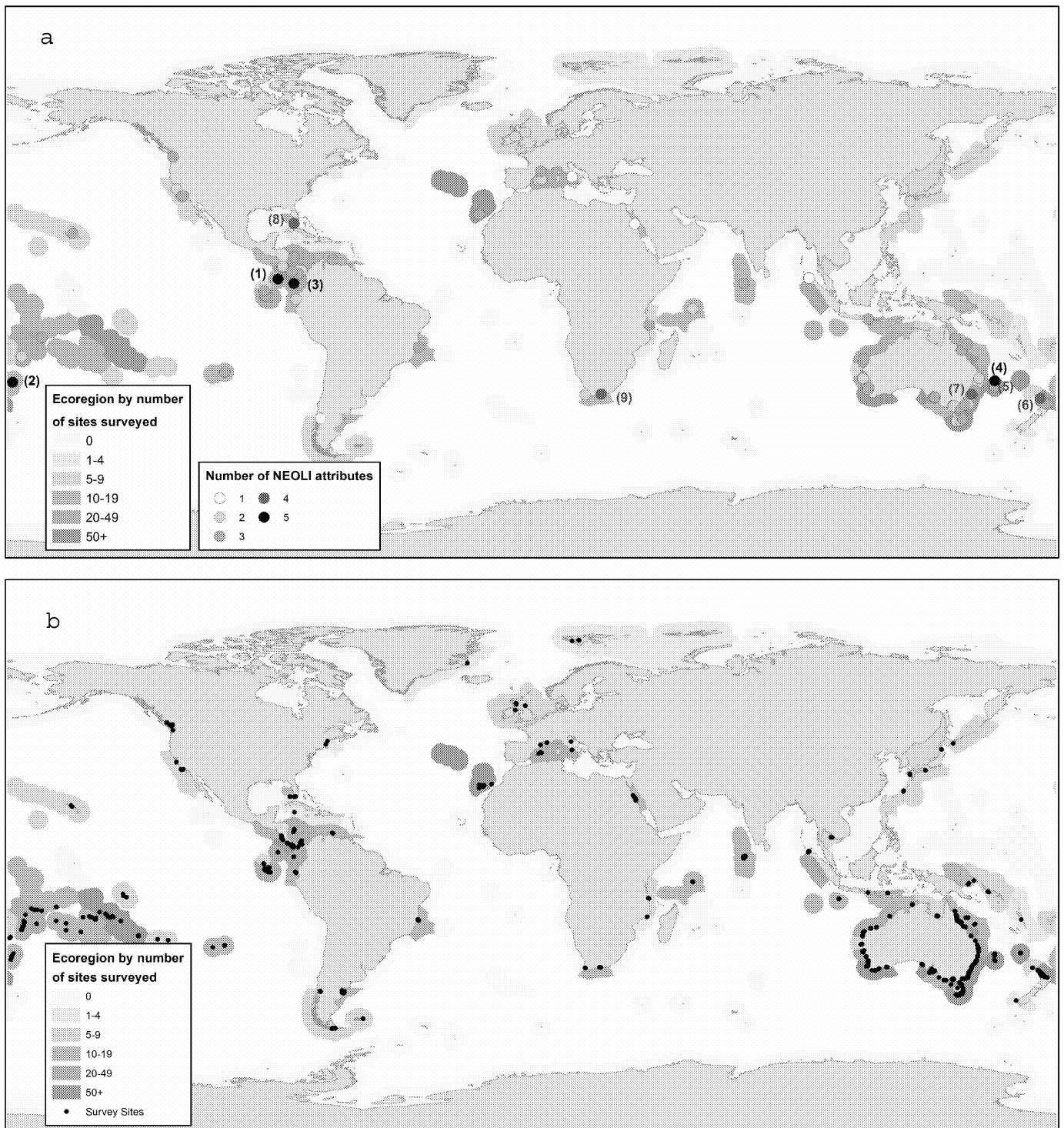
Using random forests, relationships were identified between mean densities of different fish species observed per transect in 76 marine ecoregions<sup>13</sup> and the global distribution of 14 environmental and socio-economic covariates (Extended Data Table 2). Data for each ecoregion were logged after aggregation as a mean of mean values for sites within each ecoregion, with a total of 1,022 fished sites investigated overall. Ecoregions with a value of zero for a particular metric (for example, grouper biomass in temperate locations) were removed from analysis and treated as missing values when generating predictive models associated with individual MPAs. To estimate prediction error, cross-validation was used where observations not selected in the bootstrap sample for a tree were compared to their predictions. The per cent change in accuracy was measured to assess the importance of each predictor variable (Extended Data Fig. 2). This is the change in accuracy of the predictions between models that include or do not include a given covariate, where accuracy was measured by the mean of the residuals squared using the 'out-of-bag' data.

Linear least-squares regression of survey observations at fished sites with random forest predictions indicated that the models provided a reasonable fit.  $R^2$  values for predicted versus observed plots were 63%, 38%, 80% and 64% for total biomass, large fish biomass, species richness and large fish species richness, respectively, whereas the percentages of observations > predictions were 46%, 46%, 53% and 54%, so observed data were well balanced with an even scatter above and below predictions.

Relationships generated between response metrics and environmental covariates were combined with available data on environmental and socioeconomic covariates at 964 sites surveyed in 87 MPAs to predict each of the eight fish community metrics within each unique combination of MPA zone type (no take or restricted fishing) and ecoregion. From generated random forests, predictions were made at new sites by taking the average of response metrics derived from each tree individually. MPA effects for each MPA zone type were then calculated using the log ratio of predicted/observed value (for example,  $\log[B_m/B_p]$ , where  $B_m$  is measured fish biomass and  $B_p$  is biomass predicted if the site was fished). When no individuals of one of the four fish groups (sharks, groupers, jacks or damselfishes) were recorded within a particular MPA, then that MPA was excluded from calculations of effect size. Mean effect sizes and confidence intervals thus relate to the subset of sites where each of the various fish groups were observed.

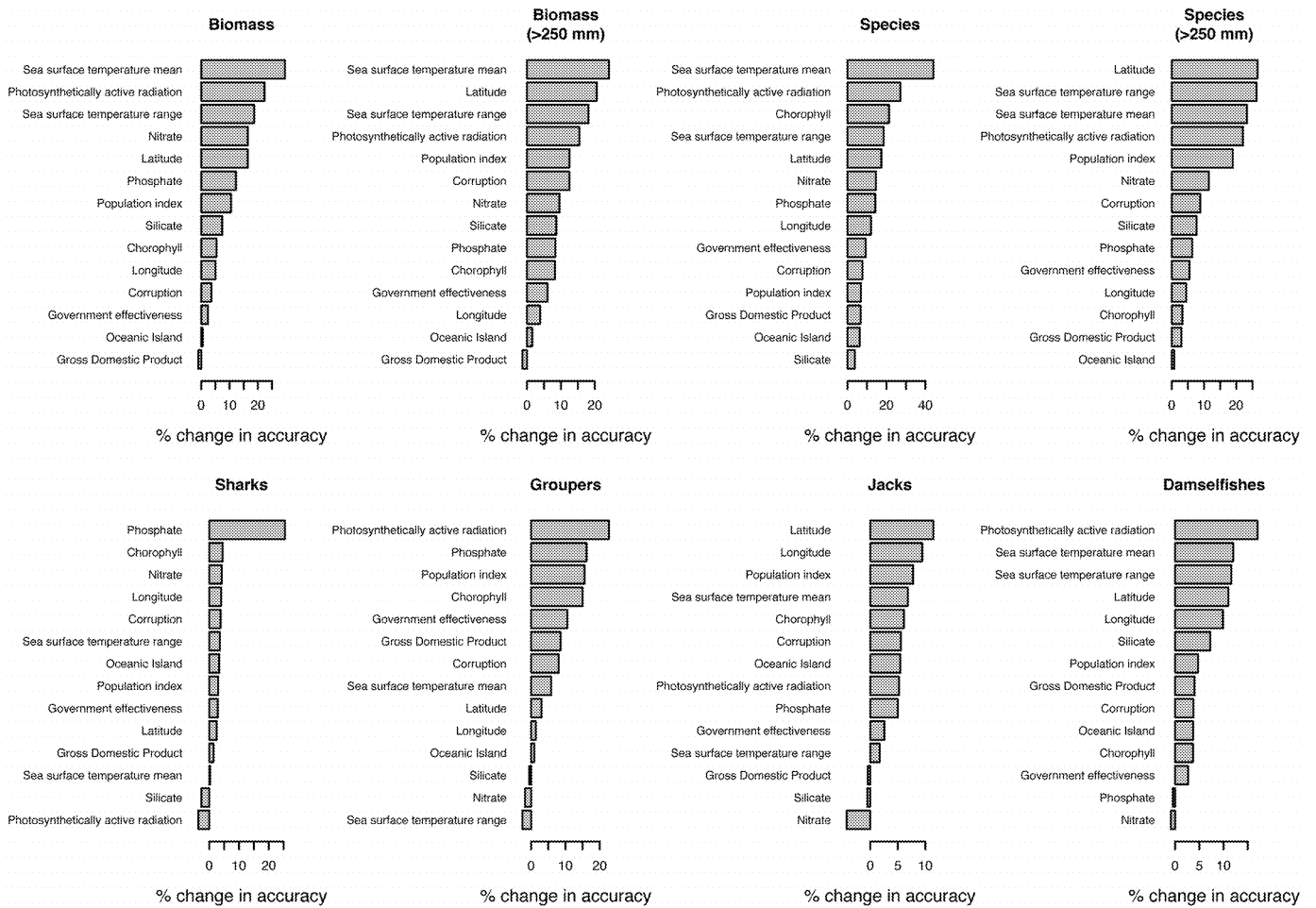
Random forest models were also used to predict values of each metric for fished sites across 5 arcmin grid cells globally, which were then plotted on maps within a coastal buffer. The calculations underlying random forest models used to generate global maps differed from calculations used to predict MPA values in two ways: (1) they were based on 10 rather than 14 environmental covariates, with government effectiveness, corruption, GDP and oceanic island not considered given their small contribution to models (Extended Data Fig. 2) and difficulty in compilation through the full global prediction space; and (2) data for the four fish groups were  $\log[x + \text{minimum value for metric}]$  transformed before analysis and back transformed post hoc to compensate for the many zeroes associated with global mapping predictions.

- Edgar, G. J., Barrett, N. S. & Morton, A. J. Biases associated with the use of underwater visual census techniques to quantify the density and size-structure of fish populations. *J. Exp. Mar. Biol. Ecol.* **308**, 269–290 (2004).
- CIESIN & CIAT. *Gridded Population of the World, Version 3* (Columbia Univ., 2005).
- Silverman, B. W. *Density Estimation for Statistics and Data Estimation* (Chapman & Hall, 1986).
- Kaufmann, D., Kraay, A. & Mastruzzi, M. The Worldwide Governance Indicators: a summary of methodology, data and analytical issues. World Bank Policy Research Working Paper no. 5431, <http://ssrn.com/abstract=1682130> (2010).
- Tyberghein, L. *et al.* Bio-ORACLE: a global environmental dataset for marine species distribution modeling. *Glob. Ecol. Biogeogr.* **21**, 272–281 (2012).



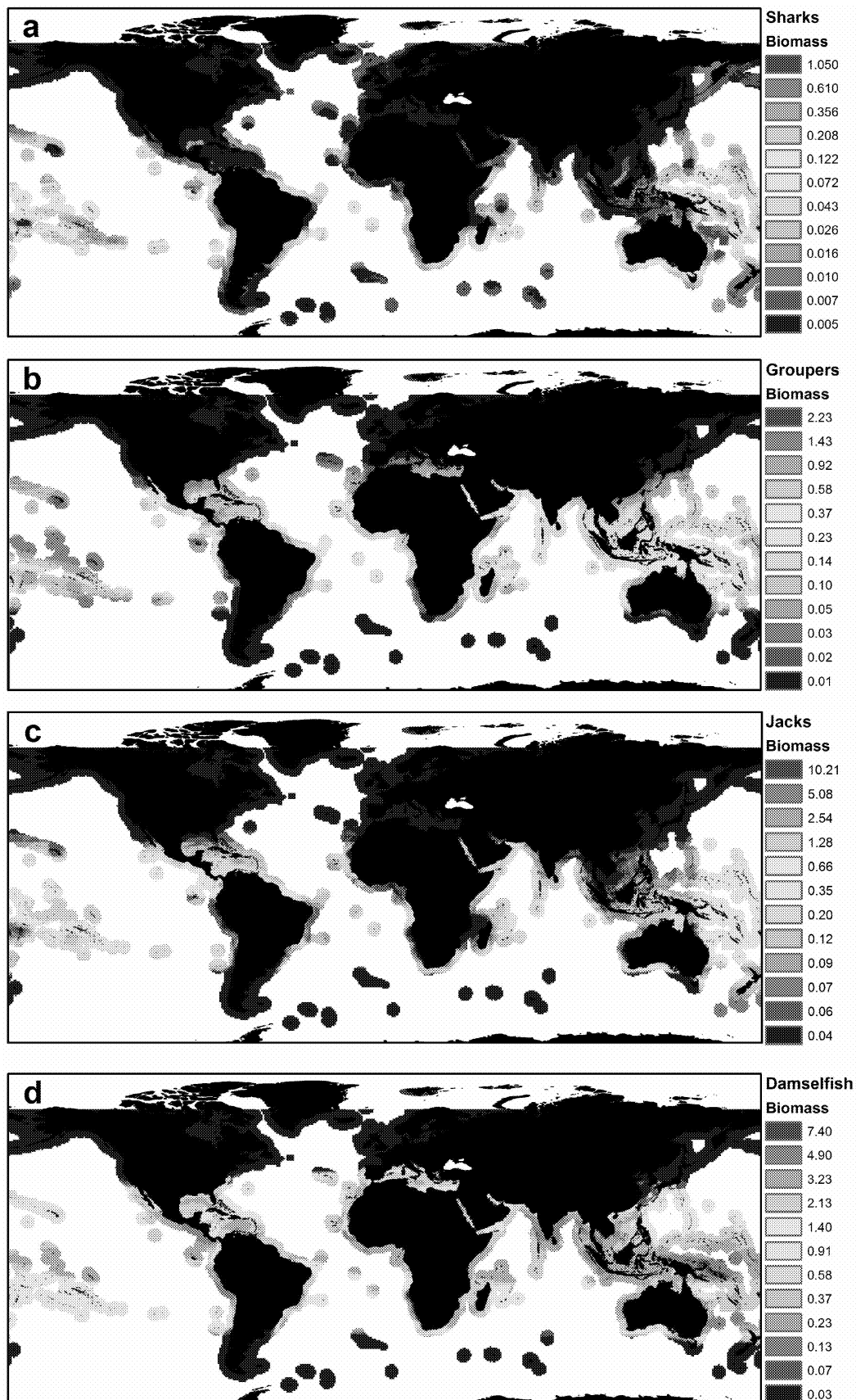
**Extended Data Figure 1 | Distribution of sites surveyed.** **a**, Number of NEOLI (no take, enforced, old, large and isolated) features at MPAs investigated (coloured circles). MPAs with most NEOLI features are overlaid on top; consequently numerous MPAs with one and two features are not visible. MPAs with five NEOLI features are (1) Cocos, (2) Kermadec Islands,

(3) Malpelo, (4) Middleton Reef; MPAs with four NEOLI features are (5) Elizabeth Reef, (6) Poor Knights Islands, (7) Ship Rock, (8) Tortugas and (9) Tsitsikamma. **b**, All MPA and fished sites surveyed (black circles). Blue shading summarizes the number of sites surveyed within each ecoregion.



**Extended Data Figure 2 | Relative importance of the 14 covariates used in global prediction models developed with random forests.** Per cent change in accuracy for a given predictor variable is measured by the change between models that include or do not include that predictor variable, with accuracy

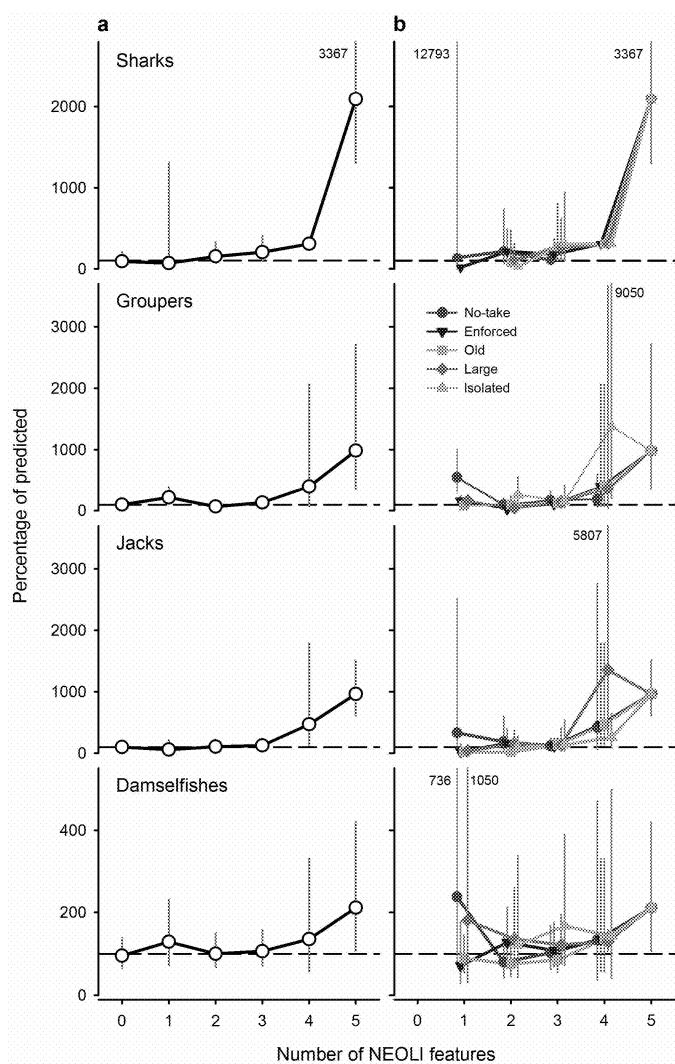
assessed as the mean of the residuals squared. Residuals are based on a cross-validation technique to avoid bias, and the change in accuracy is divided by the standard error for a given tree then averaged across all trees.



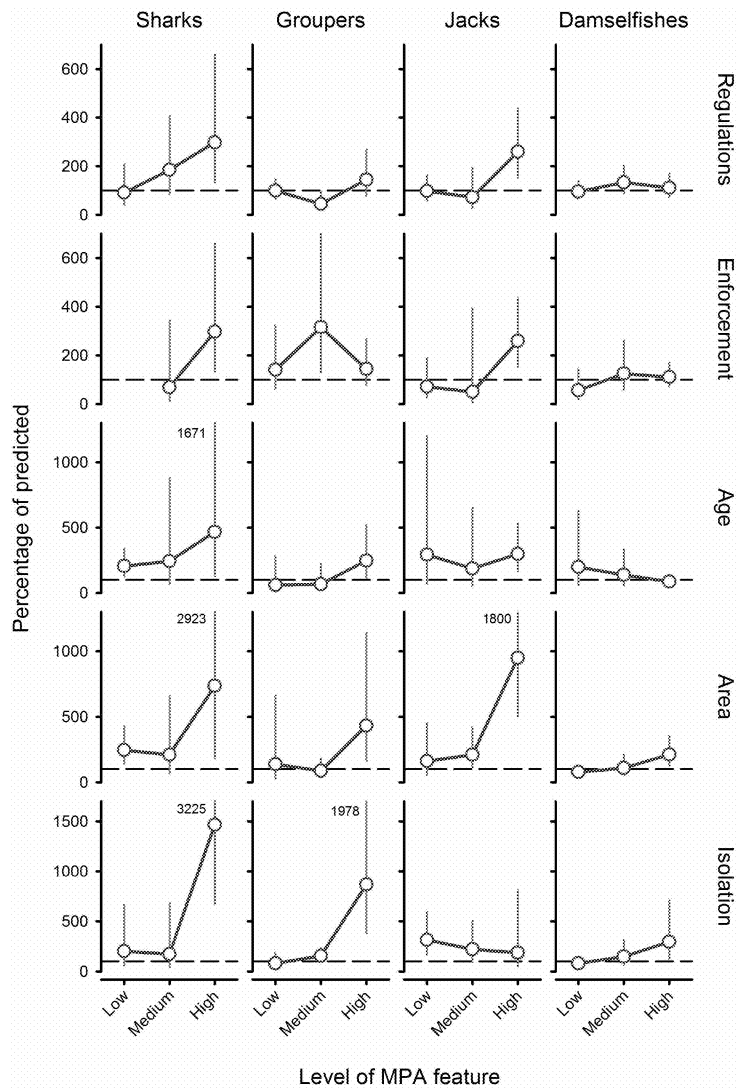
Extended Data Figure 3 | Predicted global distribution of fish biomass (kg per 250 m<sup>2</sup>) on fished coasts. Predictions are from random forest models developed using data from 1,022 sites in fished locations worldwide. **a**, Sharks.

**b**, Groupers. **c**, Jacks. **d**, Damselfishes. Note that scales in colour schemes differ among maps, and numbers represent predicted values represented by each colour after smoothing of log-transformed site-level data.





**Extended Data Figure 4 | Mean response ratios for MPAs with different number of NEOLI features.** Mean ratio values have been back transformed from logs and expressed as percentages with 95% confidence intervals. The number of NEOLI features varies from 0 at sites along fished coastlines to 5 for MPA sites with all NEOLI features. **a**, Plots calculated for sites where sharks, groupers, jacks and damselfishes were present and the subsets of MPAs with different numbers of NEOLI (no take, enforced, old, large, isolated) features. **b**, Mean response ratios for community metrics where each NEOLI feature was included within the set examined. 95% confidence limits that lie off-scale are shown by number. Sample sizes are shown in Extended Data Table 1.



**Extended Data Figure 5 | Mean response ratios for the subsets of sites at which sharks, groupers, jacks and damsselfishes were observed.** Values have been back transformed to per cent, with 100% equivalent to fished coasts, and with 95% confidence intervals. The feature ‘regulations’ was analysed using data from 82 MPAs that are well enforced; the feature ‘enforcement’ was analysed using data from 75 MPAs that are no take; and the features ‘isolation’,

‘age’ and ‘area’ were analysed using data from 52 MPAs that are both no take and well enforced. Sharks were not observed in any no-take MPA with low enforcement, so the associated response ratio could not be calculated. 95% confidence limits that lie off-scale are shown by number. Sample sizes are shown in Extended Data Table 1.

Extended Data Table 1 | Sample sizes applied in figures

**Figure 2a**

Metric	MPA subset	No. of NEOLI features					
		0	1	2	3	4	5
All metrics	All	76	16	57	39	5	4

**Figure 2b**

Metric	MPA subset	No. of NEOLI features					
		0	1	2	3	4	5
All metrics	No-take	7	31	29	4	4	
	Enforced	5	36	32	5	4	
	Old	2	22	31	5	4	
	Large	2	16	16	3	4	
	Isolated		8	9	3	4	

**Extended Data Figure 4a**

Metric	MPA subset	No. of NEOLI features					
		0	1	2	3	4	5
Sharks	All	29	3	26	14	1	4
Groupers	All	46	8	36	22	4	4
Jacks	All	50	6	29	27	4	4
Damselfishes	All	62	12	48	36	4	4

**Extended Data Figure 4b**

Metric	MPA subset	No. of NEOLI features					
		0	1	2	3	4	5
Sharks	No-take	2	13	9			4
	Enforced	1	22	10	1		4
	Old		5	8	1		4
	Large			9	9	1	4
	Isolated				3	6	1
Groupers	No-take	3	19	14	3		4
	Enforced	2	21	16	4		4
	Old	2	14	18	4		4
	Large	1	11	12	3		4
	Isolated			7	6	2	4
Jacks	No-take	2	12	20	3		4
	Enforced	2	21	21	4		4
	Old	1	10	20	4		4
	Large	1	10	11	2		4
	Isolated			4	9	3	4
Damselfishes	No-take	4	25	26	3		4
	Enforced	4	31	29	4		4
	Old	2	17	28	4		4
	Large	2	14	16	2		4
	Isolated			8	9	3	4

**Figure 3**

Metric	Feature	Level of feature		
		Low	Medium	High
All metrics	Regulations	76	30	52
	Enforcement	9	14	52
	Age	5	19	28
	Area	14	30	8
	Isolation	35	9	8

**Extended Data Figure 5**

Metric	Feature	Level of feature		
		Low	Medium	High
Sharks	Regulations	29	15	23
	Enforcement	0	5	23
	Age	3	12	8
	Area	3	14	6
	Isolation	12	6	5
Groupers	Regulations	46	20	27
	Enforcement	7	9	27
	Age	3	8	16
	Area	6	14	7
	Isolation	16	6	5
Jacks	Regulations	50	19	33
	Enforcement	2	6	33
	Age	3	10	20
	Area	8	19	6
	Isolation	19	6	8
Damselfishes	Regulations	62	28	44
	Enforcement	8	10	44
	Age	3	17	24
	Area	11	26	7
	Isolation	29	7	8

Extended Data Table 2 | Covariates used as predictor variables in global random forest models

Variable	Variable abbreviation	Units	Scale	Reference (if applicable)
Index of population pressure	POP_index	index	2.46 arcmin (4.6 km)	
Government Effectiveness	Govt Eff	index	country	35
Control of Corruption	Corruption	index	country	35
Per capita GDP	GDP	US\$	country	#
Mean nitrate	Bio_nitrate	umol/l	5 arcmin (9.2 km)	36
Mean phosphate	BIO_phosphate	umol/l	5 arcmin (9.2 km)	36
Mean silicate	BIO_silicate	umol/l	5 arcmin (9.2 km)	36
Mean chlorophyll A	BIO_chlomean	mg/m <sup>3</sup>	5 arcmin (9.2 km)	36
Photosynthetically active radiation	BIO_parmean	Einstein/m <sup>3</sup> /day	5 arcmin (9.2 km)	36
Mean sea surface temperature	BIO_SST_mean	°C	5 arcmin (9.2 km)	36
Range of sea surface temperature	BIO_SST_range	°C	5 arcmin (9.2 km)	36
Oceanic island isolated from continental shelf	Oceanic island	yes/no		
Site latitude	Latitude	decimal degrees	0.0001°	
Site longitude	Longitude	decimal degrees	0.0001°	

The index of population pressure was calculated by fitting a smoothly tapered surface to each settlement point on a year 2000 world population density grid<sup>32</sup> using the quadratic kernel function<sup>33</sup>. Populations were screened for a density greater than 1,000 people per 0.04 degree cell, and the search radius was set at 3.959 degrees. This table contains refs 34 and 35.

# Per capita GDP was obtained from IMF for 2012 at [http://en.wikipedia.org/wiki/List\\_of\\_countries\\_by\\_GDP\\_%28PPP%29\\_per\\_capita](http://en.wikipedia.org/wiki/List_of_countries_by_GDP_%28PPP%29_per_capita).