Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:
1. The RIS should be completed in accordance with the attached Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

1. Name and address of the compiler of this form:
   UK Overseas Territories Conservation Forum
   102 Broadway
   Peterborough PE1 4DG
   UK
   Email: pienkowskic@co.uk

2. Date this sheet was completed/updated:
   11 November 2004

3. Country:
   UK (British Indian Ocean Territory)

4. Name of the Ramsar site:
   Chagos Banks

5. Map of site included:
   Refer to Annex III of the Explanatory Notes and Guidelines, for detailed guidance on provision of suitable maps.
   a) hard copy (required for inclusion of site in the Ramsar List): yes ✔ -or- no □
   b) digital (electronic) format (optional):

6. Geographical coordinates (latitude/longitude):
   The follow provide a proposed boundary to a site:
   07 30 S, 71 00 E
   05 45 S, 71 00 E
   05 45 S, 71 15 E
   05 00 S, 71 15 E
   05 00 S, 72 00 E
   04 30 S, 72 00 E
   04 30 S, 72 45 E
   05 30 S, 72 45 E
   05 30 S, 73 00 E
   07 00 S, 73 00 E
   07 00 S, 72 00 E
   07 30 S, 72 00 E

7. General location:
   Include in which part of the country and which large administrative region(s), and the location of the nearest large town.
   The Chagos Archipelago is located in the central Indian Ocean.
   Administrative region: British Indian Ocean Territory
8. **Elevation** (average and/or max. & min.) (metres): 9. **Area** (hectares): unknown, greater than 4,000,000

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Min.</td>
<td>0</td>
</tr>
<tr>
<td>Max.</td>
<td>2</td>
</tr>
<tr>
<td>Mean</td>
<td>No information available</td>
</tr>
</tbody>
</table>

10. **Overview:**

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Chagos Archipelago is an isolated group of atolls and reefs in the central Indian Ocean. The group forms the southern end of the Laccadive-Maldives-Chagos atoll chain. There are 5 atolls, 10 other shallow reefs, banks and submerged shoals and just over 50 islands. The islands are uninhabited except Diego Garcia. The Chagos Bank is the largest atoll in the world, partly submerged, but with some very shallow features including small islands on its northern and western rim. The archipelago possesses an exceptionally low level of pollution and provides a standard for measuring the impact of human pressures on other reef systems. The World Heritage quality of the territory is recognised in the BIOT Conservation Policy Statement (October 1997) which specifies that BIOT will be treated in accordance with the requirements of the Conservation subject only to defence requirements.

Although distant from other reefs, their relation to reefs across the Indian Ocean is of considerable interest. They lie at the southernmost end of the Chagos Laccadive Ridge, a vast chain of atolls stretching over 2,500 km from the northernmost of the Lakshadweep (formerly Laccadive) islands in the north, to Diego Garcia in the south, traversing the equator. These islands trace the passage of a volcanic hotspot which now lies under the Mascarene islands to the south-west.

There is evidence that biodiversity levels among corals increase to the south along this chain, with 64 hermatypic coral ("brain coral") genera recorded from the Chagos, only 38 from the northern Maldives; and only nine from Lakshadweep. It is also rich in reef fishes, with about 800 so far described. There are a number of endemic fish and corals, but in general the reefs show affinities to the faunas of both eastern and western Indian Ocean. In fact it is generally believed that these reefs may be a critical stepping stone, over evolutionary and ecological timescales, for coral reef faunas across this Ocean. The fact that Chagos reefs are the most diverse in the chain has led to the use of the term the Chagos Structure to describe this “bottleneck” in the movements of reef organisms across this ocean.

The site also includes considerable areas of open ocean. These areas remain relatively poorly known, but they support important tuna fisheries. The Indian Ocean tuna populations are in slightly better condition than those of the Pacific and Atlantic, and the fishery within the Chagos Fishing Zone is regularly monitored and thus the best known in the region. Efforts are underway to reduce some bycatch, although large numbers of shark are still taken. Of course the movement of fish stocks means that no level protection in this one area will fully safeguard these species.

11. **Ramsar Criteria:**

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1, 2, 3, 4, 5, 6, 7, 8

12. **Justification for the application of each Criterion listed in 11. above:**

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

1. The site is a particularly good example of a relatively unpolluted coral reef system in a near-natural state which provides a valuable link in the marine ecology of the Indian Ocean.

2. The site provides a habitat for the threatened Hawksbill and Green Turtles, *Eretymochelys*...
imbricata and Chelonia mydas. Furthermore, coral systems themselves are under threat and the site holds the best examples in the Indian Ocean.

3 The site is of special value for maintaining the genetic and ecological diversity of the region, especially its marine life, including the endemic coral Ctenella chagius and the threatened Hawksbill and Green Turtles, Eretymochelys imbricata and Chelonia mydas. The site is also important for breeding seabirds.

4 The site provides a habitat for marine flora and fauna at a critical stage of their biological cycle including the endemic coral Ctenella chagius and breeding critically endangered Hawksbill Turtles Eretymochelys imbricata and endangered Green Turtles Chelonia mydas.

5 The site regularly supports 54,000 or more waterbirds including Greater frigate Fregata minor, Red-footed Boobies Sula sula, Greater crested-tern Thalasseus bergii, Black-naped tern Sterna sumatrana, White (fairy) tern Gygis alba, Brown (common) noddy Anous stolidus, Lesser noddy Anous tenuirostris (Sheppard & Seaward 1999).

6 The site contains breeding colonies and other components of several species in internationally important numbers. These include the following, as well as several other species for which data on total population size for comparison is still lacking:

<table>
<thead>
<tr>
<th>Species</th>
<th>Total</th>
<th>% of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Crested Tern Sterna bergii thassina</td>
<td>135</td>
<td>9</td>
</tr>
<tr>
<td>Black-naped Tern Sterna sumatrana matthesi</td>
<td>60</td>
<td>?</td>
</tr>
<tr>
<td>Sooty Tern Sterna fuscata nubilosa</td>
<td>219000</td>
<td>11</td>
</tr>
<tr>
<td>Lesser Noddy Anous tenuirostris tenuirostris</td>
<td>127000</td>
<td>?</td>
</tr>
<tr>
<td>Brown Noddy Anous stolidus</td>
<td>69000</td>
<td></td>
</tr>
<tr>
<td>Red-footed Booby Sula sula</td>
<td>7000</td>
<td></td>
</tr>
<tr>
<td>Audubon’s Shearwater Puffinus lherminieri</td>
<td>840</td>
<td></td>
</tr>
</tbody>
</table>

7 & 8 The site supports a large number of fish species including some endemic species. It is also a valuable nursery for fish stocks.

13. **Biogeography** (required when Criteria 1 and/or 3 and/or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.  

a) **biogeographic region:**

There are no widely accepted biogeographic classification schemes for the marine environment – the site lies outside the boundaries of the Large Marine Ecosystems, and is often left out of the UNEP Regional Seas. It lies within the very large Indo-Pacific Coral reef province and its location, mid-way between the Indonesian centre of coral reef diversity and the part-isolated Western Indian Ocean may make for its consideration, alongside the Maldives-Laccadives, as a unique region.

b) **biogeographic regionalisation scheme** (include reference citation):
14. **Physical features of the site:**

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

<table>
<thead>
<tr>
<th>Soil &amp; geology</th>
<th>biogenic reef, sand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geomorphology and landscape</td>
<td>coastal, islands, lagoon, subtidal rock (including rocky reefs), subtidal sediments (including sandbank/mudbank)</td>
</tr>
<tr>
<td>Nutrient status</td>
<td>oligotrophic</td>
</tr>
<tr>
<td>pH</td>
<td>alkaline</td>
</tr>
<tr>
<td>Salinity</td>
<td>saline / euhaline</td>
</tr>
<tr>
<td>Soil</td>
<td>mainly mineral, mainly organic</td>
</tr>
<tr>
<td>Water permanence</td>
<td>usually seasonal / intermittent</td>
</tr>
<tr>
<td>Summary of main climatic features</td>
<td>Tropical Maritime</td>
</tr>
</tbody>
</table>

15. **Physical features of the catchment area:**

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

**Oceanic archipelago**

16. **Hydrological values:**

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

17. **Wetland types**

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>% Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Marine beds (e.g. sea grass beds)</td>
<td>0.1</td>
</tr>
<tr>
<td>C</td>
<td>Coral reefs</td>
<td>99.9</td>
</tr>
</tbody>
</table>

18. **General ecological features:**

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The archipelago is very diverse, with a range of coral atolls, banks and reefs. The reefs are rich in benthic and pelagic life and represent some of the least disturbed reefs in the Indian Ocean basin.

The reefs rise up from deep water in a largely oligotrophic environment. They have a rich coral fauna, particularly at depths from 10-20m. Above this the waves have cut deep spur and groove formations and, in the shallowest water coralline algae, rather than stony corals, appear to be the dominant reef-builders. The atolls are characterised by wide reef flats, often drying at spring tides. Channels into the atoll lagoons are important for the more closed atolls (Salomon, Egmont Diego Garcia and eastern Peros Bahnos) forming points of considerable water exchange and gathering points for larger predatory fish, as well as likely spawning grounds. Salomon Atoll has an unusual lagoon with high density coral cover over most of its floor. Peros Banhos lagoon is very deep, but marked in places by large bommie formations. Egmont Atoll is shallow throughout, with few coral formations. Wide areas remain unexplored and little is known of the general ecological formations, or the species components, of most of the Great Chagos Bank and the non-islanded atolls and banks.

There are over 50 islands. Most are classic coralline islands composed of coral rock and sand, however in southern Peros Banhos and north-western Great Chagos Bank there are a few small islands which have undergone minor uplift to heights of about 6m above sea level. On Eagle Island there is an unusual feature of a peat deposit on a coral atoll. Many of the islands have lost their native vegetation as a result of conversion to coconut plantations. Now abandoned these have remained, although
patches of native hardwood remain and The Brothers have very small, but almost entirely undisturbed
coral island hardwood forests.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information
provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare,
endangered or biogeographically important, etc. Do not include here taxonomic lists of species present – these may be
supplied as supplementary information to the RIS.

Species occurring at levels of international importance.

There is a small stand of the mangrove *Lumnitzera racemosa* on the Eagle Island, with an
associated peat bog, but apparently cut off from the sea; this may well be one of the most
isolated mangrove communities in the world.

The islands of the Chagos Bank, particularly the Three Brothers, are an important reservoir of
native Indian Ocean hardwood vegetation.

Species at levels of national importance

Sea grass beds – the only known area of seagrass is one very small area in the northern atolls, and a
larger seagrass bed on the eastern side of the lagoon at Diego Garcia (see separate Ramsar Site
account). A number of fish species have been recorded in these seagrasses which have not yet
been seen anywhere else in the Archipelago.

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information
provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare,
endangered or biogeographically important, etc., including count data. Do not include here taxonomic lists of species present
– these may be supplied as supplementary information to the RIS.

Species occurring at levels of international importance.

There are dense populations of breeding seabirds, over 50 species having been seen on and near the
islands and over 180,000 breeding pairs having been recorded (figures include the relatively
small numbers breeding on Diego Garcia, not included in this nomination). These include the
Sooty Tern *Sterna fuscata fuscata* (73,000 breeding pairs), two noddis *Anous* spp. (over 90,000
pairs), two frigatebirds *Fregata* spp., (150 pairs), Audubon's *Puffinus Iherminieri* and the
Wedge-tailed Shearwater *P. pacificus* with 582 and 3,580 pairs respectively. Three species of
booby are recorded – Red footed *Sula sula* (some 11,000 breeding pairs); Masked Boobies *Sula
dactylatra* (245 pairs); and Brown boobies *Sula leucogaster* (558 pairs). Most of the Chagos
breeding bird population is found the rat-free islands of the Great Chagos Bank (over 90,000
pairs), while large numbers of terns, and smaller numbers of red-footed boobies also nest in
large numbers on the islands of northern Peros Banhos (78,000 pairs).

Green Turtles *Chelonia mydas* and hawksbill turtles *Eretmochelys imbricata* nest in low densities
on most islands and in every atoll. The Coconut Crab *Birgus latro* is also abundant on most
islands.

Fish, corals and other coral reef invertebrates are abundant, and there remain important populations
of sharks as well as larger grouper species and the humphead wrasse, many of which are not
much reduced in other areas.

Many other invertebrate groups are yielding species new to science (e.g. five new species and two
new genera of soft coral in Reinicke and van Ofwegen, 1999), however the likelihood of
endemism for these groups is difficult to ascertain.
21. Social and cultural values:
e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc.
Distinguish between historical/archaeological/religious significance and current socio-economic values.
Aesthetic
Current scientific research
Fisheries production
Non-consumptive recreation

22. Land tenure/ownership:

<table>
<thead>
<tr>
<th>Ownership category</th>
<th>On-site</th>
<th>Off-site</th>
</tr>
</thead>
<tbody>
<tr>
<td>National/Crown estate</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

23. Current land (including water) use:

<table>
<thead>
<tr>
<th>Activity</th>
<th>On-site</th>
<th>Off-site</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature conservation</td>
<td>+</td>
<td>+</td>
<td>Large-scale</td>
</tr>
<tr>
<td>Research</td>
<td>+</td>
<td>+</td>
<td>Small-scale</td>
</tr>
<tr>
<td>Fishing: commercial</td>
<td>+</td>
<td>+</td>
<td>Large-scale</td>
</tr>
<tr>
<td>Fishing: recreational/sport</td>
<td>+</td>
<td>+</td>
<td>Large-scale</td>
</tr>
<tr>
<td>Harbour/port</td>
<td>+</td>
<td>+</td>
<td>Small-scale</td>
</tr>
<tr>
<td>Military activities</td>
<td>+</td>
<td>+</td>
<td>Large-scale</td>
</tr>
</tbody>
</table>

24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

<table>
<thead>
<tr>
<th>Activity</th>
<th>On-site</th>
<th>Off-site</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction/invasion of exotic animal species</td>
<td>+</td>
<td>+</td>
<td>Large-scale</td>
</tr>
</tbody>
</table>

25. Conservation measures taken:
List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

<table>
<thead>
<tr>
<th>Conservation measure</th>
<th>On-site</th>
<th>Off-site</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNR</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>

All of the islands of the Great Chagos Bank, together with the eastern islands of Peros Banhos Atoll have been declared Strict Nature Reserves with no access. Officially these extend out to the limits of territorial sea (currently 3 nautical miles) and forbid all fishing, however the only significant fishery in this area (low level mothership-dory line-fishing operations from Mauritius) are currently exempted from this legislation (Sheppard and Spalding, 2004)

26. Conservation measures proposed but not yet implemented:
e.g. management plan in preparation; official proposal as a legally protected area, etc.

The Chagos Conservation Management Plan (Sheppard and Spalding, 2004) has been accepted in principle by the Foreign and Commonwealth Office, but has yet to be implemented.
27. Current scientific research and facilities:
e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.
Expeditions were conducted in 1967, 1973, 1975, 1978/9 and 1996. Surveys on fishing and recreational fishing have been regularly carried out, and small scale coral reef assessments have been undertaken in 1999 and 2001, with a particular focus on coral bleaching and its impacts on the reefs and fish communities. A further expedition is planned for 2006.

28. Current conservation education:
e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.
The Chagos Conservation Trust is a registered charity whose objectives are to promote conservation, scientific and historiological research and to advance education concerning the Chagos Archipelago. In addition, the BIOT Administration is currently funding turtle conservation education in Diego Garcia.

29. Current recreation and tourism:
State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.
There is no tourism in Chagos but a number of yachts visit the islands. Visits are controlled by the BIOT Administration.

30. Jurisdiction:
Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.
Foreign and Commonwealth Office,
Overseas Territories Department, King Charles Street, London, SW1A 2AH, UK

31. Management authority:
Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.
BIOT Administrator, Foreign and Commonwealth Office, Overseas Territories Department, King Charles Street, London, SW1A 2AH, UK

32. Bibliographical references:
Scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

Site-relevant references


Doak, EL, Lyzena, DR & Polcy, FC (1979) Remote bathymetry by Landsat in the Chagos archipelago. *Environmental Research Institute of Michigan*


Drew, EA (undated) Diversity of the algal genus *Halimeda* in the Chagos archipelago, central Indian Ocean. (unpublished manuscript)


Dutton, RA (198*) Observations on turtles in the Chagos archipelago, and the potential of that area as an important nesting ground for *Eretmochelys imbricata*. ??


Food and Agriculture Organization of the United Nations (2000) *The state of world fisheries and aquaculture*. Food and Agriculture Organization of the United Nations, Rome


Haeger, SD (1980) *Flushing study for Diego Garcia using a numerical hydrodynamical model*. Naval Oceanography Command, St Louis (unpublished manuscript)


McCee, T (1987) *An initial study of basin residency time and sediment transport with the Diego Garcia lagoon*. Naval Support Facility, Diego Garcia (unpublished manuscript for Commanding Officer)


Moresby, R (1884) [Untitled]. Transactions of Bombay Geographical Society, 1, 306-310.


Roberts CM (2002) How much of the sea should be protected from fishing in marine reserves? *Ecological Applications* (????)


Sheppard, CRC (1982) *Natural history of the coral reef*, Blandford Press, Poole


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Chagos Banks, British Indian Ocean Territory


**Websites and links**

Agreement for the Establishment of the Indian Ocean Tuna Commission www.seychelles.net/iotc

Convention Concerning the Protection of the World Cultural and Natural Heritage http://whc.unesco.org/toc/toe_index.htm


Convention on Biological Diversity www.biodiv.org


Convention on Long Range Transboundary Air Pollution www.unece.org/env/lrtap


Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal www.unep.ch/basel

Convention on Transboundary Effects of Industrial Accidents www.unece.org/env/teia/intro.htm

Convention on Wetlands of International Importance especially as Waterfowl Habitat, Ramsar, Iran, 2.2.1971 (The ‘Ramsar Convention’) www.ramsar.org/key_conv_e.htm

Framework Convention on Climate Change http://unfccc.int

Hadley Centre: Climate Predictions www.metoffice.gov.uk/research/hadleycentre/models/modeldata.html

Intergovernmental Panel on Climate Change www.ipcc.ch

International Coral Reef Initiative (ICRI) www.icriforum.org

Mean sea level data www.pol.ac.uk/psmsl/psmsl_individual_stations.html

Submission of environmental award for Diego Garcia http://web.dandp.com/n45/FY01CNO_EnvAwards/Natural_Resources_Conservation/Small_Installation/NSF_Diego_Garcia_NR_Small_Installation.pdf


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