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NORTH-WEST INDIAN OCEAN AND ADJACENT GULF  
AREAS REGIONAL WORKSHOP TO FACILITATE THE  
DESCRIPTION OF ECOLOGICALLY OR BIOLOGICALLY  
SIGNIFICANT MARINE AREAS

Dubai, United Arab Emirates, 20-25 April 2015

### **COMPILATION OF SUBMISSIONS OF SCIENTIFIC INFORMATION TO DESCRIBE AREAS MEETING THE SCIENTIFIC CRITERIA FOR EBSAs IN THE NORTH-WEST INDIAN OCEAN AND ADJACENT GULF AREAS REGION**

*Note by the Executive Secretary*

1. The Executive Secretary is circulating herewith a compilation of scientific information in support of the North-West Indian Ocean and Adjacent Gulf Areas Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas (EBSAs). The workshop is being convened by the Secretariat of the Convention on Biological Diversity, with financial support from the Government of Japan, through the Japan Biodiversity Fund, in collaboration with the United Nations Environment Programme Regional Office for West Asia (UNEP-ROWA), Convention on Migratory Species Office – Abu Dhabi, the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA), the Regional Organization for the Protection of the Marine Environment (ROPME), and the Abu Dhabi Global Environmental Data Initiative (AGEDI). This workshop is being hosted by the Ministry of Environment and Water of the Government of the United Arab Emirates and will be held in Dubai from 20 to 25 April 2015. Scientific and technical support for this workshop is being provided by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) of Australia.
2. This compilation consists of a list of submissions made by workshop participants from Parties and organizations in response to notification 2014-130 (<http://www.cbd.int/doc/notifications/2014/ntf-2014-130-eb-sa-en.pdf>), dated 11 November 2014. The original submissions are available at <http://www.cbd.int/doc/?meeting=EBSAWS-2015-02>.
3. These submissions are being circulated in the form and languages in which they were received by the Secretariat of the Convention on Biological Diversity.

**Table 1. Scientific Information submitted in support of the workshop objectives using EBSA templates**

Party/ Org. of submitter	Author(s)/Contributor	Contents of EBSA submission	Short description of submission
Djibouti		<a href="#">EBSA Template 1-Aires Marines Protégées de Djibouti</a>	La biodiversité marine à Djibouti est très riche et le pays abrite cinq espèces de tortues marines, la baleine à bosse ( <i>Megaptera novaeangliae</i> ) et la Baleine bleue ( <i>Balaenoptera musculus</i> ) ainsi que les requins baleines ( <i>rhincodon typus</i> ) et d'autres espèces marines d'intérêt spécial tel que le Dugong ( <i>Dugong dugon</i> ). Le pays possède plus de 160 espèces coralliens ainsi que quatre palétuviers d'une mangrove d'importance pour la biodiversité. Cependant des menaces importantes sont identifiées au niveau de la biodiversité marine à Djibouti et incluent: la dégradation de la zone côtière due à la construction intensive, aux déchets solides et aux rejets liquides menacent le récif corallien, les mangroves et l'équilibre de l'écosystème marin; la pêche intensive et illégale menacent la population de requins, la population d'holothurie, la population de tortue de mer et la biodiversité marine.
India	Mr. K. Sivakumar, Scientist E, Wildlife Institute of India, Dehradun – 248001, India Email: ksivakumar@wii.gov.in	<a href="#">EBSA Template 1 - Important Coastal and Marine Biodiversity Areas of India</a>	The coastal and marine ecosystems of peninsular India have been surveyed in detail to identify and prioritize the 'Important Coastal and Marine Biodiversity Areas (ICMBA)' for their better management, in addition to the existing Marine Protected Areas. This study followed the standardized global, national and regional level approaches to develop criteria with several indicators which were later used to identify ICMBA sites in India. The site identification exercise began with six different targets that were often considered important features for safeguarding coastal habitats and their biodiversity. Conservation-related targets were picked up from standard global approaches and designated 'conservation amplifiers' because they improve the opportunities for consideration or simply allocate more weight to protection measures. The tool was developed with six different criteria as conservation amplifiers and 26 subunits as indicators or goals respective to each criterion A total of 350 potential sites were surveyed all along coasts of peninsular India, of these, 106 sites were identified and prioritized as ICMBA.

Iran	Mr. Talebi Matin Department of Environment of Iran Email: hd_matin56@yahoo.com	<a href="#">EBSA Template 1 - Nayband Bay</a>	Nayband marine-coastal national park is located in the northern coast of the Persian Gulf. This area has a wide range of terrestrial and marine habitats including coastal sand dunes, rocky, muddy and sandy shores, coral reefs, mangrove forests, seagrass meadows and estuaries. Nayband Bay is the only coral reef area of mainland coastal waters of the northern Persian Gulf and one of the most important nesting sites and feeding grounds for hawksbill and green sea turtles in the area. Nayband Bay has a high diversity of marine and coastal habitats which is completely unique in the northern part of the Persian Gulf.
Pakistan	Mr. Muhammad Moazzam Khan, Ex-Director General, Marine Fisheries Department, Government of Pakistan, Karachi, Pakistan, Email: mmoazzamkhan@gamil.com	<a href="#">EBSA Template 1 - Churna-Kaio Islands Complex</a>	Churna –Kaio Islands Complex which is located west of Karachi has an area of about 400 sq. km. It consists of a Churna island which is a medium sized island facing the Hub River Delta whereas a small islet Kaio Island located near town of Gaddani. The area is known for high biodiversity because of a variety of habitats. It has diversified coral assemblage around Churna and Kaio Islands whereas at the mouth of the River hub there are rich mudflats and oyster reefs. Churna–Kaio Islands Complex is known to be important basking and feeding area for marine megafauna including baleen whales, whale shark, mobulids and sunfishes. Because of power plants and a substantially large ship breaking industry, the ecology of the area is seriously being affected. Considering high biodiversity and the threats it is facing the area requires international recognition as an EBSA.
		<a href="#">EBSA Template 2 - Daran-Jiwani Area</a>	Daran-Jiwani area is an important habitat located at the Jiwani headland. It extends from Ganz in the east to Jiwani sandy on the north covering the entire Daran Jiwani Headland. The area of Daran is considered to be an important nesting ground for turtles whereas Jiwani headland and adjacent areas are known for high biodiversity of marine invertebrates. The area is also known for high catches of fishes and lobsters. The area is also known for cetaceans which are found around the headland. The area is also rich in diversity of shorebirds. The ecology and biodiversity is being threatened because of planned development in the area. Considering the high biodiversity especially because of being nesting ground the area would benefit from further international recognition as an EBSA
		<a href="#">EBSA Template 3 - Khori Great</a>	Khori Great Bank is located along southeast coast of Sindh province. It extends from the coast to offshore waters covering an area of about

		<p><a href="#">Bank</a></p>	<p>22,500 sq km having a maximum depth of about xxx m. The unique physical feature of the area is Indus Canyon, known as the Swatch. Khori Great Bank is known to be rich in biodiversity including cetaceans, sharks, fish and invertebrates. In this area and adjacent territory of India, Russian whaling fleet has massacred in 1968 about 170 Arabian humpback whales (highest numbers in Indian Ocean) indicating the richness of the area. A number of species of cetaceans including rough-toothed dolphin and Longman’s beaked whales have only been reported from the area. It is important fishing ground especially for large sharks whose population has dwindles in past 15 years. Considering high biodiversity and the potential threats it may face, the area requires international recognition as an EBSA.</p>
		<p><a href="#">EBSA Template 4 - Malan-Gwader Complex</a></p>	<p>Malan-Gwader Complex located along the Balochistan coast is significantly important as it cover two Ramsar sites i.e. Ormara Turtle Beaches and Astola (Haft Talar) Island. A large lagoon is also a part of the Complex. The area is known for rocky headland located at Malan, Ormara, Pasni and Gwader whereas largest island of Pakistan is also located within the Complex. Because of uniformity of the diversity of the area this complex stretching over an area of about 8,750 sq. km is constituted. This complex is specifically known for presence of population of a number of cetaceans species including dolphins and whales. Arabian humpback whale (<i>Megaptera novaeangliae indica</i>), blue whales (<i>Balaenoptera musculus</i>) and Bryde’s whale (<i>Balaenoptera brydei</i>) are regularly recorded from the Complex. Although the importance of the area has two important Ramsar sites but it international recognition as an EBSA will ensure conservation of the biodiversity of the Malan-Gwader Complex.</p>
		<p><a href="#">EBSA Template 5 - Miani Hor</a></p>	<p>Minai Hor is a lagoon located about 90 km northwest of Karachi is an important area of high biodiversity famous for its diversified mangrove flora and rich population of both invertebrates and vertebrate animals. It is an important site for migratory and non-migratory bird species as well as a resident population of Indo-pacific humpback dolphin (<i>Sousa chinensis</i>). Fishing activities for catching shrimp and jellyfish are restricted within the lagoon. Community control on management of fisheries resources is a unique feature of the area. The communities residing with the Miani Hor are fishermen by</p>

			profession and their livelihood is dependant mainly on the resources within the Miani Hor. Mangroves of the area are threatened by sand dune migration and other anthropogenic factors. Considering high biodiversity it satisfies the criteria for Ramsar Convention and it further international recognition as an EBSA will help in protecting the fragile ecosystem of the area.
Sudan	Mr. Dirar Nasr Environmental Consultant; c/o HCENR, Khartoum, Sudan E-mail: d_nasr47@hotmail.com	<a href="#">Sudan - EBSA Template 1</a>	Sanganeb Marine National Park (SMNP) is one of the most unique reef structures in the Sudanese Red Sea whose steep slopes rise from a sea floor more than 800 m deep. It is located at approximately 30km north-east of Port Sudan city at 19° 42' N, 37° 26' E. The Atoll is characterized by steep slopes on all sides. The dominated coral reef ecosystem harbors significant populations of fauna and flora in a stable equilibrium with numerous endemic and endangered species. The reefs are distinctive of their high number of species, diverse number of habitats, and high endemism. The atoll has a diverse coral fauna with a total of 86 coral species being recorded. The total number of species of algae, polychaetes, fish, and Cnidaria has been confirmed as occurring at Sanganeb Atoll. Research activities are currently being conducted; yet several legislative decisions are needed at the national level in addition to monitoring.
		<a href="#">Sudan - EBSA Template 2</a>	Dungonab Bay is located approximately 125 km north of Port Sudan, engulfing Mukkawar Island which is 30km offshore Dungonab Peninsula. It lies within the Sudan national jurisdiction. The area was declared a Marine Protected Area in 2004; it contains extensive and diverse seagrass beds, a regionally important population of dugong, regionally or globally important nesting areas for marine turtles and seabirds, and seasonal aggregations of whale sharks and manta rays that are unique in the entire western Indian Ocean region. The area is known to be of particular significance for birds and is designated as an Important Bird Area. The eastern shore of Mukawwar Island is a turtle nesting site of regional and possibly international significance. The Dugongs population occurring in Dungonab Bay/Mukawwar Island may be the most important remaining on the coast of Africa (PERSGA, 2006). Dungonab Bay and Mukkawar Island National Park falls under the Game Protection and the Federal Parks Act (1986).

Yemen	Mr. Abdulkarim A N Saeed, Sana'a University, Yemen, E-mail: karimnasher@yahoo.com	<a href="#">EBSA Template 1 - Al Mahra</a>	Al Mahra is the most easterly governorate in Yemen, extending from Hadhramout to the borders with Oman. Its long coastline is mainly sandy intercepted with rocky areas. Several species of sea birds, sharks, and dolphins are seen along Al Mahra waters at different times the year. Two locations, where my activities are going on, are important sites for green turtle nesting.
		<a href="#">EBSA Template 2 - Sharma-Jethmoun-Dhargha</a>	Sharma-Jethmoun-Dhargha Beach has long been recognized as an important marine sea nesting area, intended to be officially declared protected area. It is, so far, the longest beach in Yemen, over 50 km long, where thousands of green turtle visit to nest during April to November, with a peak from June to September every year. Our survey is limited to three sites which make a total of 12.5 km
		<a href="#">EBSA Template 3 - Socotra Archipelago</a>	Socotra Archipelago represents a unique environmental group of islands, with very significant marine habitats that have been identified and classified into four conservation zones. Sharks, dolphins and whales are frequently seen at different sites around the island (Foad Nsseeb, per. Comm.). However, my experience in Socotra is limited to conservation of loggerhead sea turtles which nest along Abalhen beach during May to September each year. (see Google earth map).
WWF-Pakistan	Mr. Umair Shahid, WWF-Pakistan, North Indian Ocean Coordinator, ushahid@wwf.org.pk	<a href="#">EBSA Template 1 - Astola Island</a>	Astola Island is the only significant offshore island along the north coast of the Arabian Sea. There is sparse vegetation on the island comprising of halophytic plants indicating the saline nature of the soil. Lithophytes (Lichens), aquatic weeds, sea urchins, sea anemones and corals have also been seen on the coast. Large mammals are not known to have existed on the island, however small terrestrial mammals like rodents and small cats inhabit the island. Many types of migratory and resident birds can be seen on Astola Island. Water fowl migrate through the area twice a year and use the island as a staging and wintering ground. The sea off the island's coast are known pristine and comprise of pelagic and demersal species. Coral reefs are also found around the Island. The area is also rich in supporting life for cetaceans.
		<a href="#">EBSA Template 2 - Churna Island</a>	Charna Island is a small inhabited island of Pakistan, in Arabian Sea. The island provides excellent habitat for coral reefs to grow and form a thriving ecosystem maintaining important ecological processes and flag ship species. The island is famous for Whale Sharks basking and

			<p>has been reported to support reef communities. Marine life around Charna include poisonous sea snakes, barracuda, narrow-barred Spanish mackerel, cobia, dorado, tuna, angel fish, sea urchin, sea fan, oyster, ray fish and rare green turtles. They are also important for cetacean sightings. Charna island also hosts Pakistan game fishing association events and is popular for scuba diving activities. Moreover, it is important to conduct scientific research on a regular basis.</p>
		<p><a href="#">EBSA Template 3 - Indus delta and Indus Canyon</a></p>	<p>The Indus Fan with its 1500 Km length, 960 Km maximum width, and 1.1 x 10<sup>6</sup> sq. Km. area, is the most extensive physiographical province of the Arabian Sea in the northwest Indian Ocean. It is bounded by the continental margin of India-Pakistan and ChagosLaccadive ridge on the east, by the Owen and Murray ridges on the west and north and by the carslberg ridge in the south. The shelf-break occurs at about 100 m depth along the IndiaPakistan margin. The Indus River system has been the dominant supplier of sediments in the Indus Fan. The Indus Canyon or the Swatch area is productive in its nature and lacks qualifying data. However through observer program reports run by WWF-Pakistan it has been reported that the area is rich in Tuna, Billfish, forage fish, Cetaceans and Sharks.</p>
		<p><a href="#">EBSA Template 4 - Sandspit-Hawks Bay</a></p>	<p>Sandspit and Hawks Bay beaches and the adjoining areas including the backwaters (adjoining areas herein referred to as 'backwaters') provide excellent habitats for a thriving ecosystem. The adjacent areas comprise of a dense mangrove forest which provides a highly productive environment conducive for sustaining the diversity in the area. The area is a complex of coastal wetlands and contains shallow tidal lagoons, intertidal mudflats, salt pans, estuaries, saline pond, mangrove swamps and sandy beach that provides excellent habitat for sea turtle nesting. The backwaters provide habitat for vertebrate and invertebrate species, both pelagic and benthic communities form association and is considered an important spawning ground. Unique populations of hydrozoans, copepods, amphipods are also found here. With the presence of abundant forage fish, crabs, shrimps, fishes, and migratory birds, the backwaters and the coastal waters of Sandspit/Hawks bay area offer important feeding area for a number of cetaceans including humpback dolphins, common dolphins and finless porpoise.</p>



		<a href="#">EBSA Template 5 - Sonmiani Bay</a>	Miani Hor is a lagoon located on southwestern coast of Balochistan at a distance of 90 km from Karachi. The average width of this lagoon is 7 km, with a narrow and shallow connection with the open sea. The large sand complex on the east side of the Las Bela Valley, West Pakistan, is thought to have been derived from the nearby mountain ranges rather than from an exposed continental shelf. Sea level changes and Recent tectonism complicate the sequence of events (Snead and Frishman, 1968). The lagoon is of special significance for migratory and resident birds as it has been declared a Ramsar site and is the only habitat in Pakistan where three species of mangroves that is, <i>Avicenia marina</i> , <i>Rhizophora mucronata</i> and <i>Ceriops tagal</i> are found encapsulated by shifting sand dunes. Biological diversity is rich in the area and comprises fishes, crustaceans, cetaceans and provides economic benefits to the local communities.
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**Table 2. Other scientific information submitted in support of the workshop objectives**

<b>Party/org. of submitter</b>	<b>Author(s)/Contributor</b>	<b>Title/Contents of submission</b>
India	K. Saravanan, B.C. Chowdhury & K. Sivakumar (2013)	<a href="#">Submission 1-Important coastal and marine biodiversity areas on the East coast of India</a>
Iraq	Talib A. Khalaf , Mohammad Ali, Shaker G. Ajeel	<a href="#">Submission 1-Is the Northwestern Arabian Gulf a biodiversity hotspot</a>
	Talib Abbas Khalaf Professor Marine Biology, Marine Science Centre University of Basrah Basrah, Iraq Email: <a href="mailto:drtalibabbas@hotmail.com">drtalibabbas@hotmail.com</a> ; <a href="mailto:talib_kh@yahoo.com">talib_kh@yahoo.com</a>	<a href="#">Submission 2-Role of Shatt al-Arab River</a>
	Abdullah Y. Khudhair, Talib A. Khalaf, Shaker G. Ajeel and Ramiz Saad	<a href="#">Submission 3 - Estimation of heavy metals in zooplankton organisms, of NW Arabian Gulf</a>
Emirates Wildlife Society-	Nicolas J. Pilcher on behalf of EWS-WWF	<a href="#">Submission 1- Marine Turtle Conservation Project-Final Scientific Report</a>
	Nicolas J. Pilcher et al.	<a href="#">Submission 2-Short-term behavioural responses to thermal stress by</a>



WWF	Marine Research Foundation, 136 Lorong Pokok Seraya 2, Taman Khidmat, 88450 Kota Kinabalu, Sabah, Malaysia. Tel./fax: +60 88 244089. E-mail: npilcher@mrf-asia.org	<a href="#">hawksbill turtles</a>
	Nicolas J. Pilcher et al. Marine Research Foundation, 136 Lorong Pokok Seraya 2, Taman Khidmat, 88450 Kota Kinabalu, Sabah, Malaysia. Tel./fax: +60 88 244089. E-mail: npilcher@mrf-asia.org	<a href="#">Submission 3-Identification of Important Sea Turtle Areas for hawksbill turtles</a>
GOBI	Sattar S.A., Anderson R.C. and Adam M.S. (compilers) (2009) Report of the Indian Ocean Cetacean Symposium 2009, held at Paradise Island Resort and Spa, Maldives, 18-20 July 2009. Marine Research Centre, Maldives. 46pp. Revised edition 2012. www.mrc.gov.mv	<a href="#">GOBI - Submission 1 - 2009 Indian-Ocean-Cetacean-Symposium-Report</a>
	V.V. Asal et al. E-mail: vafsal@gmail.com	<a href="#">GOBI - Submission 2 - A note on cetacean distribution in the Indian EEZ and contiguous seas during 2003-07</a>
	Robert Baldwin E-mail: <a href="mailto:wosoman@gto.net.om">wosoman@gto.net.om</a> Koen Van Waerebeek E-mail: <a href="mailto:kvwaere@mail.cosapidata.com.pe">kvwaere@mail.cosapidata.com.pe</a> Michael Gallagher E-mail: <a href="mailto:michaelgallagher2@compuserve.com">michaelgallagher2@compuserve.com</a>	<a href="#">GOBI - Submission 3 - A Review of Small Cetaceans from Waters off the Arabian Peninsula</a>
	Robert Baldwin, E-mail: <a href="mailto:wosoman@gto.net.om">wosoman@gto.net.om</a> Michael Gallagher E-mail: <a href="mailto:michaelgallagher2@compuserve.com">michaelgallagher2@compuserve.com</a> Koen van Waerebeek e-mail: <a href="mailto:kvwaere@mail.cosapidata.com.pe">kvwaere@mail.cosapidata.com.pe</a>	<a href="#">GOBI - Submission 4 - A Review of Cetaceans from Waters off the Arabian Peninsula</a>

	Gillian T. Braulik et al. E-mail: <a href="mailto:GillBraulik@downstream.vg">GillBraulik@downstream.vg</a>	<a href="#">GOBI - Submission 5 - Marine Mammal Records from Iran</a>
	Peter J. Corkeron, Gianna Minton, Tim Collins, Ken Findlay , Andrew Willson , Robert Baldwin	<a href="#">GOBI - Submission 6 - Spatial models of sparse data to inform cetacean conservation planning: an example from Oman</a>
	Costa M., Cesario A., Fumagalli M., Heinrich S. and Notarbartolo di Sciara	<a href="#">GOBI – Submission 7 - Abundance of dolphins in the southern Egyptian Red Sea</a>
	Dr. Hamed Mohammed Al Gheilani Marine Science and Fisheries Center Ministry of Fisheries Wealth Muscat, Oman Email: <a href="mailto:asadalaqidah@gmail.com">asadalaqidah@gmail.com</a>	<a href="#">GOBI – Submission 8 – Whales and Dolphins in Arabian Sea: Arabian Sea Survey (2007-2008)</a>
	Giuseppe Notarbartolo di Sciara et al.	<a href="#">GOBI - Submission 9 - Summary review of cetaceans of the Red Sea</a>
	Cristina Pomilla, Ana R. Amaral, Tim Collins, Gianna Minton, Ken Findlay, Matthew S. Leslie, Louisa Ponnampalam, Robert Baldwin, Howard Rosenbaum	<a href="#">GOBI - Submission 10 - The World's Most Isolated and Distinct Whale Population? Humpback Whales of the Arabian Sea</a>
	Kumaran Sathasivam 29 Jadamuni Koil Street, Madurai 625001, India	<a href="#">GOBI – Submission 11 - A Catalogue of Indian Marine Mammal Records</a>
GOBI	Compiled by the acting secretariat on Important Marine Mammal Areas (IMMAs) and the IUCN Joint SSC-WCPA Marine Mammal Protected Areas Taskforce (MMPATF)	<a href="#">GOBI – Submission 12 - Submission of marine mammal information for the assistance in identifying Ecologically or Biologically Important Marine Areas (EBSAs) at the Northwest (Dubai) and North-east (Colombo) EBSA Regional workshops 2015</a>
Manta Trust	Stevens, G., Fernando, D. and Ender, I.	<a href="#">Manta Trust - Submission 1- Submission of information on mobulid species in support of the Northeast (Dubai) and Northwest (Colombo) Indian Ocean EBSA workshops</a>
Regional Organization for the Conservation of the Environment	PERSGA	<a href="#">Submission 1 - State of the Marine Environment - Red Sea and Gulf of Aden 2006</a>
	NCWCD and PERSGA	<a href="#">Submission 2 -KSA - Mangrove Map Distribution 2010</a>

of the Red Sea and Gulf of Aden (PERSGA)	PERSGA	<a href="#">Submission 3 - Status of Mangroves in Red Sea and Gulf of Aden, 2004</a>
	PERSGA	<a href="#">PERSGA - Submission 4 - Status LMR in Red Sea and Gulf of Aden</a>
	PERSGA	<a href="#">PERSGA - Submission 5 - Status of Breeding Seabirds in Red Sea and Gulf of Aden</a>
	PERSGA	<a href="#">Submission 6 - Status of coral reefs in Red Sea and Gulf of Aden 2009</a>
Regional Organization for the Protection of the Marine Environment (ROPME)	ROPME	<a href="#">ROPME - Submission 1-ROPME Oceanographic Cruise - Winter 2006</a>
	ROPME	<a href="#">ROPME- Submission 2-ROPME State of the Marine Environment Report 2013</a>