

**Template for Submission of Scientific Information
to Describe Areas Meeting Scientific Criteria for
Ecologically or Biologically Significant Marine Areas**

Title/Name of the area: Daran-Jiwani Area- Islamic Republic of Pakistan

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Abstract (*in less than 150 words*)

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.

Introduction

(To include: feature type(s) presented, geographic description, depth range, oceanography, general information data reported, availability of models)

Daran-Jiwani area is located at the extreme western part of Pakistan. It consists of a rocky headland which has sandy patches in between. There are two major population centres in the area i.e. Jiwani which is the main settlement of the area is located on the northern side of the headland. It is also an important fisheries centre having a large fleet of small and medium size boats. Daran is a small settlement which is famous for turtle nesting. Daran sandy beaches are divided into five regions which are separated by cliffs. Daran Taak, Shahid Taak, Jangan Taak, Deedlo Taak and Charlo. Each of these regions extends to about 1.5 to 2.0 km. Turtle nests are found in each of these regions. Jiwani headland also consists of high to low cliffs and stretches of sandy beaches among them. The rocky platform in the west of Jiwani town is extremely rich in marine invertebrate diversity.

The continental shelf is very narrow in Daran-Jiwani area which is influenced by the repeated reversal of monsoon which causes deep convective mixing especially during the north-east monsoon bringing nutrient rich water to the surface supporting high productivity in the Arabian Sea (Mara and Barber, 2005; Wiggert *et al.*, 2000). The wave action, for most part of the year is intense especially during southwest monsoon (mid May to mid September), however, during the rest of the period the sea conditions remain calm or with moderate wave action. During November and February the current in the area flows in anticlockwise direction whereas during the remaining part of the year it is clockwise. There is no major river that discharges in the area.

The area is known especially for turtle nesting ground at Daran and for high biodiversity of invertebrates on the rocky platforms and cliffs in the area. Because of its importance and sensitive nature of the habitat, there is a need for it to be recognized as an EBSA.

Location

(Indicate the geographic location of the area/feature. This should include a location map. It should state if the area is within or outside national jurisdiction, or straddling both.)

Daran-Jiwani area is located entirely within the jurisdiction of Islamic republic of Pakistan..



Fig. 1. Map of Daran-Jiwani Area – Islamic Republic of Pakistan.

Feature description of the proposed area

(This should include information about the characteristics of the feature to be proposed, e.g. in terms of physical description (water column feature, benthic feature, or both), biological communities, role in ecosystem function, and then refer to the data/information that is available to support the proposal and whether models are available in the absence of data. This needs to be supported where possible with maps, models, reference to analysis, or the level of research in the area)

Because of the typical sandy and rocky nature of the area support a variety of invertebrate including a number echinoderms, molluscs and polychaetes. Ahmed *et al.*, (1982) described the distribution of marine animals on rocky and sandy shore of Jiwani area. Noteworthy among the invertebrates found in the area includes comatulids feather star (*Lamprometra palmata*), bivalve (*Brachidontes pharaonis*) and pearl oyster (*Pinctada margaritifera*) besides a large number of sea cucumbers, molluscs, oyster and worm are found of these rocky shore. On sand shore in the area a large number of bivalves and crustacean are found.

Sandy shores of Daran are known especially for the nesting of green turtles (*Chelonia mydas*). Nesting of green turtles starts in August and continue till March with peak between August and November (Waqas *et al.*, 2011). It was observed that upto 312 turtles (2006 data) may come for nesting on the Daran beaches. According to Khan (2013) from October 2007 through April 2011, a total of 2,580 nests were protected, from which ~26,000 hatchlings were safely released to the sea. The 3,368 eggs laid in November 2008 was the highest number of eggs laid in a month. The clutch size varies between 78 to 120 per nest. Incubation period ranges between 55 to 104 days depending on the temperature.

Khan (2013) has traced migration of turtle through satellite tracking which revealed that there is daily movements of marine turtles between the Jiwani and Iranian Coast. The most visited sites were Jiwani and Bandar Abbas, with turtles remaining for about 1.5 to 2 months in these areas. Two turtles, one tagged on Astola Island and one at Daran, travelled as far as UAE and appeared near Umm Al Quwain. The westward movements of the turtles were successfully tracked to Iran, Iran, Qatar and UAE.. The eastward movements of two tagged turtles were tracked till east coast of India. The turtles

traveled along the Makran Coast and reached the Sindh Coast in Karachi, from where these travelled to the east coast of India

The population of green turtle coming to lay eggs of Daran beach is decreasing which may be attributed to increase traffic of fishing boats in the area. Speed boats are being increasingly used by fishermen which are known to strike green turtles swimming on the surface of the sea. Similarly instances of oil and bilge released by the fishing boats and other ships were observed to increased in the past few years. Jackals, foxes and feral dogs are known to be main predators of turtle eggs. They have been observed to regularly dig the nests and have a feast on eggs. Sea gulls and ghost crabs are main predators of hatchlings.

Although studies have been made on the turtle nesting (Khan, 2013; Waqas *et al.*, 2011) still a number of facets of life history of green turtles are not known which requires a planned and detailed study which will help in developing a management plan for marine turtles..

Feature condition and future outlook of the proposed area

(Description of the current condition of the area – is this static, declining, improving, what are the particular vulnerabilities? Any planned research/programmes/investigations?)

Considering that Daran-Jiwani area are important in term of biodiversity and as important green turtle nesting beach, there is a need to carry out detailed study in the area. A programme for the protection of turtle nesting was initiated with the local community of Daran as well as motivate and raise the awareness in the local community, capacity building and training, and by providing incentives to enhance community development activities. This programme has helped in protection of the nesting of turtles, however, because of lack of financial support this programme has now stopped. The need for continuing programme for turtle conservation at this beach is necessarily required. It has been observed that in recent past turtle nesting has considerable dropped in the area.

The information about marine biodiversity in the area is highly limited and with the exception of Ahmed *et al.* (1982) no study documents diversity of marine animals and plants on rocky and sandy shore of Daran-Jiwani area. Because of developmental activities planned in the area which include establishment of a model city at Jiwani, there is need to document the diversity profile of the area and it may be ensured that developmental activities in the area may not affect biodiversity of the area and nesting grounds of green turtles.

Assessment of the area against CBD EBSA Criteria

(Discuss the area in relation to each of the CBD criteria and relate the best available science. Note that a proposed area for EBSA description may qualify on the basis of one or more of the criteria, and that the polygons of the EBSA need not be defined with exact precision. And modeling may be used to estimate the presence of EBSA attributes. Please note where there are significant information gaps)

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No information	Low	Medium	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				X
<i>Explanation for ranking</i> (unique, rare, endemic, populations or communities). Habitat of Jiwani for marine invertebrates including comatulids feather star (<i>Lamprometra palmata</i>), bivalve (<i>Brachidontes pharaonis</i>) and pearl					

oyster (<i>Pinctada margaritifera</i>) make the area as unique. Green turtle nesting is another biological activity restrictive to only a few beaches of Pakistan.					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.				X
<i>Explanation for ranking</i> Green turtle nesting makes Daran-Jiwani area as area of special importance for their life history.					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.			X	
<i>Explanation for ranking</i> Green turtles are considered to be endangered, therefore, their protection and protection of the habitat are warranted					
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.		X		
<i>Explanation for ranking</i> Considering that most of the invertebrate species including comatulids feather star (<i>Lamprometra palmata</i>), bivalve (<i>Brachidontes pharaonis</i>) and pearl oyster (<i>Pinctada margaritifera</i>) are not reported from other areas of Pakistan, therefore, their restrictive distribution make them vulnerable and need recognition of the area as EBSA.					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.		X		
<i>Explanation for ranking</i> The area is highly productive which is indicative from the nesting of turtles and abundance of marine invertebrates.					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.		X		
<i>Explanation for ranking</i> Biological diversity is reflected from the fact that a number of species of invertebrates are found only on the Daran-Jiwani area although biodiversity profile of the area are not known.					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.			X	
<i>Explanation for ranking</i> The population in the area is not very large. With exception of construction in and around Jiwani, the most of the area of Daran-Jiwani (about 85 % of the area) is in natural form with any influence of human being.					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High
<i>Add relevant criteria</i>					
<i>Explanation for ranking</i>					

References

(e.g. relevant documents and publications, including URL where available; relevant data sets, including where these are located; information pertaining to relevant audio/visual material, video, models, etc.)

Ahmed, M., S. H. Niaz Rizvi and M. Moazzam. 1982. The distribution and abundance of intertidal organisms on some beaches of Mekran coast in Pakistan (Northern Arabian sea). *Pakistan Jour. Zool.* 14: 175-184.

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Waqas, U., Hasnain, S. A., Ahmed, E., Abbasi, M., & Pandrani, A. 2011. Conservation of Green Turtle (*Chelonia mydas*) at Daran Beach, Jiwani, Balochistan. *Pakistan. J. Zool.* 43: 85-90.

Wiggert J.D., Jones B.H., Dickey T.D., Brink K.H., Weller R.A., Marra J. and L.A. Codispoti, 2000. The Northeast Monsoon's impact on mixing, phytoplankton biomass and nutrient cycling in the Arabian Sea. *Deep-Sea Res. II* 47: 1353–1385.

Maps and Figures

Fig. 1. Map of Siniya Island.

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