

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

**Title/Name of the area: Astola Island, Balochistan, Pakistan**

**Presented by: Umair Shahid, WWF-Pakistan, North Indian Ocean Coordinator,  
[ushahid@wwf.org.pk](mailto:ushahid@wwf.org.pk)**

**Abstract** (*in less than 150 words*)

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.

**Introduction**

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

Astola, also known as Haptalar is an island (25° 6' - 25° 7' N; 63° 52' - 63° 54' E) lying about 16 miles off the coast and about 26 miles from Pasni. It is approximately about 5 km from east to west and about 1.5 km wide. It is the only significant offshore island along the north coast of the Arabian Sea. It has cliffs all round and the cliffs drop onto the beach below. The cliffs rise perpendicularly out of the sea except at a point about the centre of the north side where there is a little sandy point, in the north west corner at the bottom is a small sandy beach. The Baloch call the island "Haptalar" because "hapt" means seven and "talar" means rocky slab or strata in Baluchi language and the name may have reference to them.

There are no permanent structures on the island, except for a small shrine and prayer yard built on the coast by the fishermen for a legendary absent holy man or 'Ghaib peer'. The holy man has never been seen, but fishermen's lore maintains that he visits the area occasionally and offers prayers in the prayer yard. There is also a small temporary temple or 'kutcha mandir' for Hindu worshippers. A small solar operated beacon exists on top of the cliff for the safety of navigators.

Since the island is not easily accessible, the only people who frequent it on a regular basis are fishermen. The fishermen belong to a community who have traditionally fished for generations and find it difficult to conceive of any other mode of earning a living. They have been unconsciously responsible for many of the threats disturbing the delicate ecological balance of Astola, showing that ignorance is the main cause of the island's ecological decline of recent years. The fishing seasons are from September to November, December to February and March to May. In June to August (monsoons) the seas are too rough to risk fishing. Fishermen come from Pasni and the surrounding areas in September to November, from Sonmiani, Karachi and Shah Bander in December to February. From March to May the island is used for temporary transit stays.

Vegetation here comprises halophytic plants which are permanent, indicating the saline nature of the soil, and seasonal plants which flourish after the rains. 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. Small terrestrial mammals like rodents once inhabited the island in great numbers, until they became pests to the fishermen, as they destroyed the fishermen's nets. Consequently, in the 60's, domestic cats were introduced to the island by fishermen to reduce the number of rodents, with the disastrous effect of the cats becoming predators on the eggs of both birds and turtles. Seabirds now seem to have stopped nesting on the island altogether, whereas the effect on turtles' eggs has yet to be investigated. The cat population is between 12-15 and is not rising rapidly because of predation of adult males on young ones.

Many types of migratory and resident birds can be seen on Astola. Seabirds like gulls and terns and migratory waterfowl like egrets and herons are common in winter. Waterfowl migrate through the area twice a year, in spring and in autumn and use the island as a staging and wintering ground.

Resident passerine birds like Desert wheatear, Crested lark and warblers are commonly seen throughout the year. Indian coursers have also been seen running over the beach. The Sooty gull (*Larus hemprichii*) was reported by local fishermen to have nested on the island thirty years ago, but breeding was disrupted by the predation of cats on eggs and chicks. At present, there is no evidence of seabirds breeding on the island.

The seas off the island's coast are known to be pollution free and teeming with Demersal and Pelagic fish like catfish, mullet, croaker, pomfret, sardinella, tuna, sole, surmai and so on. Molluscs like oysters and crustaceans like lobster are a lucrative attraction for fishermen. Corals have been found washed up on the beach, indicating the possible presence of coral reefs, a possibility which merits exploration of the island's surrounding waters. Marine mammals like whales, dolphins and porpoises are reported to be seen in the surrounding waters seasonally.

## **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.)*

It is small, uninhabited island in the Arabian Sea in Pakistan's territorial waters, some 25 km south of Pakistan's nearest coastline and 39 km southeast of the Pakistani fishing port of Pasni.<sup>1</sup> Astola Island also called "Astole" is situated in Balochistan province of Pakistan. The Island is a part of Pasni sub-district of Gawadar District.<sup>2</sup> Astola Island is 39 km away from Pasni (Dr.Siddiqui. PJ). The Island is located at the latitude and longitude coordinates of 25° 7'21.51"N and Longitude 63°50'51.53"E.<sup>1</sup> (map)

## **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.*

---

<sup>1</sup> <http://pak-t-house.blogspot.com/2014/01/astola-island.html>

<sup>2</sup> Astola Island <http://www.pakistantoursguide.com/astola-island.html>

*This needs to be supported where possible with maps, models, reference to analysis, or the level of research in the area)*

The Island is approximately 4 km in length with a minimum width of less or equal to 1 km. its height point is 246 feet above sea level (, Sadia. A. H).<sup>1</sup> The Island consist of a large tilted plateau and a series of seven small hillocks (hence the locally called “Haft Talar” or “Seven Hills”)( Sadia. A. H)<sup>3</sup>. It is embellished with several natural caves and coves, the north face is cliff-like sharp vertical drop whereas south face of Island slopes off gradually, which provides suitable conditions for aquatic animal and plant communities (Dr.Siddiqui. PJ) survey). There is a Hindu temple on the north face of Astola Island and a Mosque as well (Sadia. A. H).

Fisheries Department is responsible for fishing activities within 12 nautical miles area for effective management; issuing and renewal of fishing license; prevent illegal fishing activity, providing support to stranded boats in the sea (Sadia. A. H). Fishing activity beyond 12 nautical miles is managed by marine mercantile department (Sadia. A. H). management of fishing activities is not under the Fisheries Department (Sadia. A. H). However, Fisheries Department is active in patrolling with rib boats at Gawadar, Pasni and Ormara, to prevent the illegal use of the nets and unlicensed boats (Sadia. A.H). any fishing boat caught with illegal activities are charged on the its mode of illegal activity or banned nets, according Fisheries Department officials, which add more than Rs 25 million per year in Balochistan Government (Sadia. A. H) Fishing gear; medium size of boats ranging from 22 to 27 feet use hook and line (200 to 300 hooks), ring net (300 to 400 feet in length), net and gun in fishing seasons at Astola Island (Sadia. A. H)

At least nine sites are identified as potential candidates for MPAs. Some of which have more than one important commodity that needs to be preserved. Three main sites suggested for immediate designation of MPA are Indus Delta, Astola Island and Miani Hor (Sonmiani Bay). Recent surveys report the presence of corals in many places along the coast, such as, off Mubarak village, Charna Island, Astola Island, Gwadar and Jiwani, and at least 35 or more species of hard corals have been found with no significant reefs at two locations (Charna and Astola islands). The distribution, diversity and abundance of corals in Pakistani waters. A total of 29 hard coral species (eight families and 14 genera), one black coral species and eight soft coral species (three families and seven genera) were recorded from 18 dive sites at nine locations along the coastline. Distribution of hard corals was extremely poor at Mubarak Village and Sandspit, and corals were not found at Goth Abdul Rehman, Gadani (Kuchiani) and Buleji. Moderately rich coral communities were recorded at Churna Island and at more exposed sites around Astola Island. By contrast highly diverse hard coral communities, with up to 80% cover, were found only at the northern sheltered side of Astola Island where *Favites complanata*, *Favites pentagona*, *Coscinaraea monile* and *Porites nodifera* were the most abundant species. *Favites complanata* was recorded from most dive sites at Astola Island. *Porites nodifera* and *Pocillopora damicornis*, and to a lesser extent *Porites harrisoni*, *Leptastrea pruinosa* and *Psammocora obtusangulata* formed large single species stands. No ‘true’ coral reef was found at any dive site; however, the formation of proto-reefs was evident around Astola Island. Soft corals were dominant at most exposed sites, particularly at Ormara (Roadrigues Shoals) and Jiwani (A. Ali et al, 2013).

Astola Island is another top candidate for MPA allocation. This site is also a Ramsar site for turtle and birds. Interestingly over 35 coral species have recently been identified (Rupert Ormond and P.J.A. Siddiqui, unpublished data). The island is uninhabited

---

<sup>3</sup> <http://pak-t-house.blogspot.com/2014/01/astola-island.html>

but local fishermen often visit this island to rest on their way. The anchoring of boats damages the corals and other organisms and hence this island becomes even more important site for MPA designation (category I/II) (P. Siddiqui et al, 2008). The area is also proposed for MPA and extending full protection to all cetaceans within the MPA (Gore et al, 2012).

The isolated Island helped in maintaining endemic life forms, the endangered Green Turtle , Hawksbill turtle nest on the beach, important area for endemic Astola Viper, and a large breeding site for water birds such as coursers, curlews, gulls, plovers, and sanderlings and the most is the home to coral reef<sup>3</sup>. the largest shrub on island is Prosopisjuli flora, introduced from South America in 1877<sup>3</sup>.

it was believed that corals do not occur in Pakistan. in year 2004, 25 species of scleractinian coral and 77 species of reef fish were discovered in four areas along the Balochistan coast in a preliminary survey (mangroves for future) . In June 15, 2009 about 30 species of hard corals and eight species of soft coral have so far been indentified along the Sindh- Balochistan coast, while five species await identification and extensive fossilised coral reefs along Jiwani, Gawadar and Cape Monze coast<sup>4</sup>. Among 18 surveyed sites, the Astola Island, the only site where diverse, rich patches of reefs have so far been discovered in shallow waters , identified as a 'Hotspot' of coral and fish diversity in Pakistan with evidence of proto-reef formation<sup>4</sup>.

in 1982, the Government of Pakistan installed gas-powered beacon on the island for safety of passing vessels, which later on replaced by solar-powered in 1987<sup>3</sup>

Fishing activities starts with more than 100 fishermen with outboard engines boats from September to May for catching lobsters and oysters and from June to August is off-season due to toughness and high tides behaviour of sea (1, (Dr.Siddiqui. PJ, Sadia. A. H)). lobster targeted monofilament, multifilament and multifilament nylon thread gillnets with large mesh size are operated in Astola Island waters while line gears are targeted for large fishes and troll-line are targeted demersal and large mackerel fishes (Dr.Siddiqui. PJ).

75 fin fish species from 36 families have been reported in the waters of Astola Island (P. Siddiqui, report). Astola Island is a diverse island in shellfish and finfish fisheries due to the flourishing of underwater coral reef community (Family; Albulidae, Ariidae, Ballistidae, Belonidae, Blenniidae, Bothidae, Carangidae, Carcharhinidae, Chaetodontidae, Chirocentridae, Clueidae, Cynoglossidae, Diodontidae, Ostaciidae, Drepanidae, Engraulidae, Gerridae, Haemulidae, Leioghathidae, Lethrinidae, Lutjanidae, Mugilidae, Nemipteridae, Platycephalidae, Plotosidae, Pomacentridae, Psettodidae, Scaridae, Sciaenidae, Scombridae, Scopaenidae, Serranidae, Signaidae, Sillaginidae, Sparidae, Sphyraeidae, Teraponidae, Trichiuridae) reported from a baseline survey of fish diversity in Astola Island (Dr.Siddiqui. PJ, ). fish catch during August to May major fish catch consisted of Gruit, Leather Jack, Grouper, Indian Mackerel, Lobster, crabs and shells. a boat catches around 2,479 kg of shells in a month. the amount of sea shells collectd by 12 fishing boat in nine months are 267,732 kg (Sadia. H. A). (table amount of fish, lobster and shells catch).

Copepods from the bulk of the zooplankton stock. Comparison between various sectors show maximum abundance in October from the slope water region along the western coast. The second largest abundance in October from the slope water region , but very low values in March 1968, from the shelf. In March 1967, the highest number was found near the western part of Astola Island (Haq et al, xxxx).

---

<sup>4</sup> Astola Island home to diverse coral community- <http://www.dawn.com/news/935087/astola-island-home-to-diverse-coral-community>

Astola Island, being isolated, the energy and efforts of fishermen become useless, they can not access the nearby market on the time. Consequently, due to the lack of space in small boats for sufficient ice and long journey of almost of one day back to jetty or nearer fish market, the by-catch finfish of lobster net are discarded in the water. the survival of by-catch finfish is very low to survive again in water, which lead these fish to wash off-shore ((Dr.Siddiqui. PJ)).

By-catch finfish in lobster targeted net are discarded because of limited ice (Dr.Siddiqui. PJ). Astola Island is qualified as Ramsar site on 10<sup>th</sup> May 2001(Sadia. A. H).Astola Island flourished with 35 hard corals and as important and natural nesting site for major marine endangered turtle species, Green turtle (*Chelonia mydas*) and Olive ridley, Hawks bill turtle (*Eretmochelys imbricata*), endemic reptiles such as viper (*Echis carinatus astoli*) and birds (PirzadaJ.A. Siddiqui, SumeraFarooq, SeemaShafique, Zaib-un-NisaBurhan, ZafarFarooqi , Sadia. A.H)

The interaction of cetaceans; bottlenose, spinner dolphin, finless porpoise, sperm, fin, bryde’s and cuvier’s beaked whales and orca are recorded from eastern and off shore water of Balohistan. (Gore, Mauvis, Rupert Ormond, S. Kiani, U. Waqas, B. Hussain, J. Siddiqui and E. Ahmed ). A single pod of killer whale was observed off Astola Island, Balochistan (by MG), apparently pursuing rays beneath the survey boat. Their presence is in keeping with other records from the northwest Indian Ocean region, where it appears to be rare but widespread (Gore et al, 2012).

**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?)*

Astola Island is an eye-catching to invite eco-tourists camping, fishing and scuba diving expeditions and site for observing turtle breeding<sup>5</sup>. The wetland facing threat mainly from anthropogenic activities, oil pollution results from dumping of crude used oil, washing of tankers in sea and leakage of smuggled oil of Iran, turtle and its egg hunting, illegal fishing nets and trawling which decreased fish production, dumping of waste materials(ghost nets), mining of corals, are the future threats of socio-economical and ecological threats of Island (Sadia. A. H)

**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)*

<b>CBD EBSA Criteria</b> (Annex I to	<b>Description</b> (Annex I to decision IX/20)	<b>Ranking of criterion relevance</b> (please mark one column with an X)
---	---	---

<sup>5</sup> <http://pak-t-house.blogspot.com/2014/01/astola-island.html>

decision IX/20)		No information	Low	Medium	High
<b>Uniqueness or rarity</b>	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
<p><i>Explanation for ranking</i></p> <p>Astola Island is an important site for endangered turtle species (<i>Chelonia mydas</i> and <i>Eretomchely imbracta</i>) and for endemic species such as viper (<i>Echis carinatus astoli</i>) (Pirzada J.A. Siddiqui, Sumera Farooq, Seema Shafique, Zaib-un-Nisa Burhan, Zafar Farooqi, Sadia. A.H)</p> <p>At least nine sites are identified as potential candidates for MPAs. Some of which have more than one important commodity that needs to be preserved. Three main sites suggested for immediate designation of MPA are Indus Delta, Astola Island and Miani Hor (Sonmiani Bay). Recent surveys report the presence of corals in many places along the coast, such as, off Mubarak village, Charna Island, Astola Island, Gwadar and Jiwani, and at least 35 or more species of hard corals have been found with no significant reefs at two locations (Charna and Astola islands). The distribution, diversity and abundance of corals in Pakistani waters. A total of 29 hard coral species (eight families and 14 genera), one black coral species and eight soft coral species (three families and seven genera) were recorded from 18 dive sites at nine locations along the coastline.</p> <p>The interaction of cetaceans; bottlenose, spinner dolphin, finless porpoise, sperm, fin, bryde’s and cuvier’s beaked whales and orca are recorded from eastern and off shore water of Balochistan. (Gore, Mauvis, Rupert Ormond, S. Kiani, U. Waqas, B. Hussain, J. Siddiqui and E. Ahmed ). A single pod of killer whale was observed off Astola Island, Balochistan (by MG), apparently pursuing rays beneath the survey boat.</p>					
<b>Special importance for life-history stages of species</b>	Areas that are required for a population to survive and thrive.			X	
<p><i>Explanation for ranking</i></p> <p>Astola Island is an important site for endangered turtle species (<i>Chelonia mydas</i> and <i>Eretomchely imbracta</i>) and for endemic species such as viper (<i>Echis carinatus astoli</i>) (Pirzada J.A. Siddiqui, Sumera Farooq, Seema Shafique, Zaib-un-Nisa Burhan, Zafar Farooqi, Sadia. A.H)</p>					
<b>Importance for threatened,</b>	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant				X

<b>endangered or declining species and/or habitats</b>	assemblages of such species.				
<i>Explanation for ranking</i>					
<p>Astola Island is an important site for endangered turtle species (<i>Chelonia mydas</i> and <i>Eretomchely imbracta</i>) and for endemic species such as viper (<i>Echis carinatus astoli</i>) (Pirzada J.A. Siddiqui, Sumera Farooq, Seema Shafique, Zaib-un-Nisa Burhan, Zafar Farooqi, Sadia. A.H)</p> <p>At least 35 or more species of hard corals have been found with no significant reefs at two locations (Charna and Astola islands). The distribution, diversity and abundance of corals in Pakistani waters. A total of 29 hard coral species (eight families and 14 genera), one black coral species and eight soft coral species (three families and seven genera) were recorded from 18 dive sites at nine locations along the coastline.</p>					
<b>Vulnerability, fragility, sensitivity, or slow recovery</b>	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.				<b>X</b>
<i>Explanation for ranking</i>					
<p>At least 35 or more species of hard corals have been found with no significant reefs at two locations (Charna and Astola islands). The distribution, diversity and abundance of corals in Pakistani waters. A total of 29 hard coral species (eight families and 14 genera), one black coral species and eight soft coral species (three families and seven genera) were recorded from 18 dive sites at nine locations along the coastline.</p>					
<b>Biological productivity</b>	Area containing species, populations or communities with comparatively higher natural biological productivity.	<b>X</b>			
<i>Explanation for ranking</i>					
<b>Biological diversity</b>	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.				<b>X</b>
<i>Explanation for ranking</i>					
<p>Birds, Reptiles, Cetaceans, Large Mammals on the island are inhabitants including sparse vegetation.</p>					
<b>Naturalness</b>	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.				<b>X</b>

*Explanation for ranking*

There are no settlements on the island, apart from some temporary settlements for fishers but no permanent structures are present.

**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.)*

1. Dr.Siddiqui. PJ, REPORT BASELINE SURVEY OF FISHDIVERSITY AT ASTOLA ISLAND, BALOCHISTANJAN 2011, Pakistan Wetland Program, Centre of Excellence in Marine Biology, University of Karachi
2. Sadia. A. H, SOCIO-ECONOMIC BASELINE REPORT, ASTOLA ISLAND, 2011, Pakistan wetlands programme.
3. Gore, Mauvis, Rupert Ormond, S. Kiani, U. Waqas, B. Hussain, J. Siddiqui and E. Ahmed, OCCURRENCE AND COVERSTION OF CETACEANS IN THE COASTAL WATERS OF PAKISTAN, Report of the Indian Ocean Cetacean Symposium 2009; p22
4. Pakistan: NATIONAL STRATEGY AND ACTION PLAN FOR MANGROVES FOR FUTURE, JANUARY 2010; 9
5. PirzadaJ.A. Siddiqui, SumeraFarooq, SeemaShafique, Zaib-un-Nisa Burhan, ZafarFarooqi, COVERSTION AND MANAGEMENT OF BIODIVERSITY IN PAKISTAN THROUGH THE ESTABLISHMENT OF MARINE PROTECTED AREAS, ScienceDirect Ocean and Coastal Management 51 (2008) 377-382
6. Mirza MI, Hassan MZ, Akhtar S, Ali J, Sanjrani MA. Remote sensingsurvey of mangrove forest along the coast of Balochistan. In:Thomposon MF, Tirmizi NM, editors. Marine science of the ArabianSea. Washington, D.C.: AIBS; 1988. p. 339e48
7. Saifullah SM. Mangrove ecosystem of Pakistan. In: The third research on mangroves in Middle East. Tokyo: Japan Cooperation Centre for Middle East; 1982. p. 69e80. Publication no. 137.
8. Saifullah SM, Shaukat JS, Shams S. Population structure and dispersion pattern in mangroves of Karachi, Pakistan. Aquatic Botany 1994;47.
9. Siddiqui MN, Maajid S, Jamil Z, Afser J. Use of SRS data for monitoring mangrove ecosystem of Sindh. In: Ahmed VU, editor. Arabian Sea as a resource of biological diversity. Proceedings of National ONR Symposium. HEJ Research Institute of Chemistry, University of Karachi; 2000. p. 241e5.

10. M. Zaheer Khan, Syed Ali Ghalib, and Babar Hussain (2010) Status and New Nesting Sites of Sea Turtles in Pakistan. *Chelonian Conservation and Biology*: June 2010, Vol. 9, No. 1, pp. 119-123.
11. S.M. Haq, J. Ali Khan, and S. Chughtai (xxxx); The Distribution and abundance of Zooplankton along the coast of Pakistan during post-monsoon and pre-monsoon periods. *The biology of the Indian Ocean ecological studies volume 3*, 1973, pp 257-272.
12. Amjad Ali, Rupert Ormond, Wera Leujaka, Pirzada Jamal Siddiqui (2013); distribution, diversity and abundance of coral communities in the coastal waters of Pakistan. *Journal of the marine biological association of United Kingdom*, Volume 94/Issue 01/February 2014, pp 75-84
13. Ahmed, M.F. and Ghalib, S.A. 1975. A checklist of mammals of Pakistan. *Rec. Zool. Surv. Pak.* 7: 1–34.
14. Ahmed, M.F. and Rizvi, S.N.H. 1985. Stranding of a humpback whale (*Megaptera novaeangliae*, Borowski 1781) on the Sind coast. *Rec. Zool.Surv. Pak.* 10(1, 2): 111–12
15. Ali, I. and Jilani, S. 1995. Study of contamination in the coastal waters of Karachi. pp.653–58. *In*: Thompson, M.F. and Tirmizi, N.M. (eds). *The Arabian Sea: Living Marine Resources and the Environment*. Vanguard Books (PVT) Ltd., Lahore, Pakistan.
16. Umer Waqas, Syed Ali Hasnain, Ejaz Ahmed, Mustapha Abbasi, and Ataulah Pandrani (2011); Conservation of green turtle at Daran beach, Jiwani, Balochistan. *Pakistan journal of zoology*, Vol 43(1), pp 85-90

## Maps and Figures



**Figure 1: A view of Astola Island**



**Figure 2: An aerial of the Astola Island**

1- distance from Astola Island to Pasnicoastline



2- length of Astola Island



### 3- width of Astola Island



Table;

#### License and Renewal Fee For Different Sized Boats (Sadia. H.A)

**Table 3: License and license renewal fee for different sized boats**

No	Boat Size (Feet)	License / License Renewal Fee (Rs/Year)
1	12 to 19	100
2	20 to 34	200
3	35 to 54	1,000
4	More than 55	1,500

(Source: Socio-economic Survey, January 2011)

#### Fishing Gears used for Fishing near Astola (Sadia. H.A)

**Table 4: Fishing gears used for fishing at a time near Astola**

Fishing Gear	Sample Number		Estimated Number for all Boats
	Total	Average	
Fishing Rods	29	3.2	42
Ring Net	4	0.4	6
Net	16	1.8	16
Gun	1	0.2	3

(Source: Socio-economic Survey, January 2011)

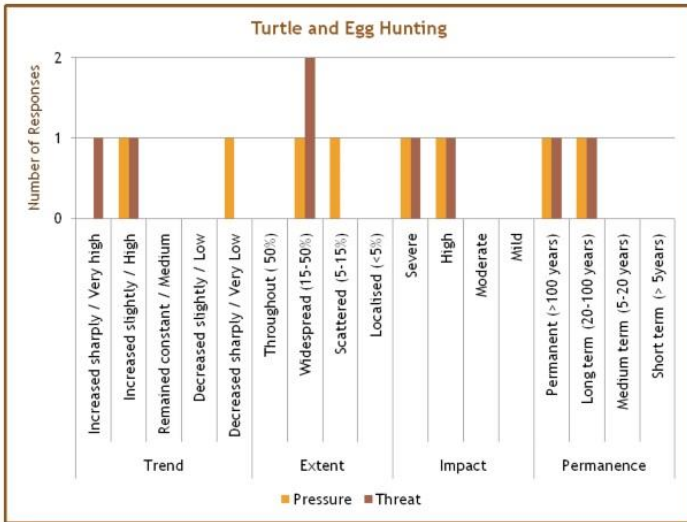
#### Amount of Fish, Lobster and Shells catch (Sadia. H.A)

**Table 7: Amount of fish, lobster and shells caught**

Local Name	English Name	Fishing Months	Average Monthly catch per Boat (kg)	Average Price (Rs/Kg)
Dohtar	Grimit	August to May	6,667	300 - 400
Aal	Leather Jack	August to May	3,000	500 - 600
Kalancho (Small size)		August to May		350
Ghisr (Large size)	Grouper	September to November	2,042	250
Bangra	Indian Mackerel	August to May	20,667	60 - 80
Gund	N/A	August to May	3,000	200
Lobister	Lobster	September to November & March to May	50 - 60	2,700
Sipian	Shells	August to May	2,479	40 - 100

(Source: Socio-economic Survey, January 2011)

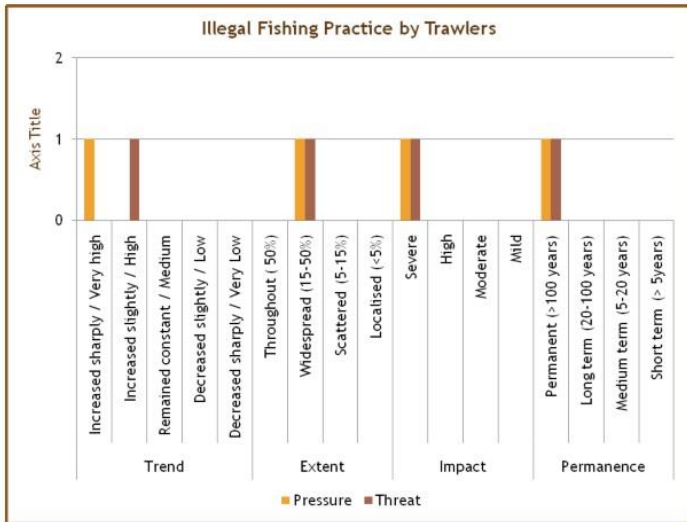
#### Turtle and Egg Hunting (sada.H.A)



(Source: Socio-economic Survey, January 2011)

Graph 2: RAPPAM assessment for turtle and egg shell hunting

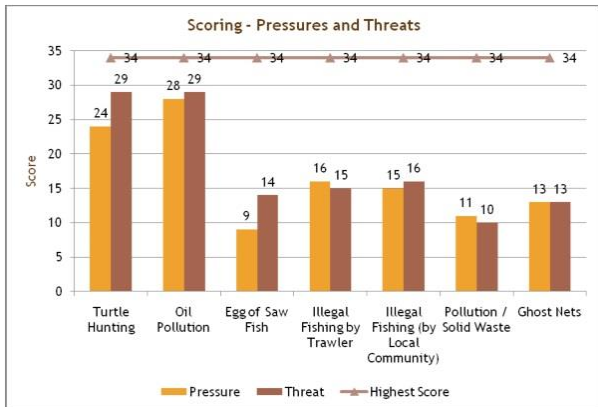
### Illegal Fishing Practices (Sadia.H.A)



(Source: Socio-economic Survey, January 2011)

Graph 3: RAPPAM assessment illegal fishing practice by trawlers

### Scoring of Threats at Astola Island (Sadia.H.A)



(Source: Socio-economic Survey, January 2011)

Graph 5: Scores given to pressures and threats

**Rights and permissions**

*(Indicate if there are any known issues with giving permission to share or publish these data and what any conditions of publication might be; provide contact details for a contact person for this issue)*

Rights and permission is provided for use of data. All data is published presented in this proposal. For further queries Rab Nawaz (Director WWF-Pakistan) may be contacted at [rnawaz@wwf.org.pk](mailto:rnawaz@wwf.org.pk).