SURVEY OF SEA TURTLE ON PIRAM ISLAND

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Abstract: Piram Island is situated between 21°35'56"N longitude 72°21'8"E latitude, 7.2 nautical miles off from Ghogha port of Bhavnagar District. Piram measuring about 1.6 km x 0.8 km is situated in the Gulf of Khambhat. It is an ancient island rich in history, marine and archaeological wonders. Piram have evidence of pre-historic periods evolving over millions of years and a recorded history of more than 5000 years. Piram can rightly be called the "Jurassic Park" of India, where the Almighty has hidden his blueprint of the history in the form of fossils. The coast is mostly sandy and muddy with discontinuous rocky shore.

Introduction: Sea Turtles, while one of the most beautiful and graceful sea creatures are also one of the most endangered animal species in the world. Sea turtle are found all along the coast of India including Andaman, Nicobar and Lakshdweep Island. India, with a coastline of about 7,516 kms, is endowed with rich biodiversity. The Indian coast is crowned with five species of sea turtles viz. olive ridley (*Lepidochelys olivacea*), green turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imbricata*), loggerhead turtle (*Caretta caretta*) and leatherback turtle (*Dermochelys coriacea*). Among all the maritime state of India Gujarat has the largest coastline state. Among the five species; four species of sea turtle found in the Gujarat cost from that olive ridley (*Lepidochelys olivacea*), green turtle (*Chelonia mydas*) were reported to nest, while Leatherback (*Dermochelys coriacea*) and Hawksbill (*Eretmochelys imbricata*) were sighted occasionally (Bhaskar, 1978, Kar and Bhaskar, 1982 and Bhaskar 1984).

There are some direct and indirect threats to marine turtle and its habitat. Information reveled from the interviews of local peoples and fishermen that egg poaching and feral animal predation are common direct threats to marine turtle and their nesting area. While the habitat destruction, plantation, oil spillage, solid west pollution on beach, vessels traffic and beach armouring are indirect threats.

Frazier (1980) has discussed the threats to the sea turtles of Gujarat in terms of egg and animal poaching. The major threats to coastal ecosystem in Gujarat have been rapid industrialisation and urbanisation along the coast, Gujarat ranks second in industrial development among the Indian State. Gujarat also has highest ports in the country (one major, 11 intermediated and 29 minor ports).

In Gujarat, Satish Bhasker (1978), a pioneer field biologist surveyed thousands of kilometers including most of India's mainland beaches and island in search of sea turtle and their spoor. He noted that the only Olive ridley and Green turtle are common and nests in Gulf of Kutchchh. According to him the major threats to marine turtle was systematic egg collection by waghries and second was large scale mining of beach sand by cement companies.

All the sea turtle depends on the land for egg lay. So the beach characteristic is also very important factor to observe. Female turtle comes on beach and select the site for the nest. It is believed that the female are philopatry the site were it born and site selection by female turtle depends on characteristic of beach and surrounding environment. So the beach characteristic is to identify.

According to S.F.W. Sunderraj *et al.* (2002) Jamnagar and Katchchh Districts has highest nesting density, while Junagadh, Amreli and Bhavnagar District have very low nesting density. Overall rate of egg predation estimated in this study was 57 %, of which 36.2 % was by animal and 20.85 % by local people.

Objective:

The main objectives of the study are:

- Monitoring of nesting population of marine turtle
- Estimate annual nesting population
- Find out nesting season and peak nesting month of marine turtles
- Identify various threats and assess their magnitude to the turtles and their habitat.

Description of study site: The Gujarat state is located on the tropic of cancer; falls in subtropical climatic zone and has varied climate and climatic region. Gujarat has longest coastline in the country covering more than 1663 km area which makes 22 % of the total coastline of the country. Among the three gulf of nation; two were situated on the coastline of Gujarat viz; Gulf of Kachchh and Gulf of Kambhat. The biodiversity of Gulf of Kachchh is very well studied but the biodiversity of Gulf of Khambhat is poorly known.

The present monitoring was carried out Piram Island. Piram Island is situated between 21°35'56"N longitude 72°21'8"E latitude, 7.2 nautical miles off from Ghogha port of Bhavnagar district. The coast is mostly sandy and muddy with discontinuous rocky shore. As described by Satish Bhaskar; Piram Island is one of the important nesting grounds for the Olive ridley sea turtle.

Methodology:-Information from the literature and interviews with the fisher folk and local people

during the reconnaissance survey substantiated the occurrence and distibution of nesting beaches. Since the breeding season of olive redley and Green turtles typically occurs from June to January. Rapid survey was carried out to access the nesting population and identify potential nesting beaches. So the turtle will be continuously monitored during the nesting season and at regular interval during rest of the periods.

Study of flora: For the studying of vegetation standard methods was followed and we carried out by Quadrate method. On the basis of that method the density, abundance and frequency of plant in the study area were analyzed. For this, 10x10 m quadrates were laid at regular intervals of 200 meters. Plants were also collected in deferent seasons, preserved in form of herbarium and identified with the help of expert and standard literatures. Annexure -1 and 2.

Study of fauna: Potential habitat for marine turtle was identified on the bases of primary survey of all the study areas. These entire potential habitats then continuously monitored for the record of nesting moment. Peak nesting season which found from interviews of local people and from standard literatures was observed extensively for nesting activities.

Sign survey: To know the presence of other animal, sign survey was carried out. The foot prints, crawling pattern, burrow sand, old nests were signed for occurrence of marine turtle and other animals. It is important because predators of turtle should be determined from this survey.

Direct observation: Direct observation was carried out with the help of binoculars and spotting scope and all important events was recorded in the form of photographs.

Result and Discussion: The coast Piram Island is mostly sandy and muddy with discontinuous rocky shore. Sandy patches are potential nesting sites. The nesting beach at the Piram Island is hardly about 300 meter in length. 11 nests were observed in four day during the year of 1981. The island however assumes importance because day time nesting by olive ridley; a rare phenomenon elsewhere in India; is common there. Secondly island provides natural laboratory to monitoring nesting activity.

But in our study there is no any sign of sea turtle recorded. Information from the local people revealed that development of Alang ship breaking yards affect the turtle's activity. Gill net also one of the main reasons for the disappearance of turtles. The reasons may be, Vessels traffic and alteration of habitat have played significant role in disappearance of turtles from this place.

Annexure-1: Pre-monsoon floral diversity of Piram Island

Sr.no	Species	Density	Frequency (%)	Abundance
1	*Prosopis Chilensis*	4.32	100%	4.32
2	*Zoysia Matrella*	7.78	96	8.1
3	*Aeluropus Longopoides*	5.3	90	5.88
4	*Salvadora Persica*	0.31	21	1.29
5	*Cordia Gharaf*	0.12	11	1.09
6	*Acacia Nilotica*	0.53	45	1.17
7	*Aerva Javanica*	0.14	8	1.75
8	*Suaeda Sp.*	0.7	27	2.59
9	*Ficus Rocemosa*	0.04	4	1
10	*Aloe Barbadensis*	4.6	33	13.93

Annexure-2: Post-monsoon floral diversity of Piram Island

Sr.no	Species	Density	Frequency (%)	Abundance
1	*Prosopis Chilensis*	4.38	100	4.38
2	*Zoysia Matrella*	12.32	100	12.32
3	*Aeluropus Longopoides*	7.48	98	7.63
4	*Salvadora Persica*	0.31	21	1.29
5	*Cordia Gharaf*	0.12	11	1.09

6	*Acacia Nilotica*	0.53	45	1.17
7	*Aerva Javanica*	0.36	18	2
8	*Suaeda Sp.*	0.86	31	2.77
9	*Ficus Rocemosa*	0.04	4	1
10	*Aloe Barbadensis*	4.64	33	14.06
11	*Perenial Grass*	13.78	100	13.78
12	*Ipomoea Pes-Tigridis*	8.63	81	10.65
13	*Dactyloctenium Aegyptium*	2.83	8	35.37
14	*Brachiaria Sp.*	5.2	13	40
15	*Cenchrus Sp.*	7.8	28	27.85
16	*Digitaria Sp.*	6.25	33	18.93
17	*Vernonia Cinerea*	3.47	53	6.54
18	*Launnea Procumbens*	0.28	9	3.11
19	*Commelina Forskaolii*	22.17	63	35.19
20	*Chloris Barbata*	23.7	39	60.76
21	*Pedalium Murex*	6.9	47	14.68
22	*Cyperus Sp.*	5.7	23	24.78
23	*Tephrosia Purpurea*	28.6	73	39.46
24	*Achyranthes Aspera*	27.75	67	41.41
25	*Diplocyclos Palmantus*	1.08	21	5.14
26	Apluda Mutica	3.28	38	8.63
27	Clitorea Ternacia	2.09	31	6.74
28	*Barleria Prionitis*	5.28	11	4.8
29	*Coccinia Indica*	4.87	37	13.16
30	*Boerhavia Sp.*	1.8	12	15
31	Lagasca Mollis	3.9	33	11.81

Reference:

1. Bhaskar, S. 1984. The distribution and status of sea turtles in India. In: Proceedings of the workshop on sea turtle conservation (Ed. E.G. Silas). CMFRI Special Publication 18: 21-35.
2. Bhaskar, S., 1978. Note from the Gulf of Kutch. Hamadryad 3(3): 9-11
3. Frazier, J. 1980. Exploitation of marine turtles in the Indian Ocean.
4. Kar, C.S. & S. Bhaskar. 1982. The status of sea turtles in the eastern Indian Ocean. In: The Biology and Conservation of sea turtles (Ed. K.A. Bjorndal), pp. 365-372. Smithsonian Institution Press, Washington D.C., USA.

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