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## BIRDS POPULATION IN DIFFERENT COASTAL AREAS OF SINDH

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**ABSTRACT:** Coastal areas of Karachi and Thatta districts including Sandspit, Cape Monze, Gidyani, Korangi Creek, Pitti Creek, Rohri Creek, Shah Bunder, Sando Bunder and Ketti Bunder were surveyed. The coastal areas of Thatta (Shah Bunder, Sando Bunder and Ketti Bunder) are richly populated.

**KEY WORDS:** Avifauna, population, wildlife, Sindh.

### INTRODUCTION

The coastal areas of Karachi are interesting sites of birds. The Karachi coast stretches from Cape Monze to Korangi Creek and has different types of wetland habitats such as sandy, rocky and muddy beaches, estuaries, saline marshes and creeks as well as mangrove swamps.

The birds of the Karachi coast are known since more than one hundred years, but in a casual manner (Butler 1877, 1879, McLaren 1946, Ali and Ripley 1968-1974, Siddiqui 1969). Some recent preliminary work in this respect are of Khanum *et al.* (1980), Karim (1988), IUCN (1990) Robert (1991) Meltofte *et al.* (1994) Perennou *et al.* (1994) Husnain and Ghalib (1995) Hasnain (1996) and Main (1999).

### MATERIALS AND METHODS

The study was conducted from January 1990 to May 1993 at Shah Bunder, Keti Bunder, Sando Bunder, Sandspit, Cape Monze and Gidyani. The observations were round the clock. Identification has been made noting the external morphology (appearance), habitat impression, comparison, shape of external structures, measurements behaviour, flight and flock action, colour and field mark, plumage pattern and call notes. Population has been estimated through direct count or by simple numerical comparison method with the help of binocular. Often the Lincon's Index has been used to check the accuracy of count.

### OBSERVATIONS AND RESULTS

#### **Shah Bunder (Table I):**

The coastal area of Shah Bunder was visited in January and June during 1989-90 and February and June during 1991-92. The population of January 1990 was 573 belonging to 28 species as compared to 170 belonging to 17 species during June 1990. The population in the month of February 1992 was 596 (34 species) almost similar to that (573) recorded in January 1990 while 19 species constituted 203 birds in the month of June 1992 during the third survey.

**Keti Bunder (Table I):**

The coastal area of Keti Bunder was visited in January and February 1992. During the visit in the month of January, 21 species constituted only 141 birds as compared to 1095 (24 species) in February (1992).

**Sando Bunder (Table I):**

In the month of January and March 1992 the coastal area of Sando Bunder was surveyed. The population of birds during both the months was very rich. In the month of January the population was 8130 belonging to 36 species while the population of February decreased to 2131 belonging to 31 species.

**Sandspit (Table II):**

The coastal area of Sandspit was surveyed in the month of January (1991), December (1992) and May (1993). This sandy coastal area is about 32 km in the north-east of Karachi, thick vegetation of mangroves is characteristic of this area. 16 species constituted 5447 individuals in January (1991), 30 species constituted 4573 in the month of December (1992) but there were only 289 birds belonging to 15 species observed in May 1993.

**Cape Monze (Table II):**

This rocky coastal area is situated in the north-east of Karachi at a distance of some 48 km. The vegetational belt of this region is found in the subtidal continental shelf. There were only 30 individuals belonging to 8 species in January (1991) which increased to 155 (15 species) in December (1992) and 50 individuals in May (1993).

**Gidyani (Table II):**

The coastal area of Gidyani was visited only in the month of November 1992. The total population was 2417 belonging to 41 species.

**Korangi Creek (Table III):**

Korangi Creek was visited in November 1992 and February 1993. The population of November 1992 was 887 belonging to 36 species while the population of February 1993 was 1755 but the number of species was less (30).

**Pitthi Creek (Table III):**

The area was visited in the month of January and March 1993. The total population in both the months was almost similar, as there were 423 individuals in January and 425 in March but the number of species was 28 in January and 16 in March.

**Rohri Creek (Table III):**

This creek was surveyed in January 1993 only. The total population counted here was 4730 belonging to 41 species. The dominant species recorded from this creek was *Anas crecca* being 1500.

## DISCUSSION

The coast line of Pakistan is 880 km in length, constituting one of the most interesting ecosystems. The coastal areas could be divided into 2 regions, the first starting from the Persian Gulf upto Karachi (including Sandspit, Cape Monze, Gidyani) and second the southeast coast is from Karachi upto Indian border (including Shah Bunder, Ketti Bunder, Sando Bunder of Thatta district and Korangi, Pitti, Rohri creeks of Karachi). In the former, continental shelf is narrow after which there is steep decline. The sea bed is silted with patches of sand. It is rocky at several places as well. The latter is formed of a network of creeks and Delta of Indus river. The continental shelf in this region is broad, sloping gradually about 96 km off the coast as compared to 40 km in case of first region. Sandspit and Cape Monze are typically rocky shores, Gadyani is sandy, whereas Korangi, pitti and Rohri Creeks as well as Shah Bunder, Sonda Bunder and Keti Bunder are muddy areas with marsh lands and Mangrove forests.

Out of 573 birds observed in January 1990, the notable species of shore birds included *Tringa hypoleucos*, *T. ochropus*, *Sterna hirundo*, *S. albifrons* and *Larus ridibundus*. Occurrence of *Acipeter nisus*, *Buteo buteo*, *Haliaeetus leucoryphus* among birds of prey was specially remarkable. In June 1990, out of 170 birds only *Larus ridibundus*, *Sterna albifrons* and *Tringa ochropus* among aquatic birds and *Haliaeetus leucoryphus* among birds of prey were notable. In February 1992, among 596 birds *Plegadis falcinellus*, *Anas clypeata*, *Aythya ferina*, *A. fuligula* and *Fulica atra* were notable along with shore dwelling species of *Tringa totanus*, *Calidris minutus*, *Larus fuscus*, *L. ridibundus* and *Sterna albifrons*. In June 1992 only *Phoenicopterus minor*, *Larus ridibundus*, *Chlidonias hybrida* and *Buteo buteo* were notable out of 203 birds. Ketti Bunder (Table I) was surveyed in January and February 1992 only. In January there were only 141 birds whereas in February the population was 1095. Among shore birds, *Numenius arquata*, *Tringa hypoleucos*, *Calidris minutus*, *Larus ridibundus*, *Chlidonias hybrida* and *Sterna albifrons* were significant along with *Phalacrocorax carbo*, *Aythya ferina*, *A. fuligula*, observed in February 1992. Among birds of prey, 2 species *Buteo buteo* and *Pandion haliaetus* were notable. Sando Bunder (Table I) was visited in January and March 1992. In January there were 8130 birds whereas in March the population was 2131. In January, ducks *Anas crecca*, *A. platyrhynchos*, *A. clypeata*, *Aythya ferina* and *A. fuligula* were significant along with shore bird species of *Tringa totanus*, *T. hypoleucos*, *Larus ridibundus*, *L. fuscus*, *Calidris minutus* and *Sterna albifrons*. The notable species observed in March 1982 were *Aythya ferina*, *Tringa totanus*, *T. hypoleucos* and *Calidris minutus* as *Buteo buteo* among predator birds.

Sandspit and Cape Monze shores (Table II), were visited in January 1991, December 1992 and May 1993 whereas Gidyani beach was visited only in November 1992. In Sandspit, there were 5447 birds in January 1991, 4573 in December 1992 and 289 in May 1993. Among shore birds observed in this area *Charadrius alexandrinus*, *Tringa erythropus*, *Larus ridibundus* and *Sterna macrura* were notable during winters (January 1991 and December 1992). The population of *Larus ridibundus* and *Tringa erythropus* was remarkably large. In May *Ardeola grayii*, *Egretta gularis*, *Vanellus indicus*, *Charadrius alexandrinus*, *Tringa erythropus* and *Larus ridibundus*, though very few in numbers, were notable. In Cape Monze area, the bird population was extremely poor as only 30, 155 and

50 birds were observed in January 1991, December 1992 and May 1993 respectively. Among shore birds only *Larus ridibundus* was notable. In Gidyani (Table II), which was surveyed in November 1992 only, the bird population was 2417. *Pluvialis squatarola*, *Tringa totanus*, *T. nebularia*, *Calidris minutus* and *Larus ridibundus* were notable among shore birds. Korangi Creek (Table III) was visited in November 1992 (887 birds) and February 1993 (1755 birds). In November, *Calidris minutus*, *Larus ridibundus*, *Sterna albifrons*, *Phalacrocorax niger* and *Egretta garzetta* were notable, whereas in February 1993, occurrence of *Charadrius dubius*, *Haematopus ostralegus*, *Numenius arquata*, *Tringa erythropus* and *Larus ridibundus* was significant.

**Table I. Observation of birds in different coastal areas of Sindh province.**

MONTHS	Shah Bunder		Keti Bunder		Sando Bunder			
	Jan. 1990	June 1990	Feb. 1990	June 1992	June 1992	Feb. 1992	Jan. 1992	Mar. 1992
<i>Phalacrocorax carbo</i> (Large Cormorant)	3	-	5	-	3	14	6	57
<i>P. fuscicollis</i> (Indian Shag)	-	-	1	-	-	6	-	18
<i>P. niger</i> (Little Cormorant)	40	16	48	13	7	38	20	600
<i>P. pygmaeus</i> (Pygmy Cormorant)	-	-	25	-	19	-	-	-
<i>Ardea cinerea</i> (Grey Heron)	3	1	7	22	-	3	73	31
<i>A. purpurea</i> (Purple Heron)	5	-	2	4	-	1	26	9
<i>Ardeola grayii</i> (Pond Heron)	123	14	19	4	3	1	19	27
<i>Bubulcus ibis</i> (Cattle Egret)	36	21	6	23	1	7	31	-
<i>Egretta alba</i> (Large Cormorant)	-	-	2	-	-	-	18	5
<i>E. intermedia</i> (Median Egret)	15	-	3	1	-	2	7	13

<i>E. garzetta</i> (Little Egret)	24	9	7	6	26	8	54	19
<i>E. gularis</i> (Reef Heron)	5	-	3	2	1	4	18	3
<i>Plegadis falcinellus</i> (Glossy Ibis)	-	-	14	-	-	-	-	36
<i>Phoeniopterus roseus</i> (Rosy Flamingo)	-	-	3	-	2	-	130	23
<i>P. minor</i> (Lesser Flamingo)	-	-	7	21	1	-	136	51
<i>Anas acuta</i> (Pintail)	-	-	-	-	-	-	360	-
<i>A. crecca</i> (Common Teal)	-	-	-	-	-	-	1770	96
<i>Anas platyrhynchos</i> (Mallard)	-	-	-	-	-	-	890	-
<i>A. clypeata</i> (Shoveller)	-	-	70	-	-	-	450	-
<i>Aythya ferina</i> (Common Pochard)	-	-	165	-	-	675	1640	315
<i>A. fuligula</i> (Tufted Duck)	-	-	33	-	-	230	385	-
<i>Haliastur indus</i> (Brahminy Kite)	2	-	-	-	-	-	-	-
<i>Accipiter nisus</i> (Sparrow Hawk)	5	-	-	-	-	-	-	-
<i>Buteo buteo</i> (Buzzard)	4	-	-	9	7	4	-	16
<i>Aquila chrysaetos</i> (Golden Eagle)	2	1	-	-	-	-	-	-



<i>L. fuscus</i> (Black-backed Gull)	-	-	6	-	-	-	23	5
<i>L. ridibundus</i> (Black-headed Gull)	8	5	13	35	7	-	43	-
<i>Chlidonias hybrida</i> (Whiskered Tern)	22	6	17	26	11	8	68	41
<i>Sterna hirundo</i> (Common Tern)	28	-	6	11	2	-	23	8
<i>S. albifrons</i> (Little Tern)	34	16	23	6	9	15	72	30
<i>S. sandvicensis</i> (Sandwich Tern)	17	-	-	-	-	-	-	-
<i>Halcyon smyrnensis</i> (White breasted Kingfisher)	17	9	2	-	2	1	-	-
<i>Ceryle rudis</i> (Pied Kingfisher)	19	15	1	3	13	5	2	7
<i>Alcedo atthis</i> (Smal Kingfisher)	1	-	-	-	-	-	-	-
* <i>Gyps fulvus</i> (Griffon Vulture)	-	7	-	-	-	-	-	-
	573	170	596	203	141	1095	8130	2131

\* Not visited

- Not observed/recorded

**Table II. Observation of birds in different coastal areas of Sindh province.**

MONTHS	Sandspit			Cpe Monz			Gidyani
	Jan. 1991	Dec. 1992	May 1993	Jan. 1991	Dec. 1992	May 1993	Nov. 1992
<i>Phalacrocorax carbo</i> (Large Cormorant)	2	3	-	-	-	-	2
<i>P. niger</i> (Little Cormorant)	7	13	4	-	4	-	189
<i>P. pygmaeus</i> (Pygmy Cormorant)	-	3	-	-	-	4	40
<i>Ardea cinerea</i> (Grey Heron)	9	8	1	-	2	-	7
<i>A. purpurea</i> (Purple Heron)	-	-	-	-	-	-	2
<i>Ardeola grayii</i> (Pond Heron)	54	63	17	7	21	8	11
<i>Bubulcus ibis</i> (Cattie Egret)	-	-	-	-	-	2	8
<i>Egretta alba</i> (Large Egret)	2	3	-	-	-	-	-
<i>E. intermedia</i> (Median Egret)	-	4	-	-	-	-	11
<i>E. garzetta</i> (Little Egret)	25	31	4	1	24	9	26
<i>E. gularis</i> (Reef Heron)	68	62	13	5	33	5	19
<i>Plegadis falcinellus</i> (Glossy Ibis)	-	1	-	-	-	-	-
<i>Aythya ferina</i> (Common Pochard)	-	-	-	-	-	-	370
<i>Buteo buteo</i> (Buzzard)	-	-	-	-	-	-	6



<i>Aquila rapax</i> (Tawny Eagle)	-	2	-	-	-	-	1
<i>Aquila pomarina</i> (Lesser Spotted Eagle)	-	-	1	-	-	-	2
<i>Pandion haliaetus</i> (Osprey)	-	-	-	2	-	-	-
<i>Fulica atra</i> (Common Coot)	-	-	-	-	-	-	60
<i>Hydrophasianus chirurgus</i> (Pheasant-tailed Jacana)	-	-	-	-	-	-	12
<i>Haematopus ostralegus</i> (Oyster catcher)	-	40	-	-	-	-	18
<i>Vanellus indicus</i> (Lapwing)	15	17	12	3	11	6	16
<i>Pluvialis squaterola</i> (Grey Plover)	-	5	-	-	-	-	170
<i>Charadrius alexandrinus</i> (Kantish Plover)	1702	1160	35	-	4	-	28
<i>C. dubius</i> (Ringed Plover)	-	18	-	-	12	-	51
<i>Numenius phaeopus</i> (Whimbrel)	-	-	-	-	-	-	32
<i>N. arquata</i> (Curlew)	-	-	-	-	-	-	18
<i>Limosa limosa</i> (Black-tailed Godwit)	109	82	16	-	-	-	176
<i>L. lapponica</i> (Bar-tailed Godwit)	-	20	-	-	-	-	112
<i>Tringa erythropus</i> (Spotted Red Shank)	136	120	35	-	-	-	62
<i>T. totanus</i> (Red Shank)	-	13	4	-	2	-	340

<i>T. nebularia</i> (Green Shank)	-	7	-	-	-	-	116
<i>Tringa ochropus</i> (Green Sandpiper)	-	-	-	-	2	-	46
<i>T. hypoleucos</i> (Common Sandpiper)	-	4	-	-	-	-	68
<i>Calidris minutus</i> (Little Stint)	-	12	-	-	5	-	223
<i>Himantopus himantopus</i> (Black-winged Stilt)	22	16	8	-	4	-	8
<i>Larus argentatus</i> (Herring Gull)	-	4	-	-	-	-	21
<i>L. fuscus</i> (Black-backed Gull)	-	1	-	-	-	-	13
<i>L. ridibundus</i> (Black-headed Gull)	2976	2600	65	7	19	7	47
<i>Chlidonias hybrida</i> (Whiskered Tern)	-	5	-	-	-	-	36
<i>Hydroprogne caspia</i> (Caspian Tern)	4	-	-	-	-	-	19
<i>Sterna hirundo</i> (Common Tern)	-	-	6	-	-	7	8
<i>S. macrura</i> (Arctic Tern)	295	250	63	2	3	-	3
<i>S. albifrons</i> (Little Tern)	21	6	-	3	9	2	14
<i>Ceryle rudis</i> (Pied Kingfisher)	-	-	-	-	-	-	1
							5447
							4573
							289
							30
							155
							50
							2417

\* Not visited

- Not observed/recorded

In Pitti Creek (Table III) there were 423 birds in January and 425 in March 1993. Among shore birds, only *Larus fiscus*, *Chlidonias hybrida* and *Haematopus ostralegus* were notable besides other aquatic birds, such as *Phoenicopterus minor*, *Aythya ferina*, *A. fuligula*, *Ardea cinerea*, *Ardeola grayii* and *Phalacrocorax niger*. Rohri Creek, visited in January 1993, had a remarkable population of 4730 birds. Among ducks, *Anas crecca*, *A. platyrhynchos*, *A. clypeata*, *Aythya ferina*, *A. fuligula* and also *Phoenicopterus roseus* were significant. Among shore birds, *Tringa totanus*, *T. hypoleucos*, *Calidris minutus*, *Sterna albifrons*, *Larus argentatus*, *L. ridibundus* and *L. fuscus* were notable.

**Table III. Observation of birds in different coastal areas of Sindh province.**

MONTHS	Korangi Creek		Pitthi Creek		Rohri Creek
	Nov. 1992	Feb. 1993	Jan. 1993	Mar. 1993	Jan. 1993
<i>Podiceps ruficollis</i> (Little Grebe)	3	17	6	-	-
<i>Phalacrocorax carbo</i> (Large Cormorant)	18	1	-	-	4
<i>P. niger</i> (Little Cormorant)	42	21	24	11	13
<i>P. pygmaeus</i> (Pygmy Cormorant)	3	15	-	-	10
<i>Ardea cinerea</i> (Grey Heron)	1	-	4	19	24
<i>A. purpurea</i> (Purple Heron)	-	2	-	5	13
<i>Ardeola grayii</i> (Pond Heron)	23	19	14	6	21
<i>Bubulcus ibis</i> (Cattle Egret)	8	31	-	19	15
<i>Egretta alba</i> (Large Egret)	-	-	-	-	9
<i>E. intermedia</i> (Median Egret)	2	-	-	2	3

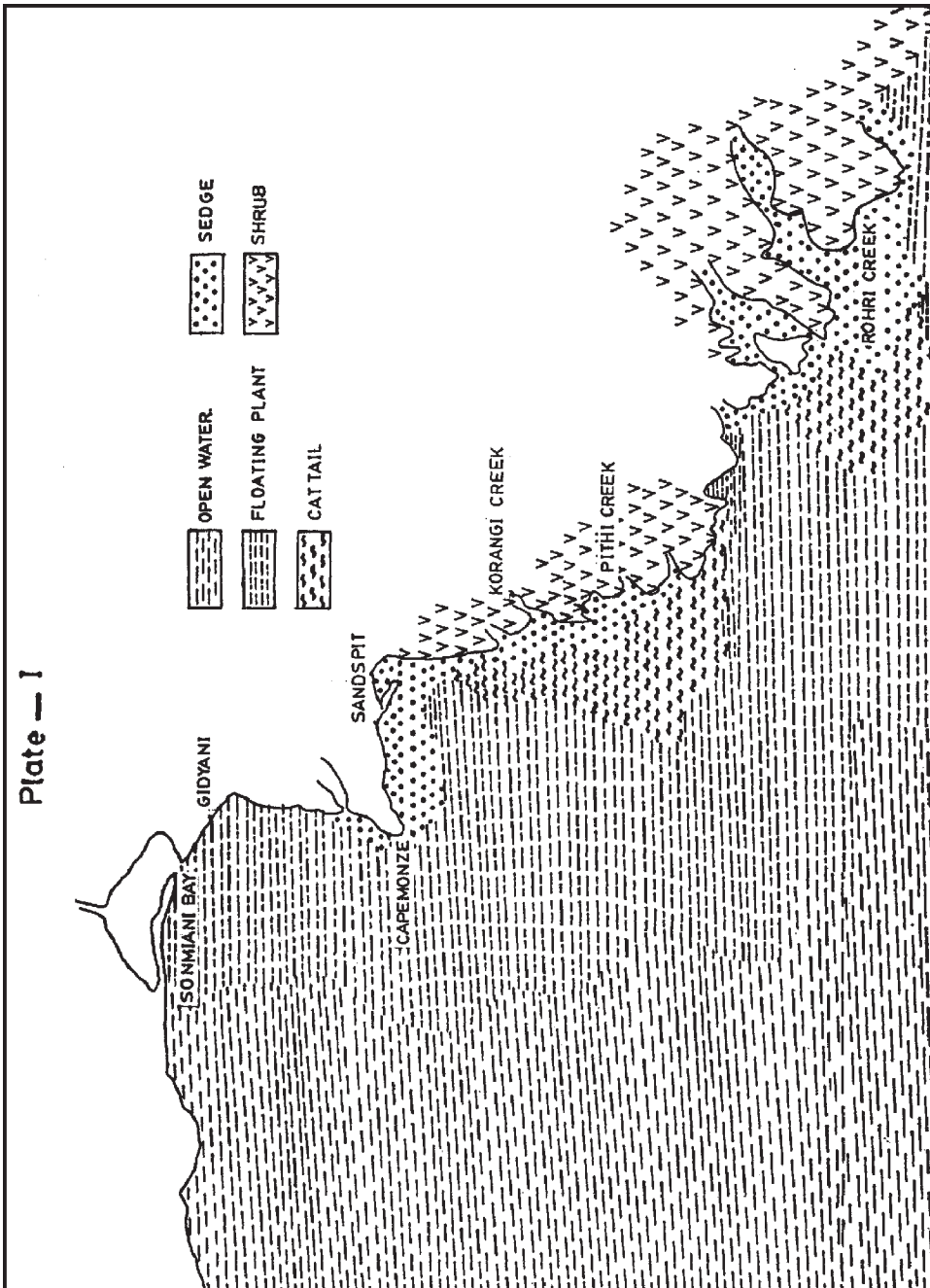
<i>E. garzetta</i> (Little Egret)	56	23	26	5	45
<i>Plegadis falcinellus</i> (Glossy Ibis)	-	13	-	-	2
<i>Phoenicopterus roseus</i> (Rosy Flamingo)	4	-	-	-	86
<i>P. minor</i> (Lesser Flamingo)	11	87	-	17	64
<i>Anas acuta</i> (Pintail)	-	-	-	-	150
<i>A. crecca</i> (Common Teal)	-	-	-	-	1500
<i>A. platyrhynchos</i> (Malard)	-	-	-	-	550
<i>Anas clypeata</i> (Shoveller)	-	-	-	-	235
<i>Aythya ferina</i> (Common Pochard)	-	-	48	-	830
<i>A. fuligula</i> (Tufted Duck)	-	-	61	-	165
<i>Haliastur indus</i> (Brahminy Kite)	1	-	2	-	1
<i>Aquila rapax</i> (Tawny Eagle)	3	1	3	1	-
<i>A. pomarina</i> (Lesser Spotted Eagle)	-	-	1	-	-
<i>Circeatus gallicus</i> (Short Toed Eagle)	1	-	-	2	-
<i>Pandion haliaetus</i> (Osprey)	2	-	-	-	2

<i>Gallinula chloropus</i> (Gallinule)	11	7	-	-	-
<i>Fulica atra</i> (Common Coot)	-	-	-	-	210
<i>Hydrophasianus chirurgus</i> (Pheasant-tailed Jacana)	6	13	2	-	6
<i>Haematopus ostralegus</i> (Oyster catcher)	-	57	-	267	-
<i>Vanellus indicus</i> (Lapwing)	21	8	40	6	6
<i>Pluvialis squatarola</i> (Grey Plover)	3	19	19	-	-
<i>Charadrius dubius</i> (Ringed Plover)	16	42	15	-	-
<i>Numenius phaeopus</i> (Whimbrel)	-	11	11	-	1
<i>N. arquata</i> (Curlew)	23	48	3	-	23
<i>Limosa limosa</i> (Black-tailed Godwit)	18	-	21	-	65
<i>Limosa lapponica</i> (Bar-tailed Godwit)	-	6	13	27	33
<i>Tringa erythropus</i> (Spotted Red Shank)	22	225	6	-	60
<i>T. totanus</i> (Red Shank)	64	650	9	-	155
<i>T. nebularia</i> (Green Shank)	13	-	-	-	-
<i>T. hypoleucos</i> (Common Sandpiper)	16	39	9	-	115

<i>Calidris minutus</i> (Little Stint)	278	128	10	-	135
<i>Himantopus himantopus</i> (Black-winged Stilt)	41	63	19	17	21
<i>Larus argentatus</i> (Herring Gull)	-	-	-	-	15
<i>L. fuscus</i> (Black-backed Gull)	8	2	6	-	13
<i>L. ridibundus</i> (Black-headed Gull)	93	160	-	13	17
<i>Chlidonias hybrida</i> (Whiskered Tern)	18	3	23	8	43
<i>Hydroprogne caspia</i> (Caspian Tern)	6	-	-	-	-
<i>Sterna hirundo</i> (Common Tern)	12	30	11	-	11
<i>S. albifrons</i> (Little Tern)	36	14	14	-	48
<i>Halcyon smyrnensis</i> (White-breasted Kingfisher)	3	-	-	-	5
<i>Ceryle rudis</i> (Pied Kingfisher)	1	-	3	-	6
	887	1755	423	425	4730

## CONCLUSION

The studies have shown that sea shore, especially those which are undisturbed and unpolluted, densely vegetated with mangroves, are also good seat for the aquatic birds. This aspect needs further research.



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