

To Study the Avian Diversity in Mahim Bay, Mumbai

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Abstract: Many bird species are known to inhabit the urban Mumbai metropolis and its surrounding areas including Mahul, Uran, Vasai, and Thane Creek. However, there is lack of thorough survey on the bird diversity of western coast of Mumbai especially in the Mahim Bay. This area is home to many bird species. The large congregations of migratory and resident water birds use this area as a wintering ground. The birds are attracted to the Mahim bay because it has rich benthic fauna and fish diversity, which is their food source. The Mahim bay is considerably polluted due to anthropogenic activities like, sewage disposal especially from the Mithi River and BMC drainage outlets, recreational activities and religious rituals such as Ganesh visarjan. Therefore the present survey is been conducted to prepare a checklist of the birds observed at the Mahim bay. Birds play an essential role in many ecosystems. They are fundamental parts of food chains and food webs. Birds are predators, eating other organisms and serve as prey for animals as foxes, raccoons, and snakes. This phenomenon keeps a check on the number of particular species in an ecosystem. Birds play a vital role in keeping balance of nature. Birds are natural pest controllers, fruit-eating birds help disperse seeds, whereas nectar-feeding birds are pollinators. The dung of seabirds contain phosphorus & guanine, hence add nutrients to the soil and water. Thus, it is very important to obtain a base line data of avifauna in any habitat. Therefore the present survey was conducted to prepare a checklist of the birds occurring in the Mahim bay.

Keywords: Avifauna, Avian diversity, Zoology, Ornithology, Environmental Science, Research project, Undergraduate

1. Introduction

Many bird species are known to inhabit the urban Mumbai metropolis and its surrounding areas including Mahul, Uran, Vasai, and Thane Creek. However, there is lack of thorough survey on the bird diversity of western coast of Mumbai especially in the Mahim Bay. This area is home to many bird species. The large congregations of migratory and resident water birds use this area as a wintering ground. The birds are attracted to the Mahim bay because it has rich benthic fauna and fish diversity, which is their food source. The Mahim bay is considerably polluted due to anthropogenic activities like, sewage disposal especially

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the Mahim bay.

2. Study Area

In the present project the study area, Mahim bay, is situated on the west coast of Mumbai (Lat. 19°02'01"N; Long. 72°49'36.1" E). This area receives regular release of domestic sewage along with fresh water drainage from the

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Mithi River. Recently the Rajiv Gandhi sea link was constructed over the Mahim bay.

All these factors have put enormous pressure on the environment and ecology of the Mahim bay thereby affecting its biota.



Satellite photograph of Mahim Bay, Mumbai



3. Materials and Method

- Present survey for reporting avifaunal diversity was conducted in two parts. Pilot study was started from August 2018 to December 2018. And the final study was conducted from December 2018 to March 2019. Birds in the Mahim bay were observed every fortnight preferably on Sundays during the low tide and high tide period, using 8x by 21x binocular by general survey method.
- The waders feeding in the intertidal area are observed during the low tide. The bird species are identified using the book “The book of Indian birds” Twelfth revised edition by Salim Ali and an android mobile application “Indian Birds” version 3.0.
- Care was taken to avoid disturbances to any organism during the survey visits.
- The survey was undertaken at early mornings and sometimes evening for two to three hours starting from Worli fort, moving towards Kirti college sea shore extending up to Shivaji parkbeach.
- The information was also be collected from regular visitors, local fishermen & residents.

4. Observations

List of birds observed in the Mahim bay, Mumbai.

Sr. No.	Common Name	Scientific Name	Family	Category	Status
1	Common or Black Kite	Milvus migrans	Accipitridae	R	Very Common
2	Brahminy Kite	Haliastur Indus		R	Occasional
3	Grey Heron	Ardea cinerea	Ardeidae	R	Common
4	Indian Pond Heron	Ardeola grayii		R	Occasional
5	Large Egret	Ardea alba		R	Occasional
6	Western Reef Egret	Egretta gularis		R	Very Common
7	Little Egret	Egretta garzetta		R	Very Common
8	Intermediate Egret	Egretta intermedia	Charadriidae	R	Very Common
9	Black Crowned Night Heron	Nycticorax nycticora		R	Common
10	Little Ringed Plover	Charadrius dubius	Corvidae	R	Common
11	House crow	Corvus splendens		R	Very Common
12	Slender billed Seagull	Larus cachinnans	Laridae	WV	Very Common
13	Little Tern	Sterna albifrons		WV	Occasional
14	Whiskered Tern	Chlidonias hybridus		WV	Occasional

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15	Gull Billed Tern	Gelocheidon nilotica		WV	Occasional
16	Black Headed Seagull	Larus ridibundus		WV	Common
17	Brown Headed Seagull	Larus brunnicephalus		WV	Common
18	Little Cormorant	Phalacrocorax niger	Phalacrocoracidae	R	Very Common
19	Common Sandpiper	Tringa hypoleucus	Scolopacidae	WV	Common
20	Common Red-shank	Tringa tetanus		WV	Common
21	Common Green-Shank	Tringa nebularia		WV	Occasional
22	Eurasian Curlew	Numenius arquata		WV	Common
23	Black-tailed Godwit	Limosa limosa		WV	Common
24	Whimbrel	Numenius pheopus		WV	Common
25	Marsh Sandpiper	Tringa stagnatilis		WV	Occasional

5. Observations

Images for reference of birds observed during the survey.





Black-tailed Godwit



Whimbrel



Marsh Sandpiper

- Image source : Google images



View of Mahim bay captured during the survey

6. Results and Discussion

Birds occupy an important position in the food chain and are therefore sensitive to the changes in the ecosystem. The migratory birds are responsible for the fluctuations in bird population and help in understanding the ecology of an area. Drastic changes in the population of the migratory birds may also result due to alteration in ecology of a stopover sites or a wintering areas. If birds are entirely absent from a particular area, then it indicates more polluted habitat (Borale, 1994). Earlier, few authors reported a general account of shorebirds around Mumbai. Verma (2003) reported 150 species in Mahul area. Pawar (2011) reported 56 species from Uran area including terrestrial birds and waders. Walmiki (2013) reported 143 species from Vasai area. Nitsure (2002) and Quadros (2001) reported 53 and 55 bird species from the Thane creek, respectively.

The present study revealed that the Mahim bay is inhabited by 25 different bird species belonging to families including Accipitridae, Ardeidae, Charadriidae, Corvidae, Laridae, Phalacrocoracidae and Scolopacidae. We observed that the shore water is inhabited by 25 different bird species of which 12 are residents and 13 are winter visitors. Winter migrants, like Whimbrel and Eurasian Curlew migrate from Europe and slender billed Seagulls come from Baluchistan (Pande, 2003). We observed that these winter visitor birds arrive in Mahim bay in October. Although the present study was conducted for eight months, from August 2018 to March 2019, we observed that the Mahim bay has a rich and varied bird life.

7. Conclusion

The present study revealed that Mahim Bay harbours rich bird diversity. However the anthropogenic activities like sewage disposal and religious rituals can have adverse effect on the environment of the Mahim bay. Since most sea birds feed on the rich benthic fauna and fishes, pollution may affect these food resources impacting the avian diversity in the Mahim bay. Further studies are required to thoroughly understand the avian diversity in the Mahim bay to create awareness among the general public and develop conservation strategies.

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