

Pulicat Wetland Threatened Water Body

Vaithianathan Kannan

THE Pulicat Lake derives its name from the village Pulicat (a corruption of the Tamil name Pazhaverkaddu), situated about 20 km northeast of Ponneri in Tiruvallur district of Tamil Nadu. Pazhaverkaddu means 'jungle of roots', possibly implying mangrove vegetation, as mangrove forests were reported to be luxuriant in the Pulicat Lake till around the end of the 18th century.

According to J. Deloche, a scholar of Indian history, Pulicat Lake was buzzing with activity as early as the 16th century. Pulicat was the earliest settlement of the Dutch on the mainland of India and there used to be considerable trade between Pulicat and the Straits Settlement. In 1679, the S. Masters diaries mention a great lake of saltwater that communicates with the sea at Pulicat, by which a great deal of wood is carried in boats from Chyarcot (presently Sriharikota) to Madras and other parts on the coast. The Dutch stayed on at Pulicat until about 1690 and their ships were able to enter Pulicat Lake, which was then about 3.8 m deep. Possibly, because of exploitation of the mangroves and several human interventions, the depth of the lake reduced to 2 m by about 1800 AD. Due to this, the successors of the Dutch, the British, were not able to bring their ships right into Pulicat Lake, and so abandoned Pulicat as a natural port.

Pulicat Lake is the second-largest brackish water lagoon after Chilika in India, sprawling across the states of Andhra Pradesh and Tamil Nadu in Nellore and Tiruvallur districts respectively. It encompasses an area of 720 km², of which 84% falls in Andhra Pradesh and the remaining 16% in Tamil Nadu. Both the portions of Pulicat Lake in Andhra Pradesh and Tamil Nadu have been declared as bird sanctuaries by the respective forest departments.

The lagoon is about 60 km in length, and its breadth varies from 0.2 to 17.5 km. The lake is comparatively shallow

with an average depth of a little over a meter, with a north to south and west to east slope. The maximum depth of the lake is near Theevu at the southern portion of Pulicat, measuring 7 m. The lake has three major openings into the Bay of Bengal, the major at the southern end of Sriharikota Island, another at the northern edge of Sriharikota Island, and the third at the extreme northern part near Durgarajupatnam.

The Buckingham Canal traversing along the Sriharikota Island is a 419 km long navigation canal dug during the early nineteenth century by the British, extending from Pedda Ganjam in Guntur district, Andhra Pradesh, southwards through Chennai and to Marakanam, Chengalpet district, Tamil Nadu. At Pedda Ganjam, it communicates with the freshwater high-level canals of the delta system of the Krishna River and also the Godavari delta canals, and thus opens up water communication with the port of Kakinada, making a total length of 739 km of the main navigable canal.

The rivers and rivulets Swarnamukhi in the north, Kalangi in the central region and Moolthangal and Arani in the southern area drain into Pulicat during the monsoon season causing an increase in water levels and lowering of salinity, besides inundating areas adjoining the lake. During the dry season, water is generally present only in the southern lagoon part of Pulicat Lake and near the two openings into the Bay of Bengal in the northern areas. The other areas may receive inflows from the Bay of Bengal during spring tides, especially when aided by strong winds.

Pulicat Lake has 20 islands. The largest is Sriharikota Island (181 sq km) at its eastern edge and the other larger islands are Pernadu, Irrakam and Venadu. These islands have deposits of sub-fossilized lime shell around them. The islands are of recent origin in the geological time-scale and are nothing more than low ridges of sand with marine

and aeolian deposits rising only a few meters above the sea level. Some of these islands are now connected by road to one another and/or to the mainland by roads cutting into the lake.

Pulicat receives rain mainly from the North-East Monsoon (October-December). Some rainfall is also received during the South-West Monsoon (June-September) due to depressions in the adjoining Bay of Bengal. Pulicat is liable to the visitation of cyclones, usually in the early part of May and October, during the onset of the two monsoons.

Pulicat Lake is facing a large scale siltation problem. Siltation decreases the outflow of water from the lake's mouths and accelerates sandbar formation across them, thus cutting the vital link between the lake and the sea. Apparently the sandbar formation arrested the immigration and emigration of species.

Siltation by the River Swarnamuki in the north has filled up large areas to the north of the Sullurpet-Sriharikota road and water is present in these areas mainly during the north-east monsoon season and when winds and tides are conducive to drive seawater into these areas. The long-term effect of land accretion, unless arrested, will transform the lagoon into mudflats and sand bars and have a major impact on the fishery potential within 5-10 years.

Another issue with regard to hydrology is decreased freshwater inflow into Pulicat Lake. With the tapping of the Pennar River along its course, which is the source of water for the rivulets flowing into Pulicat Lake, and withdrawal of water even from these rivulets, the quantum of water flowing into the lake is limited largely to the N.E. Monsoon season. The decrease in freshwater inflow and wood-cutting are cited as two major factors for the disappearance of mangrove forests in Pulicat, which was once known to have luxuriant mangroves.

Besides, there are a number of other freshwater wetlands in the Pulicat area either on the mainland or in the Islands in the Lake (Kudiri, Koridi and Mallam). Almost all these water bodies face threats from a number of factors, including drawing of water for irrigation, fishing, and from the impacts of human population growth.

Nelapattu Heronry

The Nelapattu Heronry is well protected and the Forest Department has been taking up activities for the development and conservation of the heronry. The main problem facing Nelapattu is from tourist activity – though the birds seem to be apparently unaffected judging from nesting success. The influx of tourists is extremely high during the annual Flamingo Festival organised by the Tourism Department in collaboration with other governmental departments. A lot of noise and litter is generated by the influx of people during the festival. Probably, the barrier of water and the densely vegetated walkway considerably reduces the disturbance by tourists unlike in the case of heronries right inside villages, e.g., Kokkare-Bellur in Karnataka.

Another conservation issue that will be especially relevant in the future will be the need to have more nesting trees to provide for the increase in nesting birds taking into account the breeding success each year.

Vedurupattu-Edhirpattu-Heronry

No direct threats face the Vedurupattu-Edhirpattu Heronry, but this heronry, which was earlier the only breeding site of the Painted Stork in the Pulicat area has seen a drastic decline in the number of breeding birds. It is likely that the Painted Stork has shifted to the new heronries in Sriharikota Island due to fewer disturbances and proximity to Pulicat Lake. The Vedurupattu-Edhirpattu Heronry is only an occasional breeding site for other species, which also breed in Nelapattu and other areas. Only 15 nests of the Little Egret and 20 nests of the Painted Stork were recorded during the 2005-2006 season.

Tada (Bolengalupadu) Heronry

The Tada Heronry (or Bolengalupadu Heronry) now consists of only one of the former Ficus trees that supported a nesting colony of Grey Heron and Little Cormorant till the beginning of this century. It is observed that this heronry has very little future as houses are coming up right under the lone nesting tree left and the people complain about the bird droppings. The new heronries in Sriharikota probably comprise of birds that have abandoned the Tada Heronry.

Heronries of Sriharikota

The three heronries in Sriharikota Island are relatively well protected and hardly face any human-related pressures as Sriharikota is a high-security zone, and additionally, the Indian Space Research Organisation (ISRO) is keen to conserve and develop the heronries. ISRO is developing the Beripeta Heronry on the lines of Nelapattu and such positive developments could also be expected to take place for the other two heronries in future.

Six species of Vulnerable or Near-Threatened species occur in the Pulicat area. Of these, the Dartar and the Black-bellied Tern are rare in the Pulicat area. The Lesser Flamingo is rare compared to the Great Flamingo in Pulicat Lake, but a high count of 3,000 birds was recorded in May 2007, which is more than 1% the biogeographic population of this species at 1,500 birds, which makes Pulicat an important wintering refuge for this species. The populations of the Spot-billed Pelican (Near-Threatened), Oriental White Ibis (Near-Threatened) and the Painted Stork (Near-Threatened), all of which breed in the heronries in the area, also significantly surpass their estimated 1% biogeographic population of 40, 100 and 100 birds respectively.

For these reasons alone, the Pulicat Lake area easily qualifies for the status of a Ramsar Site.

Dr Vaithianathan Kannan is Scientist, Gujarat Institute of Desert Ecology, Bhuj, Gujarat.
Email: kannan.vaithianathan@gmail.com

