THE IMPACT OF COASTAL AQUACULTURE ON THE POPULATION OF OPENBILL STORKS IN KOLLERU LAKE, ANDHRA PRADESH, INDIA.

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Abstract

Kolleru Lake, spread over an area of about 900 sq. kms. On the east cost of India, is a unique example of wetland ecosystem. The lake attracts a large number of migratory birds including Openbill Storks, Anastomus oscitans. During 1988 census about 1000 Openbills were counted at one place in the lake. In the next year 1200 were observed in the same area. The place at which the count was taken represents a very small part of the total area of the lake. These birds mainly feed on the apple snail, Pila virens, which is abundant in the lake. At the beginning of 1990, there was widespread increase in the area under coastal aquaculture for the tiger shrimp, Penaeus monodon. It was then discovered that the shrimp will gain weight if it is fed on the meat of the snail. This signalled the doomsday for the Openbill Storks due to large-scale destruction of its natural food, the apple snail. Flocks of these magnificent birds in hundreds used to soar in the sky, a feast to the eyes of bird –watchers. Now, large flocks have vanished, but smaller groups are still present. Steps must be taken to protect these small scattered groups before they abandon the lake.

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INTRODUCTION

Kolleru Lake is the largest natural freshwater lake in India formed in a depression between two great rivers, the Godavari and the Krishna on the south east coast of India (16⍁ 30' – 16⍁45'N, 81⍁ 05' – 81 ⍁ 20'E). It is located at about 55 Km east of Vijayawada and about 25 Km North West of the coastline, the Bay of Bengal (Scott, 1989; Scott and Poole, 1989). The lake used to cover an area of 90,000 ha. at its maximum flooding and is connected to the Bay of Bengal through Upputeru river (drain) which flow a distance of 42 Km.. Over 30 canals and streams enter the lake from the surrounding areas which is intensively cultivated for paddy and is popularly known as the rice bowl of Andhra Pradesh. The waterspread area of the lake and its contour changes depending on the inflow of water. At 5 ft contour the waterspread area is about 30,040 ha.. The lake has good vegetation and a rich fishfauna consisting of 63 species belonging to 29 families (Incor, 1983; Seshagiri Rao, 1988).

During 1960s, the lake was known as the largest breeding ground in the subcontinent for the Spotbilled Pelican, Pelicanus philippensis. Soon after declaring the lake as bird sanctuary by the state government in 1972, the Spotbills completely disappeared by 1974 due to various reasons including anthropogenic pressure, pollution etc. (Crivelli and Schreiber, 1984; Seshagiri Rao 1988). In 1989 Asian Midwinter Waterfowl Census, a total number of 24,272 birds of different species were counted from small area in the Kolleru Lake (Scott and Rose , 1989). While the lake supports a good artisanal fisheries, pisciculture was started and the lake was encroached upon reducing the natural habitat for migratory birds (Seshagiri Rao, 1991).

The lake has 46 island villages and 76 shoreline villages. Several reports and studies dealing with various aspects of the lake were those of Lakshmipathi Rao (1978), Sriramakrishnayya (1980), Ramakrishna (1980) and Rama Rao (1981). Studies on the fauna, flora and ecology of the lake are those of Seshagiri Rao (1968, 1988), Murthy (1977), Seshavatharam and Venu (1982).

Pila Virens

Commonly known as apple snail, Pila Virens (Mollusca: Gastropoda), is abundantly available in the Kolleru Lake as well as in the paddy fields, tanks, ponds, irrigation canals and all other water bodies. The snail feeds mostly on vegetation including weeds, thus preventing the spread of unwanted weeds. Now, these snails are hand-picked and sold to the used as food for shrimps in the shrimp farms. The snails are collected and sold to the middlemen in tins. Each tin can hold from 225 to 300 snails depending on their size, weighing roughly 15 kgs. The middlemen pay from Rs. 15 to Rs. 22 per tin to the collector. Then, these are transferred into large gunny bags. Each gunny bag can hold 150 kgs of snails costing between Rs. 150 and Rs. 200. A snailpicker can earn from Rs. 100 to Rs. 150 per day which is a lucrative income compared to the daily wages paid to a farm worker which is Rs. 50 per day. These snails are put in heaps, their meat is taken out and the empty shells left out. A bag of snails yields 75 kgs of meat which is sold from Rs. 600 to Rs. 900. So, the middlemen gains enormous profit. As a result, the snail selling has become an important trade. In Bhimavaram, at one point alone about 7.5 to 9 tons of snails are sold in a single day. The activity of buying the snails from the collectors starts in the evening, transported to the trading centres during night and sold to the customers (end users) after midnight. It is estimated that during the last 5 years about 60 per cent of the total snail population in and around Kolleru Lake and the paddy fields has been destroyed.

The snails are important food for the Openbills which have adopted themselves to this type of food. The snails also control the unwanted weeds. Due to the removal of snails the calcium content in the soil is reduced, siltation increases, triggering chain reaction leading to pollution.

The snailpickers are successful in employing an innovative method during the recent past for the capture of snails in large numbers, instead of hand-picking. The method involves throwing a large number of leaves of papaya plant (Carica papaya: family, Caricaceae) or leaves of Nugu benda (Malachra capitata : family, Malvaceae) into the water. After a couple of days a large number of snails gather around these leaves for feeding, as the leaves develop slime on their surface. Thus , a considerable number of snails can be gathered at a time with a modicum of effort.

The snails , and other molluscs are also destroyed due to the duckery in the Kolleru Lake effecting the ecological balance (Rama Raju, 1991).

Anastomus Oscitans

Popularly known as Asian Openbills, locally calles 'natha kottu' (snail breaker), these large birds were found in thousands spread over the whole area of Kolleru Lake till 1990. At any given place of congregation the minimum number used to be over hundred birds. It was a spectacular sight to observe these birds in countless numbers soaring in the sky at great height moving in circles. The peculier shaped bill with arching mandibles, leaving a narrow open gap between them is admirably suited for holding the snail. Salim Ali and Dillon Ripley (1983) described the process of extraction of soft body from the shell of the snail. It is observed that the bird holds the snail in the gap of the bill and crushes it by moving up and down in jerks.

In all, there are 17 species of Storks in the world of which 9 species are found in South East Asia. Among these, 7 species are known to occur in India (Ben King, et al., 1978). One species, Anastomus oscitans, is common in Kolleru Lake.

Status of Openbills

Due to largescale increase in coastal aquaculture the demand for the meat of snails to be used as feed for shrimps has increased. This has resulted in mass destruction of snails all over the lake and the surrounding paddy fields, tanks and irrigation canals.

During 1988 Asian waterfowl census from Kolleru Lake, perhaps the first count to be reported to **IWRB**, the authors counted over 1000 Openbills at a place called Chatakai, very near to the area declared as bird sanctuary by the State Government (Danial, 1988). Siraj (1988) in his comments on waterfowl census 1988, listed Openbill storks under the "most notable species either totally missing or in almost negligible numbers". During 1990 the number declined. At present these birds are found distributed in smaller groups over larger area. Pressure on space due to the spread of pisciculture and consequential human interference on one hand and deprivation of natural food on the other, forced the larger groups of birds to dissociate into smaller groups.

Now, the Openbills are seen in smaller numbers distributed in the open paddy fields. The cultivators of paddy fields are complaining that the birds are causing loss to the corps in the process of catching snails in the fields. Proper machanism has not been evolved to prevent the collection and killing of snails, albeit the State Government banned the trading in snails. Unless commercial exploitation of snails for the purpose of coastal aquaculture is prevented soon, the remaining Openbills will also abandon the area permanently.

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