An Observation Of Different Physico-chemical Parameter Of Water And Some Avifauna At Rasik Bill, Cooch Behar

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Abstract

An attempt has been made to find out the physico-chemical parameters of water of Rasik bill, as a part of study of fresh water ecosystem in Cooch Behar district. An account of various kinds of local birds and migratory birds which are available in and around the bill is also included during the study.

Key Words

Physico-chemical parameter, Birds, Fresh water Ecosystem

Introduction

Rasik bill is basically a low water land or swamp surrounding a "jheel" which is situated in the Cooch Behar district of West Bengal at the north east point of the state. The nearest town is Tufanganj, a sub-divisional town of the district and about 35km from Cooch Behar, the district town. The latitude and longitude of Rasik Beel is 26º18' N and 89º 38' E respectively. It is a heaven of eco-tourism in the wilderness with breathtaking beauty of its scenery. Here, water is always available all over the year due to rainfall which is about 320centimeters per year. The average temperature varies from 14°C to 42°C. There are five such kind of low water land or marshland found in the area, namely Neeldaba, Bochamari, Raichangmari, Shankhadanga and Rasikbill. These attract a lot of birds which make nests in the trees around this area and a Bird Sanctuary is grown up with 175 hector area. The Rasik Bill lake along with forest has been declared as a tourist spot known as Rasik Beel Mini Zoo as there are deer park and rescue centre of leopard, peacock, python and gharials.Various kind of local birds are available in and around the Rasik bill all over the year. Some migrant birds are also available in winter. The bird variety includes cormorants, pluver, piper, different varieties of storks, ibis, spoonbill, kingfisher, parrots, owl and many others. Famous water birds are Lesser Whistling Teal, Common Teal, White eyed pochard, Red Crested pochard, Shoveler, Pintail, Wigeon duck, Grey headed Lapwing and many more. Besides the bill a tribal village is also there.

Rasik Beel Mini Zoo provides beautiful sites for study of different ecosystem in the same location. It is based on a fresh water lake, locally called jheel and the name of the site is after the name of the lake Rasik bill. This lake attracts a lot of birds which make nests in the trees around the lake. It is, therefore, a good place of bird watching too. However, for study of fresh water ecosytem, a site is chosen at the "jheel" near the entry point. The water of the lake is stagnant with muddy bottom and profuse vegetation at the shoreline. A study period of three months (February to April, 2012) with an interval of 15 days was made in between 8 A.M. and 10 A.M.

Objectives

The objectives of the present study are-

1. Study of the physico - chemical parameter of water of the site.
2. Study of the avian diversity especially the number of different birds during the study period.

Materials and Methods :

Since, both the study period as well as the study area was short, we have to take both primary and secondary data. Primary data has been derived from field survey. Secondary data has been obtained from District Forest office, Cooch Behar. The following methodology were exercised.

1. Measurement of physico-chemical nature of water:
   i) pH of water was determined by portable digital pH meter

ii) Temperature was measured by digital thermometer.

iii) Dissolved oxygen & BOD were calculated in the laboratory later by Winkler's method, after proper fixation.

iv) Free Carbon dioxide was measured by titration (Michael, 1984)

v) Alkalinity was measured by titration (Maichael, 1984)

vi) Hardness was measured by titration (Michael, 1984)

vii) Salinity was measured by titration (Michael, 1984)

viii) Transparency was measured by Sechi-disc method.

2. Study of the avian diversity : It was done mainly through Binocluor (Olympus) as well as in naked eyes

Results

1. Measurement of physico-chemical nature of water: The result is tabulated below in Table I.

PARAMETER	VALUE		
	February,2012	March,2012	April,2012
pH	6.8	7.9	6.5
Temperature	15º C	18º C	21º C
Free carbon di oxide	2ppm	4ppm	2ppm
Alkalinity	59.33 ppm	40.2 ppm	46.8ppm
Chloride content	0.0376 ppm	0.04 ppm	0.8 ppm
Dissolved oxygen	5.66 ppm	8 ppm	9.72 ppm
Hardness	74.6 ppm	64.8 ppm	86.2ppm
Transparency	81 cm	79 cm	78.6 cm
BOD	5.2 ppm	4.8 ppm	5ppm

[Table I. Physico chemical Parameter of water]

2. Study of avian diversity:

2.1 From Forest Department's Report

A total of 165 of Avifauna belonging to 110 genera fewer than 46 subfamilies, 41 families and 16 orders were recorded officially from the Beel complex. 75 different types of migratory variety were recorded, of which 35 are exclusively migratory. 67 species of water birds are recorded from the lake area, of which 19 uses open water area for their foraging and 48 varieties forage in the bank area or marshy zones of different beels. The family Anatidae, Charadriidae and Muscicapidae together represents higher in number in species variety in the area.

Few amphibian, reptilian, mammalian, annelids, arthropods, molluscans were also reported. There is a deer park and a crocodile rehabilitation center by the side of the lake. There are also a leopard house, a python house, Aviary & a Tortoise rescue centre.

2.2 Through Bird watching

Different birds were observed during the study and an account is given in the Table II.

Serial No.	Name	Number
1.	Black Headed Oriole	3
2.	Bronzed Winged Jacana	9
3.	Bronzed Winged Jacana	7
4.	Chest Nut Starling	1

5.	Common Crow	3
6.	Common Hoopie	1
7.	Common Kingfisher	2
8.	Common Mayana	Abundant
9.	Cormorant	6
10.	Dove	2
11.	Drongo	4
12.	Egret	2
13.	Fan tail	2
14.	Grey fish Eagle	1
15.	Hark Cuckoo	1
16.	Indian Parakit	1
17.	Indian Roller	2
18.	Indian Tree pie	1
19.	Jungle Bubbler	Abundant
20.	Kite	1
21.	Lesser Adjuvent	2
22.	Lesser Whistling Duck	81
23.	Little Egret	2
24.	Little Grebe	1
25.	Little ringed Pluver	5
26.	Open bill Stork	2
27.	Owl	2
28.	Pied Starling	Abundant
29.	Pipit	1
30.	Pond Heron	11
31.	Purple Heron	1
32.	Purple Swanphen	3
33.	Red Shang	1
34.	River Lapwing	1
35.	Sand Piper	5
36.	Shrike	1
37.	Sibberian Bushchat	2
38.	Sky catcher	1
39.	Small Cormorant	10
40.	Sun Bird	1
41.	Walk tail	1
42.	White breasted Kingfisher	2
43.	White eyed Pochard	4

[Table II. Account of Avifauna]

In addition to that data obtained from District forest office, Cooch Behar, regarding floral community, of which 3 species belong to Pteridophytes , 31Dicotyledons and 41Monocotyledons.

Discussion

From Table I, it is clear that pH value ranges from 6.5 to 7.9 that indicates the weekly acidic to slight alkaline condition. The water quality of this wetland is satisfactory because the BOD value is 5.0 which indicates the wetland is less polluted. It is further established with the value of free carbon di-oxide and dissolved oxygen too. Migratory birds in North Bengal are in danger of being constantly exposed to chemical fertilizers and pesticides used in tea gardens. Survey report of Salim Ali centre for ornithology and Natural History (SACON) also reveals that. There has been a 50 percent reduction of the population of Pintail in the past few years at Rasik bill (Indian Bird conservation Network,

2009). Such birds include Adjustant Stonk, the Osprey and the Greater Spotted Eagle. Pollution and change in climate are not only the causes for the decrease in the number of birds but also indicates that birds are facing problem for degradation of their original habitat or ecological change (Sinha, 2012).

Rasik Bill is however, rich in vegetation and ex-situ conservation is followed to maintain biodiversity. Ideally, it is the true place for local and migratory birds. It should be noted that human interference can create a serious problem in this place as ex-situ conservation needs a lot of supervision & care. Several reports state that there has been a lack of interest for the conservation & management of total system. A decrease in the number of total migratory birds is also seen. All these problems can be solved by making people aware about such a strategy, its importance & implication.

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