

# Mansagar Lakejaipur, Rajasthan Biodiversity: Issues and Challenges

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**Abstract:** Inland waters and freshwater biodiversity constitute a valuable natural resource, in economic, cultural, aesthetic, scientific and educational terms. Their conservation and management are critical to the interests of all humans, nations and governments. Yet this precious heritage is in crisis. Fresh waters are experiencing declines in biodiversity far greater than those in the most affected terrestrial ecosystems, and if trends in human demands for water remain unaltered and species losses continue

**Keywords:** lake Pollution, species, BOD

## 1. Introduction

Lake are ecologically an important to maintaining the micro-climate and fulfilling direct and indirect uses like provide water for domestic, industrial and agriculture use ground water recharge and fishing etc. in spite of their fundamental importance to Human being, fresh water lakes have been severely affected by a multitude of anthropogenic disturbances which have pose serious negative effect on the structure and function of the ecosystem.

This paper reported ecological status with special reference to avian fauna at mansagar lake, Jaipur Rajasthan. We document threats to global freshwater biodiversity under five headings: water pollution; Sedimentation; Eutrophication; water scarcity and invasion by exotic species.

## 2. Study Area

Mansagar Lake popularly known as Jal Mahal. It is the only significant water body in Jaipur city. It is situated between 26° 57' 12.50" N & 75° 50' 46.04" E. Its a artificial lake it was created by construction of a dam across the Darbhawati River between Khilagarh hills and Nahargarh Hills. Lake catchment area is 23.5 km<sup>2</sup>. Maximum depth is 4.5 M (15feet).

Lake provide habitats for various migratory and resident birds. Mansagar lake is the habitat of more the 180 species birds. The bird commonly sighted included some endangered, uncommon, vulnerable, threatened and near to threatened species.

## 3. Birds Study

Birds were sited in and around the wetland area during the winter session in the year 2013

Scientific name	:	<i>Aythyaferina</i>
Common name	:	common pochard
Family	:	Anatidae
occurrence	:	Migratory
Conservation Status	:	Vulnerable

Scientific name	:	<i>Mycteria leucocephala</i>
Common name	:	painted stork
Family	:	Ciconiidae
occurrence	:	Native
Conservation Status	:	Near to threatened

Scientific name	:	<i>Platalea leucorodia</i>
Common name	:	Common spoon bill
Family	:	Threskiornithidae
occurrence	:	Migratory

Scientific name	:	<i>Padionhaliaetus</i>
Common name	:	Osprey
Family	:	Pandionidae
occurrence	:	Migratory

Scientific name	:	<i>Fulica americana</i>
Common name	:	American coot
Family	:	Rallidae
occurrence	:	Migratory
Scientific name	:	<i>Anas clypeata</i>
Common name	:	northern shoveler
Family	:	Anatidae
occurrence	:	Migratory

Scientific name	:	<i>Anas acuta</i>
Common name	:	pintail
Family	:	Anatidae
occurrence	:	Migratory

Scientific name	:	<i>Tringastagnatilis</i>
Common name	:	marsh sandpiper
Family	:	Scolopacidae
occurrence	:	Migratory

Scientific name	:	<i>Phalacrocorax fuscicollis</i>
Common name	:	Indian Cormorant
Family	:	cormorant
occurrence	:	Native

Scientific name	:	<i>Phalacrocorax fuscicollis</i>
Common name	:	Indian pond heron
Family	:	Ardeidae
occurrence	:	Native

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Family	:	Ardeidae
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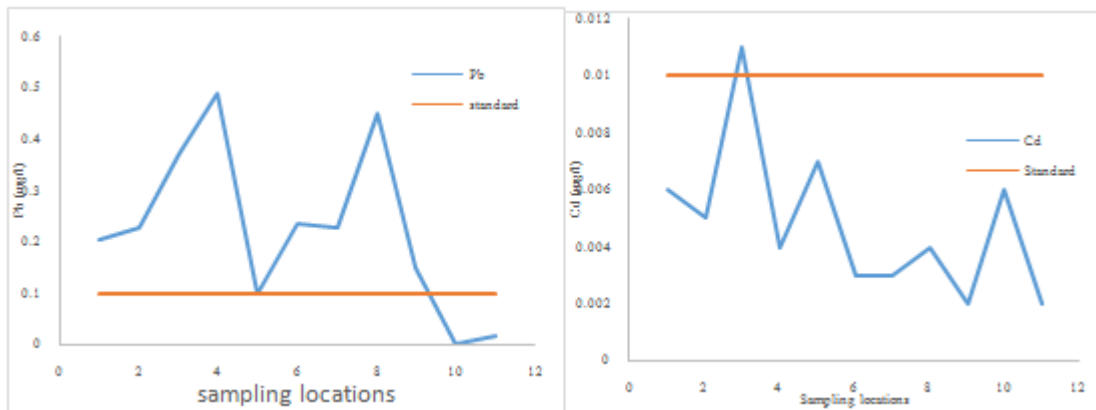
Scientific name	:	<i>Ardea alba</i>
Common name	:	great egret
Family	:	Ardeidae
occurrence	:	Partially migratory

**Physic-chemical Characteristics**

Water quality monitoring has been maintained at 9 sampling sits.The lake water samples were collected from the different sites in 2013 and 14 during November to march. Water samples were collected from different sited of study area in plastic bottles. Physical-chemical analysis of water was carried out for estimation of pH, Total Dissolved Solids, Total Hardness, Calcium Hardness, Magnesium Hardness, DO, BOD, COD, Total Alkalinity, Chloride and fluoride ion concentration. Method suggested by APHA, AWWA, WPCF (2005) was employed.

**4. Lake Water Quality Monitoring**





## 5. Results and Discussions

Lake is found highly polluted due to an untreated discharge of sewage and industrial and domestic effluent discharge into the lake. The water is Alkaline the maximum pH is 10.02. The BOD ranges 24.42 to 59.5 mg/l and COD ranges 60- 250 mg/l which denoted a very high amount of organic matter presence. DO found very low ranges zero to 2 mg/l, which cause stress on aquatic organisms and even cause death. Toxic chemicals from industrial effluents cause death of fishes. Lake water was found to be green in colour due to floating green algae on the surface of water body. Green colour experience large algal bloom because of high level of nutrients ranges between 11.44 to 71.85 mg/l Nitrate and 3.6 to 0.4 mg/l phosphate. Toxic chemicals from industrial effluents cause death of fishes. The lake suffering from serious problem of siltation and Sedimentation. Decreases in surface area due to artificial land formation approximately 200 tons /year of plastics has been removed from the lake.

### Invasion of Exotic Species

Introduce the Mangur (cat) fish in the Mansagar lake cause ecological damage. It is an African species about 0.5 feet long. It is banned in India this fish devours other small fishes and even birds. In the absence of predator it multiplies immensely thus posing a problem for resident species of birds. Reduction in small fishes cause food scarcity which directly influence migratory birds number and species diversity. During summer Lake facing water scarcity due to use of lake water in irrigation.

## 6. Conclusion

Sewage water is the most important source of lake water, their combined and interacting influences have resulted in population declines and range reduction of freshwater biodiversity.

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