

## Birds Death in Sambhar Lake due to Avian Botulism

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**Abstract:** Sambhar lake is India's largest salt lake. Distance of Sambhar Salt Lake from Jaipur is 80 km. and from Ajmer is 64 km. Its surface area range is 90-230 km<sup>2</sup>. Its width is between 3-11km. and length is 35.5km. In Sambhar every year 196000 ton pure salt produced. Sambhar lake is not only important for salt production but also famous for its birds diversity. Every year thousands of birds arrive here from North Asia, Siberia and all over the world. It's the second home for all those birds who comes here for food, shelter and reproduction.

**Key Words:** Sambhar salt lake, Birds, Avian botulism, *Clostridium botulinum*.

### 1. INTRODUCTION:

The studies was done from September 2019 -February 2020. Birds of more than 8 families died In Sambhar lake due to Boyulism. Thousands of birds died due to Botulism. Main birds are listed.

### 2. OBJECTIVE:

The aim of present study is to know the species of birds which were effected by the Avian botulism. Only carnivorous birds were effected. Near about 26 species of birds were effected by this bacteria and dead. which is mention in below Table No.1.

### 3. MATERIAL & METHODS:

Birds survey were done in September 2019-February 2020 to collect the data and identify the birds of Sambhar salt lake who were died and infected. Direct sighting were done at the field and the birds were identified with the help of Ali and Ripley (1983) and Woodcock (1983).

### 4. OBSERVATION & RESULT:

In Sambhar lake every year near about 2-3 lakhs migratory and local birds coming in different seasons. Suddenly on 10 Nov. tourists watched dead birds near the lake margin and after this every day the number of infected and dead birds increase. Only in ten days near about 18,000 birds had died.

The three main reason comes behind the birds death:-

- In winter season water level decrease so that salinity of the lake increased and the water become poisonous.
- Past few years in lake water level is very low and this year because of great monsoon water level increased and high conc. of Na<sup>+</sup> mix into the whole water of lake this becomes the reason of birds death.
- This disease only effected carnivorous because they eat meat of dead birds and infected birds but Flamingos are not infected by this because they do not eat meat of infected birds.

**Table .1 Families of birds died due to Avian botulism .**

S.No.	Scientific Name	Common Name	Habitat	Status
	<i>Family: Anatidae</i>	Geese and Ducks		
1.	<i>Tadorna ferruginea Pallas, 1764</i>	Brahminy Shelduck	Ow, Sw	Vr, M
2.	<i>Anas platyrhynchos Linnaeus, 1758</i>	Mallard	Ow	Vr, M
3.	<i>Anas clypeata Linnaeus, 1758</i>	Northern Shoveler	Ow	R, M
4.	<i>Anas acuta Linnaeus, 1758</i>	Northern Pintail	Ow	S, M
5.	<i>Anas crecca Linnaeus, 1758</i>	Common Teal	Ow	S, M
6.	<i>Tadorna ferruginea Pallas, 1764</i>	Ruddy Shelduck	Ow	Re, M
7.	<i>Mareca strepera Linnaeus, 1758</i>	Gadwall	Sw	Re, M
8.	<i>Dendrocygna javanica Horsfield, 1821</i>	Lesser Whistling Duck (Indian Whistling Duck)	Ow, Lm	Re, M

9.	<i>Aythya nyroca</i> <i>Guldenstadt, 1770</i>	Ferruginous Duck (White-eyed pochard)	Ow, Sw	Re, M
	<i>Family: Laridae</i>			
10.	<i>Larus ridibundus</i> <i>Linnaeus, 1766</i>	Black-headed gull	Lm, Ar	Re, M
11.	<i>Larus brunnicephalus</i> , <i>Jardon, 1840</i>	Brown-headed gull	Ow, Ar	Re, M
12.	<i>Ichthyaetus ichthyaetus</i> <i>Pallas, 1773</i>	Pallas's gull (Great black-headed gull)	Ow, Ar	Re, M
13.	<i>Gelochelidon nilotica</i> <i>Gmelin, 1789</i>	Gull billed turn	Sw, Ar	Re, M
14.	<i>Larus cachinnans</i> <i>Pallas, 1811</i>	Black Shelder kite Caspian gull	Ow, Ar	Re, M
	<i>Family: Rallidae</i>			
15.	<i>Fulica atra</i> <i>Linnaeus, 1758</i>	Eurasian coot (Common coot)	Sw, Ar	Re, M
	<i>Family: Meropidae</i>			
16.	<i>Merops orientalis</i> <i>Latham, 1801</i>	Green bee-eater	Ar	Re, M
	<i>Family: Scolopacidae</i>			
17.	<i>Philomachus pugnax</i> <i>Linnaeus, 1758</i>	Ruff	Lm, Ar	Re, M
18.	<i>Actitis hypoleucos</i> <i>Linnaeus, 1758</i>	Common Sand piper	Ar	Re, M
19.	<i>Tringa stagnatilis</i> <i>Linnaeus, 1758</i>	Marsh Sand piper	Sw, Ar	Re, M
20.	<i>Tringa glareola</i> <i>Linnaeus, 1758</i>	Wood Sand piper	Sw, Ar	Re, M
21.	<i>Tringa totanus</i> <i>Linnaeus, 1758</i>	Common redshank	Sw, Ar	Re, M
	<i>Family: Estrildidae</i>			
22.	<i>Euodice malabarica</i> <i>Linnaeus, 1758</i>	Indian silverbill	Lm, Ar	Re
	<i>Family: Recurvirostridae</i>			
23.	<i>Himantopus himantopus</i> <i>Linnaeus, 1758</i>	Black-winged stilt	Sw, Ar	Re, M
	<i>Family: Charadriiformes</i>			
24.	<i>Charadrius alexandrinus</i> <i>Linnaeus, 1758</i>	Kentis plover	Sw, Ar	Re, M
25.	<i>Charadrius dubius</i> <i>Scopoli, 1786</i>	Little ringed plover	Lm, Ar	Re, M
26.	<i>Charadrius mongolus</i> <i>Pallas, 1776</i>	Lesser sand plover	Sw, Ar	Re, M

Ow=Open waters, Sw=Shallow waters, Lm=Lake margins, Ar=Aerial Re=Resident, M= Migrant

On 22 November IVRI ( Indian Veterinary Research Institute of Bareilly) reported that the reason behind the mass birds death is Avian botulism. Its a dangerous neuromuscular disease which is caused by a poison which is produced by the bacterium *Clostridium botulinum*.



**Figure 1.** Taking treatment of an infected bird in Kachroda Nursery



**Figure 2.** Put the infected Gadwall Duck in Artificial water pond at Kachroda Nursery

#### 4. CONCLUSIONS:

Based on the all investigation we have to know that there is near about 26 species of birds were died. The reason behind the death is Avian botulism. This disease is caused by clostridium botulinum which is a toxin producer bacteria. This effects nerves and muscles of birds and they become paralysed. Even they can't be stand on their legs.

#### REFERENCES:

1. Adam, R.M. (1873). Notes on the birds of Sambhar Lake and its vicinity. *Stray Feathers*, (5)1, 361-404.
2. Alam, M. (1982). The Flamingos of Sambhar lake. *J. Bombay Nat. Hist. Soc*, 79, 194.
3. BirdLife International.(2016). *Mareca strepera*.The IUCN Red List of Threatened species.
4. Ali, Salim and Ripley, S.D.1983. *Birds of India and Pakistan*.Oxford university press,Oxford.pp.1-733.
5. Gopal, B. & Sharma, K.P. (1994).Sambhar Lake, Rajasthan. New Delhi: WWF-India.
6. Jain, A. K., Das, S. K. & Goyal, S. A. (2005). Conservation Planning of Sambhar Lake, Rajasthan using Satellite Remote Sensing and GIS. A Thesis for M. Tech, Andhra University, Andhra Pradesh, India, 100.
7. Kulshreshtha, S., Kulshreshtha, M., Sharma, B.K.(2011). Ecology and present status of Flamingos at Sambhar Salt Lake, Rajasthan, India: A critical comparison with past records. *Flamingos, Bulletin of the IUCN-SSC/WIFSG* 18:24-27.
8. Kumar, Sanjeev. 2005. Sambhar Lake: An overview.In: *Fauna of Sambhar Lake (Rajasthan)*. Wetland Ecosystem series, 6: 1-42. (Ed & published: Director, Zool.Surv.India, Kolkata).
9. Manakadan, R and Pittie, A.2001. Standardised common and scientific name of the birds of the Indian Subcontinent.*Buceros*, 6(1): I -IX,1-37.
10. Sangha, H.S.(2009).The birds of Sambhar Lake and its environs. *Indian Birds* 4 (3),82-97.
11. *Stray Feathers* 1 (5):361-404.