

25– 11 – 2024

News: Avian Botulism

- Recently, a mass death of migratory birds died at Sambhar Lake in Rajasthan, likely due to avian botulism. The outbreak is believed to be caused by high temperatures and reduced salinity in the lake.

Avian Botulism

- Avian Botulism is a **neuromuscular disease caused by toxins produced by the bacterium Clostridium botulinum**. The disease **affects wild birds, primarily waterfowl and fish-eating birds, causing paralysis and death**.

Environmental Conditions

Avian botulism outbreaks are triggered by specific environmental factors, including:

- High water temperatures.
- Low oxygen levels in water.
- Stagnant or sub-optimal water conditions.

Transmission

- Botulism outbreaks occur when invertebrates or fish ingest the bacteria and die in poor water conditions. The bacteria multiply in the carcasses, producing toxins that affect waterfowl and fish-eating birds.
- Scavengers, including other birds and mammals, can also ingest the toxin from the carcasses.

Symptoms in Birds

- Muscle weakness, paralysis and difficulty flying or standing.
- Affected birds may lose the ability to hold their heads up.

Disease Management

- There is no treatment for this disease. Control of avian botulism is challenging due to the natural presence of *Clostridium botulinum* in the environment.
- However, removing and properly disposing of carcasses helps limit toxin spread. Water level management in smaller lakes can reduce outbreaks.
- **Public Health Concerns:** *Clostridium botulinum* has seven types (A-G), with types C and E affecting wild birds.
- Botulism in humans is usually caused by type A or B toxins from improperly canned food.

- Type C doesn't impact humans, but type E can be contracted from infected fish, though proper cooking can inactivate the toxin.
- Precautions, like wearing gloves and washing hands, should be taken when handling dead birds or fish to prevent contamination.
- Factors Triggering Botulism at Sambhar Lake: High temperatures in Jaipur (1-5.1°C above normal) in October, reduced salinity from freshwater inflow, and a lack of rainfall contributed to low oxygen levels in Sambhar Lake, creating ideal conditions for *Clostridium botulinum* growth.