

Avian Botulism at Sambhar Lake

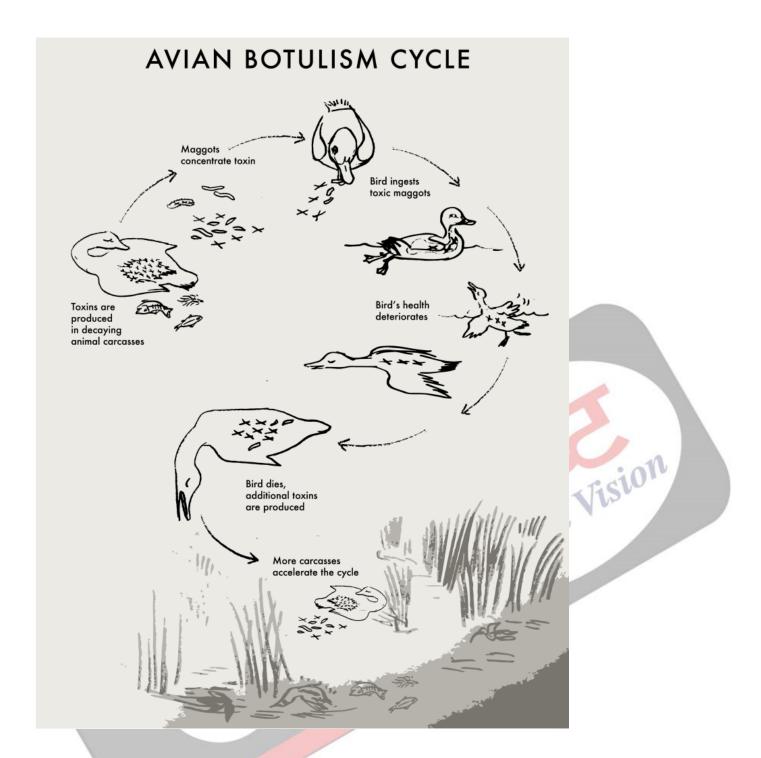
Source: DTE

Why in News?

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

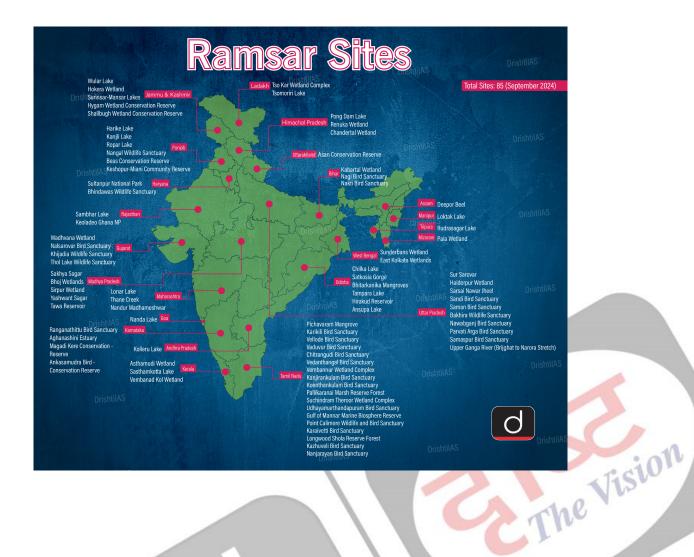
What is Avian Botulism?

- Definition: Avian botulism is a neuromuscular disease caused by toxins produced by the bacterium Clostridium botulinum. The disease affects wild birds, primarily waterfowl and fisheating 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.



Sambhar Lake

- Sambhar Lake, India's largest saline wetland, is located in the Nagaur and Jaipur districts of Rajasthan, bordered by the <u>Aravalli hills</u>. It is the source of most of Rajasthan's salt production.
 - It was designated a **Ramsar site** in **1990** due to its ecological significance.
- It attracts thousands of migratory birds, including <u>flamingos</u>, from November to February. During the monsoon, the lake comes alive with birds like coots, **black-winged stilts**, <u>sandpipers</u>, and <u>redshanks</u>.



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