Dead Zone

March 26, 2020

- **Why in news?**
  - Scientists from the National Oceanic and Atmospheric Administration (NOAA) and Louisiana State University have predicted that this spring's record rainfall would produce one of the largest-ever "dead zones" in the Gulf of Mexico.
- **What is a dead zone?**
  - Oxygenated "dead zones" occur in waterways wherever algae are overfed by runoff from human activities such as urbanization and agriculture by a phenomenon called **eutrophication**.
  - Dead zones can be **found worldwide.**
  - Marine dead zones can be found in the Baltic Sea, Black Sea, off the coast of Oregon, and in the Chesapeake Bay.
  - Dead zones **may also be found in lakes,** such as Lake Erie.
  - The **Gulf of Mexico dead zone is the second largest in the world.**
  - **What causes the dead zone in the Gulf of Mexico?**
  - The dead zone is caused by nutrient enrichment from the Mississippi River, particularly **nitrogen and phosphorus** which come from major farming states in the Mississippi River Valley.
  - These nutrients enter the river through upstream runoff of fertilizers, soil erosion, animal wastes and sewage.
  - With anthropogenic ally increased nitrogen and phosphorus input, **algal blooms develop and the food chain is altered, and dissolved oxygen in the area is depleted.**
  - The size of the dead zone fluctuates seasonally, as it is exacerbated by farming practices.

    - It is also affected by weather events such as flooding and hurricanes.
- **Effects**
    - Nutrient overloading and algal blooms lead to **eutrophication, which has been shown to reduce biomass and biodiversity.**
    - Hypoxic water supports fewer organisms and has been linked to massive fish kills in the Black Sea and Gulf of Mexico.
    - As the Gulf of Mexico is a major source area for the seafood industry, the **hypoxic zone** results in reduced catch of commercial and recreational fisheries, leading to smaller harvests and more expensive seafood, thus impacting fishermen and coastal state economies.