



## Oil Spills

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### Why in News

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A new study has confirmed that **Stimulating Bacteria (Bioremediation)** with nutrients in the cold seawaters of the Canadian Arctic **can help decompose diesel and Other Petroleum Oil after Oil Spills.**

Earlier in 2020, the National Institute of Ocean Technology (NIOT), Chennai has developed an **Eco-Friendly Crude Oil Bioremediation** mechanism technology.

### Key Points

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- **Oil-Spill:**
  - An oil spill refers to **any uncontrolled release of crude oil, gasoline, fuels, or other oil by-products into the environment.**
  - Oil spills can **pollute land, air, or water**, though it is mostly used for oceanic oil spills.
- **Major Causes:**
  - Oil spills have become a major environmental problem, **chiefly as a result of intensified petroleum exploration and production** on continental shelves and the transport of large amounts of oils in vessels.
  - Oil spills that happen in **rivers, bays and the ocean most often are caused by accidents** involving tankers, barges, pipelines, refineries, drilling rigs and storage facilities, **but also occur from recreational boats and natural disasters.**

- **Environmental Impacts:**
  - **Threat to Indigenous people:**

Oil pollution poses health hazards for the **indigenous population who depend on seafood.**
  - **Harmful to aquatic life:**

Oil on ocean surfaces is harmful to many forms of aquatic life because it **prevents sufficient amounts of sunlight from penetrating the surface,** and it also reduces the level of dissolved oxygen.
  - **Hypothermia:**

Crude oil ruins the insulating and waterproofing properties of feathers and fur of birds, and thus oil-coated birds and **marine mammals may die from hypothermia (decrease in body temperature to below-normal levels).**
  - **Toxic:**

Moreover, **ingested oil can be toxic to affected animals,** and damage their habitat and reproductive rate.
  - **Threat to Mangroves:**

Saltwater marshes and **Mangroves** frequently suffer from oil spills.
- **Economic Impacts:**
  - **Tourism:**

If beaches and populated shorelines are fouled, **tourism and commerce may be severely affected.**
  - **Power Plants:**

The power plants and other utilities that **depend on drawing or discharging sea water are severely affected** by oil spills.
  - **Fishing:**

Major oil spills are frequently followed by the **immediate suspension of commercial fishing.**

- **Remedies:**
  - **Bioremediation:**
    - Bacteria **can be used to clean up oil spills in the ocean** through bioremediation. Specific bacteria can be used to **bioremediate specific contaminants, such as hydrocarbons, which are present in oil** and gasoline.
    - Using bacteria such as **Paraperlucidibaca, Cycloclasticus, Oleispira, Thalassolituus Zhongshania** and some others can help remove several classes of contaminants.
  - **Containment Booms:**

Floating barriers, called booms, are used to restrict the spread of oil and to allow for its recovery, removal, or dispersal.
  - **Skimmers:**

They are devices used for physically separating spilled oil from the water's surface.
  - **Sorbents:**

Various sorbents (e.g., straw, volcanic ash, and shavings of polyester-derived plastic) that absorb the oil from the water are used.
  - **Dispersing agents:**

These are **chemicals that contain surfactants, or compounds that act to break liquid substances** such as oil into small droplets. They accelerate its natural dispersion into the sea.
- **Related Laws in India:**
  - Presently, there is no law covering oil spill as such and its consequential environmental damage in India but India has “**the National Oil Spill Disaster Contingency Plan of 1996 (NOS-DCP)**” to handle such situations.
    - The document was issued by the Ministry of Defense in 1996; **it was last updated in March 2006.**
    - It gives the **Indian Coast Guard** the mandate to coordinate with state departments, ministries, port authorities and environmental agencies to assist in oil spill cleaning operations.
  - In 2015 India ratified the International Convention on **Civil Liability for Bunker Oil Pollution Damage, 2001** (Bunker Convention). Convention ensures adequate, prompt and effective compensation for damage caused by oil spills. It was administered by the **International Maritime Organization (IMO)**.

**Source: DTE**