



Oil Spills

Why in News

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

▪ 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).**

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