

MODULE –II

Environmental pollution

2.7 Marine pollution



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Marine pollution is defined as the discharge of waste substances into the sea resulting in harm to living resources, hazards to human health, hindrance to fishery and impairment of quality for use of sea-water. Marine pollution is associated with the changes in physical, chemical and biological conditions of the sea water. The undesirable change occurring in the sea is called marine pollution.” The main reason for marine pollution is an aquatic pollution.

Causes of marine pollution

1. Industries pass the effluents into the sea through pipes.
2. Municipal wastes and garbage are dumped into these
3. The fishing boats and ships discard old & useless fishing nets into the sea.
4. The passengers of ship and the fish farmers throw the plastics into the sea.
5. The fertilizers and pesticides applied on the agricultural fields are washed into the sea by the surface run off.
6. Oil spilling, due to leaks in the oil tanker, ships cause oil pollution.
7. Oil leak, from oil rig, oil refineries, pipelines.
8. Loading and unloading of oil in ships cause oil pollution.
9. Accident of cargo ship carrying toxic substances such as oil, gas, pesticides, fertilizers, industrial wastes, causes marine pollution.
10. Off shore oil exploration and oil extraction cause pollution.
11. Gulfwar created much marine pollution. About 750 oil wells in Kuwait were set on fire

Consequence of marine pollution

1. Oil pollution cause damage to marine fauna & flora including algae, fish, birds, invertebrates.
About 50,000 to 2,50,000 birds are killed every year by oil.
2. Oil spilling in sea water reduces the body temperature in bird.
3. Oil film are reduce the rate of oxygen uptake by water .
4. The continuous oil films reduce photo synthesis process and formation of oxygen.
5. The thin film of oil on the surface of H₂O is called oil slick. The Oil slick damages the mangrove plants.
6. In certain countries drinking water is obtained from sea water by desalination. The desalinated drinking water is contaminated with oil.
7. Coral reefs, the gardens of the sea are damaged by oil slick.
8. Sea birds, sea cows, aquatic mammals are affected by oil pollution.

Control of marine pollution

1. The industries must contain sewage treatment plant before discharging effluents into the sea.
- 2 Coastal wastes should be periodically analyzed for detecting pollution levels.
3. Soil erosion in the coastal land should be arrested by suitable control techniques.
4. Re creational beaches should be maintained to meet hygienic and aesthetic standard.
5. The urban growth near the coasts should be regulated.
6. Sewage materials can be removed by screening, sedimentation & decomposition process.
7. Volatile part of oil can be removed by evaporation. About 50% of the oil is removed by this process.
8. Oil spill is removed by emulsification process. It is done by applying chemical dispersants on the oil.

9. The oil deposited on the rocks and harbor walls can be cleaned with high pressure.
10. A bacterium “pseudomonas putida “ is prepared by genetic engineering to eat away the oil slick.
11. People should be educated about marine ecosystem and the benefits offered by them.
12. Local communities must be involved in protecting & managing their coastal resources.

