Marine Pollution, Soil Pollution and Noise Pollution

- Causes, effects and control measures of Marine Pollution, Soil Pollution and Noise Pollution

Marine Pollution

- Marine pollution can be defined as release of harmful substances into marine waters that cause damage to the marine ecosystem.
- The pollutants may include sewage, farm waste, and industrial waste or toxic chemicals.
- This pollution results in damage to the environment, and harms the health of all living organisms present in marine ecosystem.

Sources of Marine Pollution

- Hotels, industry, agricultural practices in coastline areas release large amount of pollutants.
- Enormous amount of sewage, garbage, plastic and agricultural discharge is dumped into river waters which ultimately goes to the seas.
- Oil well drilling and shipment causes release of oil & other pollutants in the marine environment
- Radioactive wastes & toxic substances etc. are stored in large containers and usually dumped in deep sea. Leaking of toxic waste may take place from these containers.

Sources of Marine Pollution

- Petroleum refinery, and off-shore oil production units cause marine pollution.
- Tankers transporting oil cause significant marine pollution.
- Shipping industries and ship-accidents also cause marine pollution

Effects of Marine Pollution

- The marine plants and animals like phytoplankton, zooplankton, coral reefs, algal species, fishes, birds and mammals are severely affected by marine pollution.
- Several pollutants get bio-magnified in the food chain which makes fish and other aquatic animals unsuitable for human consumption.
- The toxic compounds present in polluted water such as DDT, can destroy the eggs of fishes and other aquatic animals and cause diseases in fish and other organisms.

Effects of Marine Pollution

- Oil in the sea water affects sensitive plants and animals.
- Phytoplankton, zooplankton, algal species, many species of invertebrates, coral reefs, fish, birds and mammals are affected by oil pollution.
- Oil sticks to the feathers of marine birds and results in death of birds.
- The dissolution of oxygen gets reduced due to the formation of a thick blanket of oil, spilled over the sea water.
- Microplastic particles are getting embedded into fishes and other marine animals.

Control of Marine Pollution

- Toxic effluents from industries and sewage treatment plants should not be discharged in coastal waters.
- Developmental activities along coastal areas should be strictly controlled.
- Oil and grease from service stations should be recycled.
- Oil ballast should not be dumped into sea.
- Ecologically vulnerable coastal areas should be protected from oil well drilling.

Control of Marine Pollution

- Proper treatment of industrial effluents should be done before the discharge and dumping of radioactive substances.
- Dumping of toxic waste, sewage and sludge in marine waters should be banned.
- Strict environmental regulations should be implemented for offshore oil wells.
- Public awareness programs should be organized.
- Enforcement of Marine Acts and Coastal Acts.

Marine Pollution

Marine Pollution

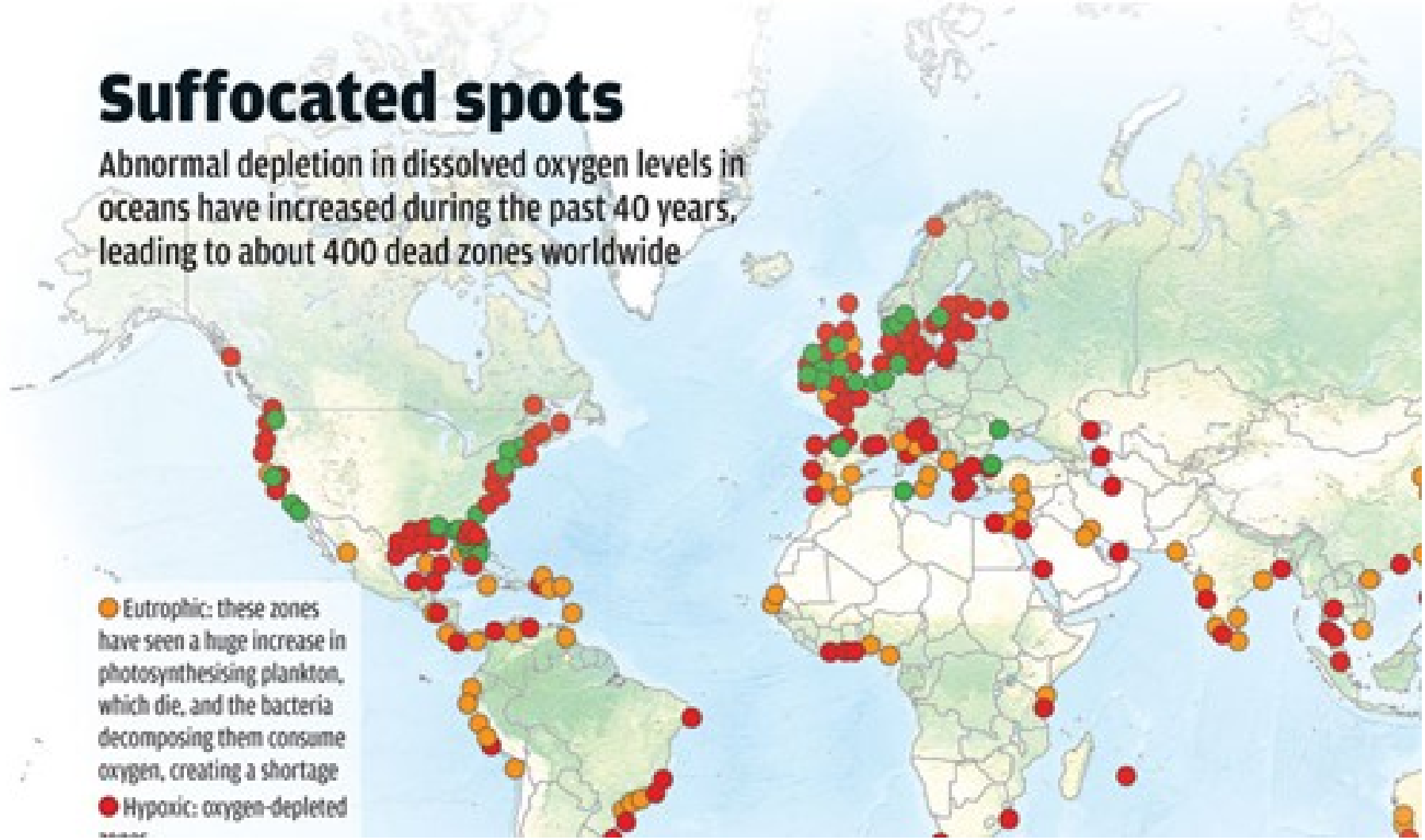
Marine Pollution – Littered Beach

Marine Pollution – Littered Beach

Marine Pollution - Oil Spills

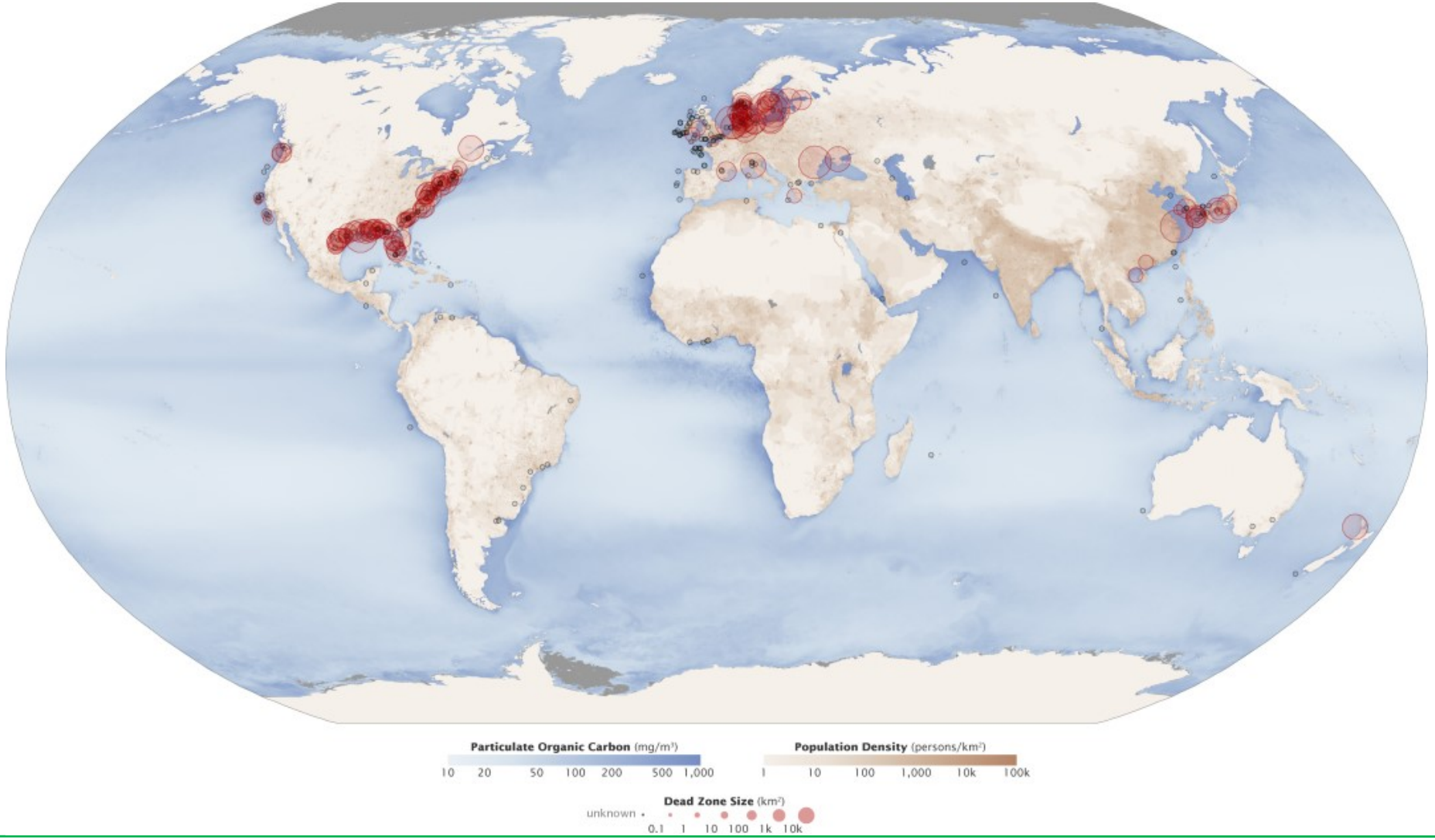
Marine Pollution - Oil Spills

Suffocated Aquatic Zones



https://www.downtoearth.org.in/coverage/environment/dying-oceans-50679

Aquatic Dead Zones



https://earthobservatory.nasa.gov/images/44677/aquatic-dead-zones

Soil Pollution

- Soil is the upper layer of the earth that is produced by weathering of rocks over thousands of years.
- Soil is a mixture of inorganic minerals and organic compounds.
- Presence of harmful substances in soil cause severe damage to the quality of soil adversely affecting agricultural productivity. This is called land or soil pollution.

Causes of Soil Pollution

- Household / industrial wastes containing organic and inorganic substances, solid wastes, plastics, inorganic chemicals, heavy metals and toxic chemicals are dumped into soil.
- Domestic waste, sewage and sludge are the major sources of soil pollution in urban areas.
- Large amount of discarded materials viz. concrete, asphalt, paper and rags, leather, plastics, cans, glass and packing materials etc. are usually dumped into soil of landfills.

Causes of Soil Pollution

- Acid rain taking place due to air pollution, results in soil pollution, by making the soil acidic and infertile.
- Chemicals used to kill insects, rats, snails, fungi, herbs, etc., viz. pesticides, rodenticides, fungicides, herbicides get accumulated in the soil and cause soil pollution.
- Radioactive wastes and nuclear wastes from nuclear reactors and nuclear explosions also causes soil pollution.

Effect of Soil Pollution

- The toxicity level of soil is increased due to industrial effluents. Heavy metals destroy useful micro-organisms in the soil and also cause diseases.
- Excessive use of chemical fertilizers causes soil deterioration, reducing the fertility of soil.
- Soil polluted by dumping of sewage can cause the spread of diseases like typhoid, jaundice, dysentery, and gastroenteritis.

Control of Soil Pollution

- Recycling of solid waste should be encouraged.
- Excessive use of chemical fertilizers and pesticides should be avoided and use of bio-fertilizers and bio-pesticides should be encouraged.
- To prevent the reduction of nutrients in soil, the practice of crop rotations should be popularized.
- Sewage waste should be converted into organic manure through composting. Bio-gas can be produced from cattle dung.

Control of Soil Pollution

- Afforestation and bioremediation of soil can reduce the soil degradation due to soil erosion.
- Biological control of pests should be encouraged by introducing selective pathogenic microbes/ insects.
- Atomic power plants should be properly constructed to prevent leakage of radioactive substances into the soil.

Soil Pollution

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Noise Pollution

- An unwanted or unpleasant sound causing discomfort is called noise and the presence of such sound in the environment is called noise pollution.
- Any disagreeable or undesirable sound in the environment is referred to as noise pollution.
- Industrial development resulting in the heavy use of machines and modern gadgets is the main cause of noise pollution.
- The level of noise is measured in decibels (db). Sound of 25–60 db is acceptable range of noise in hospitals, houses, etc. Noise beyond this limit is considered as pollution.

Sources of Noise Pollution

- Sound produced from loud speakers during festivals, marriages, political rallies, etc.
- Use of crackers during new year or other celebrations also creates high volume sound.
- Heavy machinery used in industries, boring and drilling machineries, generators etc. are the significant sources of noise pollution.
- Vehicles used in transportation viz. buses, trains, aircraft, and other vehicles.

Effect of Noise Pollution

- Long time exposure of loud sound (80-90 dB) may cause loss in hearing and it may result in total deafness.
- Sudden exposure to loud sound specially from explosions or crackers may severely affect the ear drum and sensitive ear membranes.
- Physiological effects include headache, nausea, gastric ulcers, increased pulse rate, blood pressure etc.
- Psychological effects include depression, insomnia, mental stress, lack of concentration, behavioral changes and infertility.

Control of Noise Pollution

- Sources producing unwanted sound should be regulated.
- Noisy automobiles should be regulated.
- Planting more trees can reduce noise efficiently.
- Industries, factories and airports should be far away from residential area.
- Ear protection aids like ear plugs, headphones, etc. should be used to decrease work-related exposure of noise.
- Necessary rules must be implemented to control noise pollution in industries.

Control of Noise Pollution

- Technological innovations must be adopted to replace noisy machines.
- Proper servicing of machines, use of sound absorbing materials, use of silencers should be done to control noise pollution
- Strict rules and regulations viz. minimum use of loud speakers, restricting the use of loud horns, etc., may reduce the noise level drastically.

Noise Pollution due to loudspeakers

Noise Pollution due to traffic

https://commons.wikimedia.org/wiki/File:SaoPaulo_PrestesMaia.jpg

http://www.linux.ime.usp.br/~btco