EJ Publications
International Journal Research in Applied Engineering, Science and Technology (IJRAEST)
An International Peer-Reviewed Journal Vol-1, Issue-1, 2019
www.ijraest.com ISSN: 2582-029X

MARINE POLLUTION IMPLICATION AND AMBIENCE

Velagaleti Madhan Mohan
Research Scholar,
Nagarjuna University,Guntur,India

Abstract:
The paper lights on marine pollution and features. Pollution and poor land use practices by population concentrated along rivers and other waterways affect downstream marine habitants because sediments and pollutants are ultimately washed into coastal waters. Most of the world's marine ecosystem- particularly near shore habitants- is stressed by a combination of these factors. The Black Sea, for example, is dying under the weight of the pollution and over-fishing. Coastal development contributes to habitats loss in a number of ways. These includes conversion of mangroves and other wet lands as a result of urbanization and agricultural expansion, the building of shoreline stabilization structures such as breakwaters, mining, oil drilling, and dredging and filing. Contaminants affect marine biodiversity in a number of ways. Global warming could be significant threat to marine biodiversity. Among other effects, rising waters (as a result of melting ice caps) could drown coastal mangrove and other wetland habitats. In addition, pollution from agriculture and aqua-cultural practices could be reduced through, among other things, waste treatment, the integration of farming systems with recycling, use of biological control to reduce reliance on antibiotics, and the proper handling of biodegradable pharmaceutical and feed ingredients.

Keywords: marine, pollution, contaminants, sea beaches etc

Sixty percent of the global population lives within roughly hundred kilometres of the shore. This means that about 3.6 billion people depend for their basic needs like food, building material, and agriculture and recreational, and use coastal areas as a dumping ground for sewage, garbage, and toxic wastes. Moreover, pollution and poor land use practices by population concentrated along rivers and other waterways affect downstream marine habitants because sediments and pollutants are ultimately washed into coastal waters. Pressure on marine ecosystem includes coastal population density and continued population growth, which are accompanied by increased consumer demand for marine products, increased waste disposal, and rapid alternation of coastal habitants, uncontrolled industrial pollution, inadequate institutional structures for managing marine resources, lack of property rights and management regimes within international waters, and lack of understanding and awareness of marine ecosystem process and the effect of human actions on marine biodiversity.

Most of the world's marine ecosystem- particularly near shore habitants- is stressed by a combination of these factors. The Black Sea, for example, is dying under the weight of the pollution and over-fishing. Land-based pollution in the form of industrial wastes, sewage, and runoff off pesticides and fertilizers, combined with oil and other wastes from ships traffic have contaminated the entire basin. Eutrophication has left 90 percent of the black sea facing critical low oxygen levels.

Impact on Marine Biodiversity

The direct factors leading to the loss of marine biodiversity can be broken into five categories:

1. Habitat Loss: Habitat conversion and degradation are generally thought to be the most significant threats to terrestrial life. Within marine ecosystems, they rank along with overexploitation and pollution as major causes of biodiversity loss.

Coastal development contributes to habitats loss in a number of ways. These includes conversion of mangroves and other wet lands as a result of urbanization and agricultural expansion, the building of shoreline stabilization structures such as breakwaters, mining, oil drilling, and dredging and filing. These results both in the destruction of wet lands and other habitats and in the degradation of nearby areas (through siltation and changes in water temperature and flow, salinity, and other physical factors).

In addition, dams can cut off species access to spawning areas –this includes not only species that live in saltwater and reproduce in rivers (such as salmon) but also fresh water species that breed to sea (such as fresh water eels).

Intense exploitation of marine recourses can indirectly lead to habitat losses. Fishing with dynamite and harvesting of corals are major treats to coral reef areas

2. Intense Overexploitation:

According to 1995 report, from 1998 to 1991, humans removed about 8 percent of all annual primary production (the total amount of living carbon) within aquatic ecosystem. This figure is lower than the ratio of primary production co-opted for human use in terrestrial systems; however, it marks exceptionally high removal rates within some of the most productive and species-rich ecosystems. For example, more than one-fourth of all production occurring within ocean upwelling's and tropical marine shelf areas is consumed by humans; in temperate shelf regions, it is about 35 percent. Continued exploitation at such levels is leading to changes in spices composition, loss of biodiversity, and shifts in dominance and survival ability.

Overexploitation of these species has three effects:

- First, it results in the loss of genetic diversity as fish populations decline.

EJ Publications
International Journal Research in Applied Engineering, Science and Technology (IJRAEST)
An International Peer-Reviewed Journal Vol-1, Issue-1, 2019
www.ijraest.com ISSN: 2582-029X

- Second, over-fishing affects the relative abundance of individual species or the mix off different species within an ecosystem. Often, populations of both the target species and the predators that feed on these species decline and are replaces by stocks of lesser commercial value.
- Third, depleted fisheries have direct economic impacts, including reduced income (and unemployment) and higher consumer prices

.

3. Contamination And Sedimentation:

Dumping and discharging f pollutants into the sea, oil spills, nutrient-and silt-laden runoff from land and rivers, fallout of chemicals carried by the wind from land-based sources, and noise from ships and other machinery 9which disrupts communication among whales and other species) are some of the major contaminates affecting marine species and ecosystems. As figure shows, air pollution and runoff and point discharges from the land (and rivers) account r some three-fourths of pollutants entering marine ecosystems.

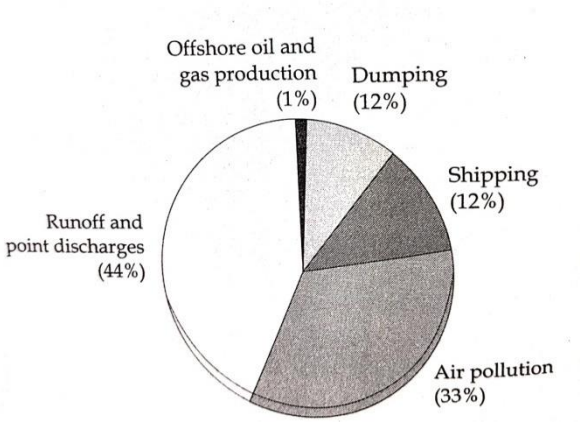

Fig: Percentage contribution of pollutants

4. Spices Introduction:

Ships carry an enormous variety of exotic species including both plankton and larger species in larval form, within their ballast water. According to one estimate, about 3,000 spices are transported in ships around the world each day. Accidental introduction of exotic species may be one factor in the apparent spread of toxic blooms; it is also the suspected cause of a disease affecting corals that has recently appeared in water of the coast of Asia and Middle East. By feeding on or overrunning dominant native species, exotic species can trigger changes in the species mix within ecosystem?

5. Oil Pollution:

Chronic low levels of oil pollution, resulting from accidental spills when loading or unloading, or room washing out oil tanks, are wide spread and of significant concern.

EJ Publications
International Journal Research in Applied Engineering, Science and Technology (IJRAEST)
An International Peer-Reviewed Journal Vol-1, Issue-1, 2019
www.ijraest.com ISSN: 2582-029X

Major Source and Their Impact on Marine Pollution

1. Contaminants affect marine biodiversity in a number of ways. For example, oil has lethal and almost immediate effects on a wide range of marine life-from algae to sea birds- resulting in death through asphyxiation, poisoning, and among mammals and birds, loss of the insulating functions of feathers and fur, causing hypothermia. Eggs and larvae are particularly sensitive to the toxic effects of pollutants, as are organisms living at the ocean surface and on the seabed, where wastes tends to accumulate.
2. Other contaminates such as radioactive waste, pesticides, and other chemicals have cumulative effects, building up within individuals over time, especially within species high on the food chain. Moreover, various contaminants and physical degradation can act together in a cumulative or synergistic fashion
3. Between 1987 and 1991, dolphin and seal die-off were recorded in the north and Baltic seas, off the eastern coast of the United States, in the Gulf of Mexico, and in the Mediterranean Sea. The carcasses of these animals were found to contain elevated levels of polychlorinated biphenyls (PCBs0, dioxins, and other organ chlorines, known to accumulate in the blubber (or lipid tissues) of large species and predators at the top off the food chain. These die-off's and an epidemic of tumors observed within green sea turtles have been linked to the cumulative build-up of PCBs and other chemicals that are believed to weaken immune systems, creating a vulnerability to viral infections.
4. Other contaminants can trigger ecosystem-wide changes, resulting in conditions that are inimical to a range species. Runoff of sewage from cities and off fertilizers from agricultural areas elevates the levels of nutrients within near shore waters. Certain algal species capitalize on these conditions, undergoing massive population explosions (known as blooms), which, by lowering water clarity and oxygen content, electively crowed out others in a community. (Algal blooms block the right reaching algae living within corals and other photosynthesizing bottom-dwelling organisms, killing them; then, the decomposition of bloom algae deoxygenates the water.)
5. Many bloom species produce toxins. So-called killer blooms have been linked to die-offs of fish, shellfish, and other species that consume or come into contact with toxic algae or that ingest other consumers of those algae. Human health can also be at risk. A 1987 toxic bloom occurring off the Guatemalan coast, for example, indirectly resulted in the death of 26 people and produced serious illness in 200 other individual who consumed piousness seafood. Although small-scale blooms 99both toxic and non-toxic) are a naturally occurring phenomenon in most regions, the frequency, magnitude, and toxicity of such events appears to have increased dramatically in recent years.

6. Widespread effects are often noted as a result of sedimentation. Soils eroded from deforest areas and poorly managed agricultural lands often end up at sea, reducing light penetration to sea-grass bed, coral, and other communities dependent on the productivity of photo synthesizers living on the sea floor. As sediments settle out, they smoother bottom-dwelling organism and affect filter-feeding species.
7. Non-toxic solid wastes and marine debris cause significant mortality among marine species. For example, plastic bags, fishing lines, and other debris can entangle seals, seabirds, and other organisms, causing slow but sure deaths. Bits of plastic and other man-made materials are regularly ingested by sea turtles and other species, often with fetal consequences.
8. Global warming could be significant threat to marine biodiversity. Among other effects, rising waters (as a result of melting ice caps) could drown coastal mangrove and other wetland habitats. Even I were global warming is proceed at a pace slow enough to permit species to colonize new coastline boundaries, the presence of existing agricultural and urban development with protective bulkheads and dikes would, in many cases, prevent the establishment of new wetland areas.
9. Projected climate change could have other effects, including changes in ocean currents, salinity (due to change in river flow), and surface temperatures. These would alter the species composition found within individual ecosystems today, perhaps triggering local and global extinctions in the process.

Tools for protecting Marine Biodiversity

- Because of the human activity both at near shore and far upstream places, many marine species are at risk, there is a great need for comprehensive far-reaching strategies to conserve marine biodiversity. Over-fishing of a single species can certainly affect other, unharvested species within the marine ecosystem. But even such disturbances as deforestation along a river can lead to the degradation off a coral reef or estuary thousands of kilometers away. To be effective, future measures must include not only mechanisms for protecting species (and ecosystem) whose ranges overlap several countries but also mechanisms to protect species within international waters.
- Establishment of marine protected areas, bioregional management approaches, and negotiation of international agreements for regulating pressures on marine resources.
- In addition, pollution from agriculture and aqua-cultural practices could be reduced through, among other things, waste treatment, the integration of farming systems with recycling, use of biological control to reduce reliance on antibiotics, and the proper handling of biodegradable pharmaceutical and feed ingredients.
- Sewage and factory wastes should be treated before their release into sea water. It can reduce the harmful effects of the wastes.

References:

- Understanding Marine Ecology by Ashok Kumar ISBN: 978-8183568609
- Marine Pollution - What Everyone Needs to Know By Weis Judith S. ISBN: 9780199996681
- Environmental Science & Engineering Paperback – 2014 by N Arumugam, V Kumaresan ISBN-13: 978-9382459590