

Issues In Marine Capture Fisheries – An Overview

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Introduction

India has 8118kms of cost line and 0.53 million km² of continental shelf area. The estimated annual present marine production 3.72 MMT(2019) potential decreased by 3.2% compare to previous year 3.85MMT(2018). Present contribution of fisheries sector to Indian economy and agriculture sector has been estimated to be 1.24% and 7.28% respectively.

Fish is a low-cost source of animal protein that also contains essential micronutrients such as omega-3 fatty acids, vitamins, and minerals. This nutrient helps to eliminate malnutrition in children, as well as hunger and the spread of communicable and non communicable diseases around the world. Tripura rank first in annual per capita fish consumption followed by Kerala, Manipur, Odisha and Assam. Marine resources are primarily impacted by climatic change, such as ocean acidification and the direct and indirect discharge of contaminants from sewage effluent and industries. Overfishing is putting a strain on marine species. Various Issues in marine capture fisheries is mainly overfishing, by-catch and discard, IUU fishing, ghost fishing, bottom trawl, poisons, dynamic fishing, dredges, traps.

1. Overfishing

Overfishing is the removal of marine living resources to levels that cannot sustainable populations. According to the report published by FAO,2020, the sustainable level of biological stock decreased to 65.8%(2017) from 90%(1974).

Growth overfishing

Growth overfishing occurs when fish are harvested at an average size that is smaller than the size that would produce the maximum yield per recruit. Depleting the older population of fish with overfishing which prevents proper reproduction. Increasing growth over fishing reduced the population of fishes which can alter the marine ecosystem.

Recruitment overfishing

Recruitment overfishing occurs when the mature adult (spawning biomass) population is depleted to a level where it no longer has the reproductive capacity to replenish itself there are not enough adults to produce offspring. Managers employ the technique of increasing spawning stock biomass to a desired level in order to restore an overfished population to sustainable levels. It can be overcome by reducing fish mortality rate as with addition to this and allow fish to grow maximum growth.

Effect of overfishing

- ✓ Slow growth
- ✓ Delay sexual maturity
- ✓ Low reproductive rate
- ✓ Alter the water quality
- ✓ Effects on both fish eggs and larval development process
- ✓ Increasing number of threatened and endangered species

2. By-catch and discards

Incidental capture of non-target species such as dolphins, marine turtles and seabirds and discards have shown to impact some systems negatively, they can be a potential benefit in other systems. Shrimp trawler effort resulted in a large reduction in shrimp as well as others marine organisms. More than 300,000 whales and dolphins are killed each year in by catch. Marine capture aquatic species are thrown back after capture. Most discards species do not survive. For instance, while discards have been demonstrated to have a negative influence on some systems, they can have a positive impact on others. In the gradual reduction in trawl effort resulted in a large reduction in prawn production.

3. IUU Fishing

Illegal fishing refers to fishing activities conducted in contravention of applicable laws and regulations, including those laws and rules adopted at the regional and international level.

Unreported fishing refers to fishing activities that are not reported or are misreported to relevant authorities in contravention of national laws and regulations or reporting procedures of a relevant regional fisheries management organization.

Unregulated fishing occurs in areas or for fish stocks for which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.

What are some examples of IUU fishing activities?

- Fishing without a license or quota for certain species.
- Failing to report catches or making false reports.
- Keeping undersized fish or fish that are otherwise protected by regulations.
- Fishing in closed areas or during closed seasons, and using prohibited fishing gear.
- Conducting unauthorized transshipments (e.g., transfers of fish) to cargo vessels

4. Ghost fishing

The term "ghost fishing" is used to describe the capture of marine organisms by lost or abandoned fishing gear. This is particularly a problem with gillnets, trammel nets and pots. The gear is usually lost because it becomes stuck on rough bottoms containing corals and stones, causing the buoy line to break during retrieval. Nets or pots may then continue to fish for years. Captured fish and crustaceans will die and serve as attracting bait for more fish and other organisms. Ghost fishing may therefore represent a serious problem in many areas, causing "hidden fishing mortality" over a long period of time.



Figure-1 Ghost fishing gear wrapped sea lion

5. Poisons

The use of poisons is widespread, in some regions in both fresh and marine waters -- especially in coral reefs and coastal lagoon fisheries. Pesticides are used to replace poisons of vegetable origin. As fish become scarcer through over fishing or in order to catch rare, small and precious aquarium fish, local fishers often resort to using poisons such as cyanide or

pesticides. They are effective at killing or stunning, indiscriminately, the fish, which are then collected by divers, or through netting and seining.

6. Explosives

Blast fishing or dynamite fishing is the practice of using explosives to stun or kill schools of fish for easy collection. This often illegal practice can be extremely destructive to the surrounding ecosystem, habitat (such as coral reefs) that supports the fish. The frequently improvised nature of the explosives used means danger for the fishermen as well, with accidents and injuries.

7. Bottom trawling:

It is a non-selective destructive fishing approach with a high by-catch rate. Bottom trawling in deep oceans is causing the destruction of cold-water and deep-sea corals ecosystem. Historically, industrial fishers avoided coral areas because their nets would get caught on the reefs, ultimately affect on the fish biodiversity, which are depend on coral reef ecosystem.

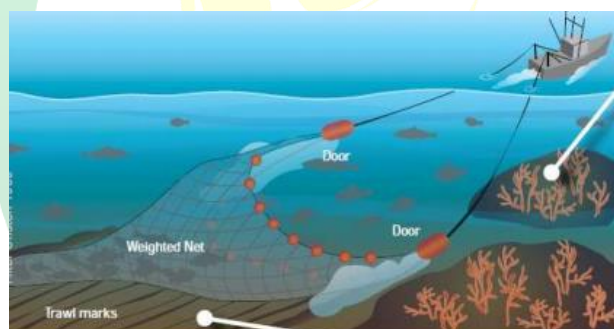


Figure:-2 Bottom trawling effects corals and sea grass ecosystem

Conclusion

The importance of ghost fishing as a potential problem is underscored by very large volumes of fishing gear in use, high gear loss rates in many fisheries, and the widespread use of non-degradable materials such as plastics and stainless steel for fishing gear construction. Different type of ecological system is altering in the marine environment, destruction of habitat, by pollution and environmental climatic change. Sustainable level of fish Stock as well marine bio-resources can be maintained optimum by educating/training the importance of marine resource to Human and other ecological regulating services to our earth.

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