

# Menace of overfishing and its effects on marine and aquatic life research paper s...

[Sociology](#), [Population](#)



## **Introduction**

Is the fish population close to extinction? This could be addressed by taking a look at the present trend in the marine and aquatic population. The marine and aquatic habitat house more population and species than the terrestrial. The researches have proved, and made it obvious by the fact that water bodies take up 70 percent of the earth surface. Fishes are the most common species in the aquatic and marine habitat. There are various types of fishes, and each species is important in the food chain. In fact, the depletion of one species can create incredible consequence and effect on the whole habitat and might go a long means not simply to have an effect on the aquatic environment but disrupt the entire ecosystem and the whole economic system of the world (" Bycatch," 2014).

## **Literature Review**

Overfishing was substantially catalyzed in the mid of 20th century as an outcome of the collective international initiatives to improve the availability and cost of protein-rich foods. This led governments to come to consensus and to poll efforts in order to increase fishing capacity. As a result of favorable policies, subsidies and loans were given to encourage fishing. This led to large industrial fishing operations and activities. Local boatmen were quickly displaced and aggressive commercial fleets rake through the ocean bodies. In addition, high tech tools and methods were developed for efficient fishing, extraction and processing of fish and fish products. Yields began reducing at the end of the 20th century as the peak fishing was reached in 1989. Many fish species were depleted, including bluefin tuna, swordfish, red

snapper, flatfish species and Atlantic cods. Harvesters of course shifted to other seafood like mackerel, squid and pacific whiting.

Many governments still subsidize their fleets and give room to unprofitable fishing operations as well as overfishing. Studies showed that the fishing fleet of today is almost more than two times the capacity required catching what we need (" Bycatch," 2014; Blameya, Plagányib & Brancha, 2014).

## **Why Fishing?**

Fishing is the act of catching fish. It is done for various purposes including sports, recreation, relaxation, food and so forth. Fish is widely used as sources of protein. Because of their nutritional contents, people usually resort to them for their protein and nutritional needs. The billions of people benefited in the world with protein since century's past. Many people have thought that the seas and oceans contain unending riches but the immense fishing activities over the past 50 years have made it obvious that the ocean is highly sensitive and vulnerable (National Geographic, n. d.).

## **Pirate Fishing**

Unlawful, uncontrolled and unreported fishing is known as pirate fishing and is one of the vital dimensions of overfishing disasters. This takes place in every fishery including national and international waters. In some fisheries, this illegal fishing dimension accounts for 20 percent of the world's catch whereas, in others, it accounts for 50 percent of the catch. The value of pirate fishing is estimated at between \$10 and 23. 5 billion per annum (Fox, 2014).

The pirate police system and rogue investors are mutually involved in pirate

fishing. The monitoring officials of governments all over the world do little to examine their activities or exactly what is being done at their own ports, despite the numerous international dedications and plans. The pirate swag is illegally transferred to ships, combined with legitimately caught stocks and afterwards intentionally marketed in " reputable" ports. This practice is very common in Suva, Las Palmas and some other countries.

The countries that are the sufferers of this overfishing crime are least able to execute the legislation in their very own waters. However, the proprietors and drivers are not impossible to locate. Almost 80 various nations play host to them including Taiwan, Belize and Panama. International enforcement can close down this profession.

## **Overfishing and Its Causes**

Overfishing involves catching fish beyond its reproductive capacity. It is due to various factors, but the consequence is quite obvious. For ages and centuries, man has been known to rely on fish and of course the seas and oceans for sustenance and food. Moderate fishing activities are encouraged; however, overfishing activities are indeed great menaces to man and his environment. This is a need of the time to address causes of overfishing to tackle the problem effectively.

According to Fox (2014), the immense overfishing activities going on in seas and oceans can be easily put under control by marking some of the fishing locations as protected areas and making it strict. Lack of protected areas is one of the reasons for overfishing. As a matter of fact, only 1. 6% of the oceans and seas have been declared as marine protected areas (MPAs). In

addition, 90 percent of the existing marine protected areas are still open to fishing. Marine protected areas can give a room for depleted fish species to recover and multiply once more. They provide refuge to species that are put under danger by overfishing. They also protect coral reefs from destructive fishing activities. The inhabitant who depend on the ocean for their daily living and sustenance benefit tremendously from the benefits offered by these no-take regions (Fox, 2014; Blameya et al., 2014)

As per reports, open access nature of many fisheries in the world is one of the major problems and causes of overfishing. The lack of regulatory rights makes fishermen not to see it worthwhile to leave fishes in the water when they go fishing. By making regulatory laws and enforcing them, fishermen will be encouraged to fish moderately and hence the aquatic population will be preserved (" Bycatch," 2014; Blameya et al., 2014).

Poor management is also one of the major factors that contribute to overfishing. The fishing industry has long suffered from a lack of government regulations, traceability of fishing activities and management oversight. There are only few international fishing laws for high seas and even in places where these laws exist, they are seldom implemented. The available fishing rules are not strong or strictly enforced to maintain fishing at a sustainable level.

## **Effects of Overfishing**

As discussed earlier, overfishing has tremendous effects not only on the aquatic population but also on the world economy and population. The effects of overfishing are multifarious. They range from economic loss and

decrease in food scarcity to causing imbalance in the marine and aquatic ecosystem. The world economy depends on fishing to a great extent. Coastal nations are put into immense threat by overfishing. Destructive fishing activities devastate communities which rely greatly on healthy and abundant stock of fish for revenue and labor.

According to Lee & Safina view point, biodiversity is the diversity of living things. It takes place on three levels which include ecosystem, species and genes. The ecosystem effect of the depletion of top predators is of important concern. The depletion of linefish for instance affects lobsters, abalone and urchins. This simply shows how overfishing of top predators may lead to socio-economic consequences and regime shifts. Overfishing may have unintended consequences. It could result to a decrease in economic resilience as well as the precipitation of regime shifts. Overfishing has biological, social and economic consequences. To maintain resilience of the ecosystems to external shocks and trepidations, it is important to protect biodiversity (Fox, 2014; Lee & Safina, n. d.). Figure 1 is presenting the cyclic chain between illegal and legal fishing which should be monitored to control overfishing.

Figure 1 Schematic Cycle of legal and illegal fishing

Adopted from Blameya et al., (2014).

A shift can be made in the terrestrial, freshwater and marine ecosystem by the removal of predators from the system. In order to explore the impacts of the removal of predators from the ecosystem, ecosystem models should be used (Blameya et al., 2014). Focusing the fishing process on top predators like sharks, tuna, billfish and so forth can cause a disruption in the marine

community and result to the multiplication of smaller marine organisms which occupy the lower rank of the food chain. This affects the ecosystem and can result to the increase in algae as well as the threatening of the health of coral reefs. Bycatching is another serious dimension of overfishing which involves catching fish unintentionally in a fishery while intending to catch another fish. It results to mortality in the fish population as billions of fish together with cetaceans and turtles have been lost through this process (" Bycatch," 2014).

Travers et al. (2010) emphasized that it is essential to consider the risks of fishing on non-targeted species. To explore the possible effects of fishing on various species at different levels in the food chain, ecosystem should be monitored. Rather than using a single model, several ecosystem models should be compared to get the most possible effects. The cycle of food availability and fish reproduction is shown in figure 2.

Figure 2: Schematic representation of food availability and fish reproduction cycle

Adopted from: Travers et al., (2010).

Reduction in food security is another major effect of overfishing . Fish is the main source of protein to people in various regions of the world, especially those in the coastal communities and their neighboring regions. As a result, overfishing has a tremendous effect on food security on the communities which depend on fish for nutrition and protein. Long-term food security is unimaginably put to intense threat by overfishing and the consequence could be enormous. This has a severe effect on developing countries in comparison to developed countries. (Fox, 2014; National Geographic. n. d.).

Regardless of having among the most controlled fisheries around the world, Canada has not been unsusceptible the effects of overfishing. The failure of the Atlantic Canadian fishery regulation is one of the worst cases in this context. This incident of over fishing is quoted in the history due to its financial, cultural and social effects even today. In many African countries, fish may account for as much as 50 % of protein in a typical diet. The decreased availability of fish in coastal waters due to illegal overfishing is making the vital resource inaccessible for the poor residents of third world countries (" Global consequences of," 2009).

The research reports published in 2003 estimated that the large number of ocean fish has been reduced to barely 10 percent of their pre-industrial population. This is indeed a great threat to the fish population and the marine ecosystem. Many commercial fleets now deep-dive to the ocean world, down the food chain to catch more fish because of the debacle of the large-fish population. This condition, referred as “ fishing down”, triggers a chain reaction and upsets the balance of the sea’s ecosystem. According to a study data published in a journal of Science (2006) predicted that if the trend in fishing continues at the current rate, by 2048 all the world’s fisheries would have collapsed (National Geographic . n. d.).

According to research, hefty fishing pressure can alter the hereditary qualities of the people like genetically heritable attributes which effect sex-related maturation. This could happen, for instance, when the larger fish in a populace are precisely overexploited. Over fishing minimize bigger fish in their early period of reproduction, and people use younger fish that change the genetic characteristics. The fish that endure and do even more of the



recreating have the ability to pass on their genes to future generations. The genetic irregularity of the population is altered from its previous state to the current state. Fishing could exert a stress on reproduction by miniaturization or early growth in this way (Lee & Safina, n. d.).

Global environmental pollution is another major threat caused by overfishing. Fishing boats, vessels and trawlers used for fishing often cause oil and liquid spillage as well as the discharge of chemical and solid elements into the aquatic and marine body. Oil spillage might seem insignificant but it causes untold menaces and havocs. This can lead to intense devastation and huge consequences (" Impact of overfishing," 2010).

Furthermore, evidences showed that increased fishing activities across the world have a tremendous effect on the ocean atmospheric health. The exploitation and depletion of top predators greatly affect other species in the ecosystem. Exploitation of sharks causes increase in shark preys such as rays which in effect result to the decrease in smaller fish and shellfish.

During fishing operations, some aquatic and marine species are unintentionally killed. This upsets and causes a shift in the ecosystem (" Global consequences of," 2009).

Ghost fishing is one of the overfishing disasters that cause immense damage in the marine habitat. Fish harvesters often spend untold time in deep seas and in some cases they lose some of their fishing implements and tools like their nets. This continually causes havocs by trapping and catching fishes under the water and also killing them. The nets and fishing tools may stay under water for decades and continue causing destructions and damage (" Impact of overfishing," 2010)

## Conclusion

There is great need for urgency in saving lives in the freshwater and marine population. This can be acquired by improving fisheries management, making fisheries sustainable, addressing fisheries subsidies in addition to creating and expanding marine protected areas. Regulating fishing and enhancing fisheries management as well as increasing and creating more marine protected areas will help to maintain marine ecosystem. This will prevent the extinction of marine populations near extinction and balance the shift in the ecosystem. All species in the marine habitat is important, and that is why the overfishing should be stopped.

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