

DEFAUNATION OF MARINE SPECIES AND LAW IN INDIA

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ABSTRACT

Our eco-system is comprised of interdependent on animals and plants which constitute a complex web of life. This variety of life on earth, the biodiversity that features numerous interactions among the species, is most vital to the existence of our planet and, particularly, of the humanity. Thus, indeed the extinction of a single species may affect the whole biological system pertaining to life and living things. Unfortunately, the improper interventions of human beings in nature are pushing several of the species in the ecosystem to the brink of extinction. The unprecedented unnatural extinction of these species has not only the endangered functioning of the ecosystem but also affected the ecological issues to a large extent.

Wildlife populations in the Oceans have been badly damaged by human activity. Nevertheless, Marine fauna generally are in better condition than terrestrial fauna were less marine animal extinction has occurred. Many Geographic ranges have shrunk less and numerous ocean ecosystems remain wilder than terrestrial ecosystems. Consequently, meaningful rehabilitation of affected marine animal populations remains within the reach of managers. Human dependency on marine wildlife and the linked fate of marine and terrestrial fauna necessitate that there is a need to act quickly to slow the advance of marine defaunation to balance the harmony

Three lessons emerge when comparing the marine and terrestrial defaunation experiences:

- (i) Today's low rates of marine extinction may be the prelude to a major extinction pulse, similar to that observed on land during the industrial revolution, as the footprint of human ocean use widens;
- (ii) Effectively slowing ocean defaunation requires both protected areas and careful management of the intervening ocean matrix; and

- (iii) The terrestrial experience and current trends in ocean use suggest that habitat destruction is likely to become an increasingly dominant threat to ocean wildlife over the next 150 years.

KEY WORDS:

Ocean Eco – System, Ocean Defaunation, Legislation in India, Threat to Marine Flora and Fauna.

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INTRODUCTION:

Our eco-framework is involved related on creatures and plants which establish a mind boggling web of life. This assortment of life on earth, the biodiversity that highlights various cooperation's among the species, is generally crucial to the presence of our planet and, especially, of the humankind. Along these lines, in reality the termination of solitary animal groups may influence the entire organic framework relating to life and living things. Sadly, the ill-advised intercessions of individuals in nature are pushing a few of the animal types in the environment to the verge of termination. The exceptional unnatural elimination of these species has the imperiled working of the biological system as well as influenced the natural issues to an enormous degree.

Natural life populaces in the Oceans have been severely harmed by human action. By and by, Marine fauna for the most part are in preferable condition over earthly fauna were less marine creature annihilation has happened. Numerous Geographic reaches have contracted less and various sea biological systems stay more stunning than earthbound environments. Thus, important recovery of influenced marine creature populaces stays inside the compass of administrators. Human reliance on marine untamed life and the connected destiny of marine and earthly fauna require that there is a need to act rapidly to slow the development of marine defaunation to adjust the congruity

Marine defaunation, or human-caused creature misfortune in the seas, developed strongly just many years prior, while earthbound defaunation has been happening far longer. In spite of the fact that people have caused worldwide marine terminations, this

has significantly influenced marine natural life, changing the working and provisioning of administrations in each sea. Ebb and flow Ocean patterns combined with earthly defaunation inquire about show and recommend that marine defaunation rates will quickly heighten as human utilization of the seas industrializes. In spite of the fact that ensured regions are an integral asset to tackle sea efficiency, particularly when structured in light of future atmosphere, extra administration methodologies will be required. By and large, territory debasement is probably going to increase as a significant driver of marine untamed life misfortune. Proactive intervention can avert a marine defaunation disaster of the magnitude observed on land.

From unknown creatures to Charismatic mega fauna, these disappearances in the ecosystem happen frequently. On land, animals like Orangutan, Black Rhinos, Amur Leopard and Giant Pandas are some of the most critically endangered species in the world. Similarly, many marine species including Marine mammals, Sea turtles and Salmonids are also on the edge of extinction as climate change and overfishing become a major threat to their existence. According to the International Union for Conservation of Nature (IUCN), hundreds of marine species across the world come under the categories of endangered and critically endangered species. IUCN, at regular intervals, determines the status of species considering the probability of their extinction, from least concern to extinct. Some of these majorly endangered and recognizable marine species are named here.

1. Hawksbill Turtle (*Eretmochelys imbricate*)

Found in the tropical regions of all the world's oceans, gulfs and seas- mostly in coral reefs, the Hawksbill Turtle's population has been estimated to have declined by 80% over the last century. Known to be a subject of heavy trafficking in the tourist trade in tropical regions for its meat and shells, these turtles are being killed mercilessly for quite a period of time. The colorful shells of the Hawksbill Turtle, with beautiful patterns, make them a valuable item in the market, often sold as "tortoiseshell." Even though in many countries harvesting of its eggs is banned, the practice could not be ceased completely. The declination of its population has also resulted due to the degradation of coral reef species which the Hawksbill Turtle primarily feed on. According to marine conservatives, this family of the turtle is the living representatives of reptiles that have existed in our oceans for the past hundred million years and these turtles are vital for the existence of seagrass beds and coral reefs.

2. Vaquita (*Phocoena sinus*)

An inhabitant of the shallow, murky waters off the shore of the Baja Peninsula in Mexico, Vaquita is the world's smallest and critically endangered cetacean. This rare marine mammal in the world is on the brink of extinction only after a half-century of its first sighting. Features of Vaquita include the dark rings around their eyes, lips with dark patches and a thin line from mouth to dorsal fins. Extensive use of gill-netting for fishing in the Gulf of California has endangered this marine species, resulting in a gradual drop in population since the 1940s. The gill-netting operation may have been ceased to exist in 1970, but the population fall persists for as much as 15% every year. According to reports, there is only a dozen of this marine mammal left in the world since the percentage of decline in their population was as much as 90% since 2011.

3. Blue Whale (*Balaenopterus musculus*)

The largest living mammal on earth, the blue whale belongs to the baleen whales and features more than 100 feet in length and around 200 tonnes in weight. There are at least three subspecies of Blue whale and these could be found migrating from both poles in the oceans around the world. Sits on top of the food chain, whales have a significant role in maintaining a healthy marine environment. Unfortunately, the excessive commercial hunting has resulted in the decrease of its population drastically and now has posed a threat to its mere existence even though an international ban was constituted in 1966. According to IUCN's 2016 estimate, the global population of the Blue Whale is 10,000–25,000.

4. Kemp's Ridley sea turtle (*Lepidochelys kempii*)

The Kemp's Ridley sea turtle, also known as the Atlantic Ridley sea turtle, is a rarest and smallest sea turtle and is endangered to a severe degree. Primarily found in the Gulf of Mexico, the Kemp's Ridley sea turtle often migrate to the Atlantic Ocean only to come back to lay eggs. This group turtle has a unique way of nesting habits. The female turtles arrive in large numbers- a procession called Arribadas- in a single beach to lay eggs. Unfortunately, the conditions such as loss of habitat, marine pollution and entanglement in fishing nets etc. have resulted in the huge decline of the population of the Kemp's Ridley sea turtle. Thus,

harvesting of eggs have been made illegal and research projects of incubating and hatching the eggs in temperature-controlled rooms have been undertaken to save this endangered marine species.

5. Steller Sea Lion (*Eumetopias jubatus*)

Evidently the largest member of the Otariid family and the fourth largest of all seal species, this eared seal could be located in the cold coastal waters of the North Pacific. Also known as the northern sea lion, the species is named after Georg Wilhelm Steller, a naturalist who first discovered them in 1741. The high risk of predation by Killer Whales and fishing and harvest by native Alaskans and Canadians for meat, oil, hides and other by-products make this marine life vulnerable to endanger. According to reports, its population has declined by more than 60% due to both natural and human threats since the 1960s. However, the eastern Steller sea lion was omitted from the U.S. Endangered Species List in 2013 after their increasing population in the recent years.

6. Hammerhead Shark (*Sphyrna mokarran*)

Traced in the tropical regions of the oceans around the world, the Hammerhead shark belongs to the family Sphyrnidae and was given the name because of its “hammer” shaped head. The Hammerhead sharks typically have 0.9 to 6.0 m length and up to 580 kg weight. Known as aggressive hunters, these sharks are feed on smaller fish, squid crustaceans and octopuses, while there are reports of unprovoked attacks on humans by the shark. These migratory sharks are subjected to being victimized for its fin. Even the process itself is horrifying as the sharks are caught by fishermen, dragged on board and is cut off their fins while they are still breathing. The remaining carcass is thrown into the water and eventually, it bleeds to death. Albeit there is a ban imposed upon shark finning in many countries, the result has been abortive as the demand and high price paid for it in the Asian market drives the illegal harvest system, endangering these marine species’ survival.

7. Fin whale (*Balaenopteryx physalus*)

Also known as common rorqual, Fin whale is the second-largest mammal on the planet after Blue Whale. With a maximum length of 25.9 meters, the Fin Whale has an

estimated weight of about 114 tonnes. Like all the other whales in our oceans, the Fin Whale is also a victim of hunting for a long period of time. According to estimates, the global population of Fin Whale ranges from below 100,000 to around 119,000. Humpback Whale, another rorqual species, has also been listed as an endangered marine species. Before the introduction of whaling moratorium in 1966, these species were hunted to extinction for its fur and flesh for meat, while the population dropped by 90%. Currently, around 2,500 Humpback Whale is believed to surviving in the world.

8. Hector's Dolphin (*Cephalorhynchus hectori*)

Found off the coast of New Zealand, Hector's Dolphins are the smallest dolphins in the world and the prominent dolphin in the genus *Cephalorhynchus*. Mostly sighted around the South Island, the world's rarest dolphins' features include black markings on the face, stocky bodies and creamy white throat and belly. One group of Hector's Dolphin will be comprised of two to eight members. Unfortunately, there is a significant decline in their population as trawl fisheries and bottom-set gill nets cause the death of these species. Most number of deaths happens in the fishing nets. One of the two sub-species of Hector's Dolphin, Maui's dolphin, is considered to be a most endangered one. According to the survey conducted by the New Zealand Department of Conservation in 2010-11, the estimated population of these dolphins is 55.

9. Hawaiian Monk Seal (*Monachus schauinslandi*)

A native of the Northwestern Hawaiian Islands, Hawaiian Monk Seal is one of the earless seals who live in the warm beaches, unlike other seals. This endangered marine mammal is one of the two remaining in this species-monk seal- along with the Mediterranean monk seal, while third species from this family, the Caribbean monk seal, has already disappeared from the planet. According to the recent research, there are only around 1,400 Hawaiian Monk Seal remaining on the Islands now. The existence of these seals is threatened by commercial hunting for meat, oil and skin, attack from predators including tiger sharks, marine debris and entanglement in fishing nets.

10. Green sea turtle (*Chelonia mydas*)

One of the largest sea turtles, Green Sea Turtle is a herbivore and can be found in the tropical and subtropical seas. The Green Sea Turtle's name comes from the colour of the fat that found underneath its carapace. Like many other turtle varieties, Green Sea Turtles also migrate from its hatching beaches to feeding grounds. Since these sea turtles are always been a popular food item, the hunt for turtles and their eggs is threatening their lives. The loss of sandy beaches, marine population and careless fishing methods also have added to the decline of their population.

Apart from these mammals and turtles, salmonids and seabirds also have confronted the menace of endangered ocean species. The Maritime Mammal Protection Act of USA (MMPA-1972) and The Endangered Species Act of USA(ESA-1973) have contributed so far to salvage this ocean life but it requires adequate awareness about these issues and the transcendence of the human behaviour in accordance to that, which can inevitably make a difference for these ocean endangered species. However, exotic species may also seriously disrupt delicate ecological balances and may produce a plethora of unintended yet harmful consequences.

Three lessons emerge when comparing the marine and terrestrial defaunation experiences: (i) Today's low rates of marine extinction may be the prelude to a major extinction pulse, similar to that observed on land during the industrial revolution, as the footprint of human ocean use widens; (ii) Effectively slowing ocean defaunation requires both protected areas and careful management of the intervening ocean matrix; and (iii) The terrestrial experience and current trends in ocean use suggest that habitat destruction is likely to become an increasingly dominant threat to ocean wildlife over the next 150 years. It is here that there exists a strong market for traditional medicines made from these animal parts.

Protection of Endangered Species at National Level

Endangered species in India comprise large varieties of rare species of wild animals, aquatic animals and insects. Indian wildlife consists of numerous species of birds, mammals, reptiles etc, and is well known for comprising one of the richest varieties in the world. The Indian wildlife also contains several endangered species that are living critically on the verge of extinction. An endangered species is defined as a population of a living being that is at the danger of becoming extinct because of several reasons. Either they are few in number or are threatened by the varying environmental or

predation parameters. The endangered species in India have been identified by different national and international organizations like the World Wildlife Fund (WWF), International Union for Conservation of Nature and Natural Resources (IUCN) and the wildlife institute India (WII).

Statistics of Endangered Species in India

As per the official records, in India, there are over 1.30 Lacs endangered animal species, although some experts believe that the number may be even more than the projected figures. However, some claim that the number is actually much more. The number of endangered species in India accounts for around 8.86 % of the world's mammals. The mammals are extended over 186 genera, 45 families and 13 orders out of which around 89 species are listed as threatened in the IUCN Red List of Threatened Animals (IUCN 2006).

Types of Endangered Species in India

The endangered species in India have been divided into 4 main categories

1. Critically Endangered (CR)
2. Endangered (EN),
3. Vulnerable (VU) and
4. Threatened.

This classification was done by the International Union for Conservation of Nature and Natural Resources (IUCN) and Wildlife Institute of India (WII), in the year 2004. The population of the endangered species has been decreasing with the passing time.

Critically Endangered and Endangered Species in India

Among the endangered species in India, one of the most critically endangered one is the Siberian Tiger. Another endangered species in India is one of the big cats, the Golden Leopard with black marks. The number of this species has been reduced to as low as 14,000 in India. The main reasons behind the decline of Leopard population in India have been the loss of habitat and also human population pressure on wildlife reserves in India. These reasons are also a matter of great concern for the other endangered species in India. The major reason behind the habitat loss is the spread of agriculture. The Royal Bengal Tigers were also extensively being captured for pet trade, zoos and research, as well as for use in Oriental medicine, in the past. With the encroachment of human activities on these lands, the natural habitat has been destroyed and has shrunk considerably. This has endangered not only the smaller avian, reptile and mammal's population but also eroded endemic flora and fauna.

Protection of wild life under Constitution of India:

Article 48 - Organization of Agriculture and Animal Husbandry.

The State shall endeavor to organize agriculture and animal husbandry on modern and scientific lines and shall, in particular, take steps for preserving and improving the breeds, and prohibiting the slaughter, of cows and calves and other milch and draught cattle.

Article 48A (Protection and improvement of environment and safeguarding of forests and wild life)

The State shall endeavor to protect and improve the environment and to safeguard the forests and wild life of the country.

Article 51- A-(g) Fundamental Duties

It shall be the duty of every citizen of India - to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures;

Protection of wild life under Indian Penal Code

Section 47 defines. “Animal”. The word " animal" denotes any living creature, other than a human being.

Section 428 - Mischief by killing or maiming animal of the value of ten rupees-

Whoever commits mischief by killing, poisoning, maiming or rendering useless any animal or animals of the value of ten rupees or upwards, shall be punished with imprisonment of either description for a term which may extend to two years, or with fine, or with both.

Section 429 - Mischief by killing or maiming cattle, etc., of any value or any animal of the value of fifty rupees

Whoever commits mischief by killing, poisoning, maiming or rendering useless, any elephant, camel, horse, mule, buffalo, bull, cow or ox, whatever may be the value thereof, of any other animal of the value of fifty rupees or upwards, shall be punished with imprisonment of either description for a term which may extend to five years, or with fine, or with both.

Critical analysis of Position in India

From obscure animals to Charismatic fauna, these vanishings in the environment happen as often as possible. Ashore, creatures like Orangutan, Black Rhinos, Amur Leopard and Giant Pandas are the absolute most fundamentally imperiled species on the planet. Essentially, numerous marine species including Marine warm blooded animals, Sea turtles and Salmonids are likewise on the edge of annihilation as environmental change and overfishing become a significant danger to their reality. As indicated by the International Union for Conservation of Nature (IUCN), many marine species over the world go under the classes of jeopardized and basically imperiled species. IUCN, at normal interims, decides the status of species thinking about the likelihood of their eradication, from least worry to terminate. A portion of these significantly jeopardized and unmistakable marine species are named here. Unfortunately agricultural land has been given the priority and the natural habitat has been eroded to make way for human occupation. India is a home to differing and

rich untamed life which incorporates more than 172 imperiled species. This helped in increasing the awareness and subsequently the population of endangered and exotic species.

With the infringement of human exercises on these grounds, the characteristic natural surroundings have been decimated and have contracted impressively. Natural life in India is viewed as consecrated to the way of life and legacy of the nation. A lot of exertion has been made as a team with global ecological security and untamed life preservation associations to guarantee the wellbeing of the common natural surroundings of Indian natural life. Shockingly rural land has been given the need and the characteristic living space has been dissolved to clear a path for human occupation. It has different subsets in each state and the Central Government acts as the main advisory to each of these divisions. It was also known that less was known about 29 to evaluate their risk of extinction.

By-get was seen as the greatest risk to most of chondrichthyans angles other than the "pressure from high quality and modern fisheries." The assessors were of the view that the "expanding decrease in the degree and nature of living space because of seaside improvement and other anthropogenic unsettling influences, especially for those basic environments that numerous species rely upon coral reefs, mangroves, ocean grasses represent a genuine danger to the endurance of numerous species." India, which prohibited the misuse and exchange of 10 types of sharks and beams, had in 2015 restricted the fare and import of shark balances everything being equal.

“The Government can induct such activist in their disaster management task force.” “Fishermen trained in scuba diving can be a great help in documenting marine biodiversity,” said A. Biju Kumar, professor and head, Department of Aquatic Biology and Fisheries, University of Kerala. “The Scientific community needs help to do research. There are many universities outside India that depend on citizen scientists for biodiversity documentation. The research also gets community buy-in when their people are involved.” It enables an increase in the population of these fishes and thereby sustainable livelihood opportunities for the fishing community through a longer length of the year.

The sea has always been like home for Tharunsri and protecting and conserving its environment has become his passion. He has been doing this by organising seabed cleanups in the coast, building artificial reefs, protecting endangered species, training the

marine police in special skills and even educating fishermen about the safe use of trawlers. “The most important issue now is to clean the seabed,” said Tharunsri. The end-2015 floods in Chennai deposited unimaginable amounts of garbage into sea. So far his team has recovered nearly 200 kg of plastic bags, bottles and damaged fishing nets. If this is done the wrong way it can cause death, and many lives are unnecessarily lost every year.”

CONCLUSION:

Ancient India had a philosophy of environmental management principally enshrined in old injunctions as they were contained in many Scriptures and Smritis. Abuse and exploitation of nature for immediate gains was considered unjust, irreligious and against environmental ethics under the Hindu culture. The environmental ethic of nature conservation was not only applicable to common man but the rulers and kings were also bound by it.

According to the International Union for the Conservation of Nature, India has the highest number of extinct species. There are more endangered or threatened to fauna in India. The impact of human activity, changes in landscape, and in habitat play a role in endangering these species. China is a vast country with abundant natural resources and landscapes which provide habitats for a variety of wildlife. There are over 4,400 species of vertebrates including 1,244 species of birds, 430 mammals, 208 amphibians, 350 reptiles, and 2,300 fishes in the Sea. China is one of the Countries with largest number of wildlife species all these nations are making and appropriate Laws to protect and Conserve wildlife.

India is a home to very diverse and rich wildlife which includes over 172 endangered species. A great deal of effort has been made in the last sixty years to preserve the natural habitats as well as the population of the wildlife across the Indian landscape. With the encroachment of human activities on these lands, the natural habitat has been destroyed and has shrunk considerably. This has endangered not only the smaller avian, reptile and mammal’s population but also eroded endemic flora and fauna.

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