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MARINE ENVIRONMENTAL PROTECTION

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"THINK BLUE GO GREEN STOP MARINE POLLUTION"

ABSTRACT-

Human beings were so focused and interested to know what's going on in outer space that for many years they didn't find it necessary to know more about marine life or about deep seas and how it's getting destroyed because of human beings. But because of the modern devices like underwater multi- parameter drone human beings are getting to know about the pollution on the seafloor. Because of all the plastic in the water bodies one day all the fishes will exceed may be in two or three decade's time. As industrialisation is increasing waterbodies are becoming more and more acidic and it is directly affecting the aquatic life because of the acidification which is just increasing. Dead zones are created because of agriculture nutrients. People should follow all the laws which are there to protect the natural diversity, the structure, the marine ecosystem. Most important to protect the marine life population, their economic value, to improve study opportunities provided by marine ecosystem. To ensure that the maps are updated from time to time. Oceans provide us food, vital renewable energy, antibiotics, anti-inflammatory substances. We all have to protect and clean the waterbodies in order to save the nature also to have a healthy life.

Marine life every human being from kids to senior citizens from rich to poor everyone knows about marine life. So basically, what everyone knows is marine life is all about aquatic life like animals which are either invertebrate or vertebrate, plants, and various types of organism that lives in salt water of ocean or sea. Most of us also know that aquatic animals can breathe air or extract oxygen which can dissolve in water through some specialised organs known as gills or through skin. According to the research done by scientists the earth is divided into five separate

oceans and is connected to a single word world ocean. Marine diversity and its importance can be known from the fact that 71% of the earth's surface is covered with sea water most of the water on earth is saline and the remaining 2.5% of water fresh water. Most of the fresh water is present in the form of ice in ice caps and glaciers, are the ones which covers less than 50,000 square kilometres. It is an interconnected of ice caps and glaciers are also known as ice filed. According to resources it is known that the "average salinity of earth's oceans is about 35 grams of salt per kilo of sea water. Most of the salt in the ocean comes the weathering and erosion of rocks on land. Some of them are realised from the volcanic activities or extracted from cool igneous rocks." The famous science fiction writer Arthur C. Clarke once pointed out that it would be way more appropriate to prefer planet Earth as planet Ocean because the ocean provides about 90% of living space on the planet. The coastal zone represents 18% of earth's surface providing space to about 60% of the human population.

It is said that humans know more about the ocean than the space but that's really not true. If we compare about the knowledge of space and then the knowledge about ocean we known a lot about Space, then about ocean. Simply because ocean is not as deeply explored as space. According to the sources of Thar "12 people have been sent on moon since 1969 over a handful missions and only three people have descended to the deepest part of the ocean in the MARIANAS TRENCH" and even if ocean cover 71% of the earth surface yet 95% of the ocean is completely unexplored. The deep sea is a hidden world of wonder. In 2019 spring, in a canyon over 2,000 feet beneath the Indian ocean surface Earth's largest animal longer than a blue whale Siphonophore is found lying like a loosely piled rope on the seabed. This Siphonophore can grow to lengths of 130 feet [40m] but its body is not much bigger than a broomstick. All Siphonophores, are the collection of highly specialized working parts. Some partscatch prey, others digest food, some parts reproduce. This siphonophore is bioluminescent it means it creates its own light and whenever it bumps against something it glows with a bright blue light. In June 2019 the marine biologists published some research showing evidence of a large squid fought a big shark in the deep ocean the key evidence was the sucker markings left on the shark's skin.

There is one location in the deep sea that possess an even mystery hidden away beneath the sea ice of the Arctic and Antarctic lies a lost world of giants. Creatures that have adapted in remarkable ways to a life in these icy, sunless waters, forming vast communities that we are only beginning to explore. Around Antarctica, there are a number of hidden ocean cavities that plays

an important role in circulation of nutrients and creatures. At 480,000 sq. km, the ross ice shell is the largest floating slab of ice on Earth, and it conceals an ocean cavity that extends 700kms south of Antarctica's coast and remains largely unexplored. In most part of the world sea spiders usually grown no longer than a few millimetres across. But here in oxygen rich condition, they grown far larger, exhibiting the phenomenon of polar gigantism. Marine invertebrates that occur at the poles tend to have much larger body sizes than their relatives that lives across a large taxonomic range. Creatures here belong to a community that has been isolated from the rest of the planet for millions of years. Their isolation has led to the diversity we see today as the creatures unique to the region that have evolved to are on the sea floor.

May be at this point of time someone may be out there thinking why are we thinking about things that are hidden somewhere from God knows how many years or why do we go deeper explore the unexplored areas, when we have so many things already going on above the sea on the grounds? There are many answers to all the questions. We have to go deeper cause already plastic has been found in places any human being scarcely understands. Who knows what vital discoveries might vanish before we come to understand their existence and also their importance? There is this Pacific Trash Vortex also known as The Great Pacific Garbage Patch, it is a garbage patch of marine debris particles somewhere in Pacific Ocean in the central north. It is roughly located from 135º W- 155º W. it is the collection of plastic and all the floating trash which basically originates from Pacific Rim including countries like South America, Asia, North America. According to the Wikipedia this patch is divided in two areas, the Eastern Garbage Patch and the Western Garbage Patch. There were about a few hundred thousand tons of plastic at the surface of the ocean, which is a huge number. But a few hundred thousand metric tons of plastic is only about 1% of the estimated 8 million tons of plastic scientists believe is emitted into the ocean every year.

There are many marine conservations which studies about life under water like plants, animals, ecosystem, etc. Marine conservation is also called as ocean conservation because it protects the ecosystem and life inside the ocean and sea. Marine conservation is often described as sub-discipline of conservation biology as it focuses on limiting to damages cause to marine life by human beings like species loss, habitat degradation. Marine conservation has sustainable goals that sustainable use of marine resources for development purpose only. The survival of entire marine life depends on Coral reefs because it provides food, shelter and protection to all

the animals, plants and keeps the species alive. For human beings also Coral plays an important role in the form of providing food and also have big hand with economic benefits and in few years it may also help in the form of medicines. But because of the greed of Humans the ecosystem is becoming degraded according to the sources "up to 88% of coral reefs in Southeast Asia are now threatened, with 50% of those reefs at either 'high' or 'very high' risk of disappearing which directly affects the biodiversity and survival of species dependent on coral" and one of the main reason behind it is Overfishing and also pollution from land-based sources. The Food and Agriculture Organisation of the United Nations reported that "the percent of the world's fish stocks which are at sustainable levels have decreased from 90% in 1974 to 65.8% in 2017". The marine conservation along with practical conservation has set up some protected areas. These areas operate in a different way which includes areas which have seasonal closures and multiple levels of zoning allows people to carryout different activities in separate areas.

There are many non- profit groups[1] which are working on cleaning the garbage patches from the ocean few of them are Oceana, ice. It is a non-profit established 20 years ago i.e. in October 2001 by some of the international group of leading founders. Oceana's main focus with sustainable fishing is to provide clean and plentiful food. They also noticed that there was lack of resources that the wild life requires like land or fresh water and these lacks of resources are required to feed the world's largest population. They also have theirfocus on eliminating the use of plastics due to their harmful impact on marine ecosystem. Oceanais really dedicated to fight against the number of threats that are against the world's ocean that causes climate changes. Its main focus is on acidification of the ocean which is the ongoing decrease in the pH value of the Earth's oceans which is caused by the uptake of carbon dioxide from the atmosphere which specially threatens shellfish and corals which are life a string base for the marine ecosystem and sources of sea food. In India there are top 5 NGOs which are working to conserve India's water bodies. Many of the water bodies in India are heavily damages by both nature and mankind some of the water bodies have now dried up or are polluted cause of many Thermal Power plants or factories and what not. Lakes and ponds are the sources of drinking water, supports biodiversity and also regenerate groundwater., like few of the other countries India is also facing many water crunch. Scientists have also predicted that by 2030 the situation will get worse. The names of the top 5 NGOs are Bhumi, Swadesh Foundation, Watershed Organisation Trust, GraminVikasVigyanSamiti, Navjyoti India Foundation all these organisations have noticed that

more than 80% of crude sewage is being discharged into water bodies in a developing country like India, the number of lakes in India is continuously getting less. In 1960s Bangalore had around 260 lakes and now hardly have 80 lakes, in 2001 around 137 lakes were listed in Ahmedabad but by 2012 65 of them were already destroyed, in last 12 years Hyderabad lost 3,245 hectares of wetland, and the list goes on. After independence the government of India took over all the control over the waterbodies and other water supplies and it later on turned out to be increasing negligence for lack of conservation of waterbodies. This leads to identification of encroachment of water bodies as major cause of 2005 flash flood in Mumbai, 2013 Uttarakhand, 2014Jammu and Kashmir and 2015 Chennai.Also the micro plastic is becoming the part of our food web and geological records so it is really important to take actions like to attain sustainability, operations and maintenance should be allocated, proper budget should be there, long time goals should be planned, local bodies should be encouraged for successful utilisation of resources and to personally work on protection of waterbodies, lakes should be constantly tested on economic, environmental, and social fronts for the benefit of environmental awareness, etc. To protect the water bodies rain water harvesting, drip irrigation, tech water harvesting, judicious water management should be practised on a large scale.

I am saying this again and again that water pollution has become one of the biggest issue of 21st century. Oil spill is the worst among all pollutants of water. Oil spill can happen cause of many reason like careless mistakes or some equipment breaking down, or natural disasters like hurricanes. We can also say that oil spill can create a whole new world of problems in matter of time. The world uses countless amount of oil every year in one form or another. United states alone consume over 7 billion barrels of petroleum products every year or at least 20 million barrels a day in recent times. According to the research of National Oceanic and Atmospheric Administration, there are more than thousands of oil spills that occurs in US water every year which eventually creates long-termenvironmental problems. If we see the data of past 50 years or more there have been 44 oil spills on record. And over 10,000 barrels or around 420,000 gallons of oil spills in water every year. After the oil spills it directly affects the whole marine life, birds, and obviously the environment. What really happens isas oil is dense than water after the spill the oil floats on the surface of the water then the oil rapidly spreads out over the surface and then it becomes a thin layer of oil which is known as ‘Oil Slick’. After that it keeps spreading out

until it forms a super thin layer which is known as 'Sheen'. But that thin layer of oil easily creates big problems.

The Trump administration was working to expand dangerous offshore of oil drilling into almost all over U.S water by literally endangering dolphins, seabirds and other marine life. The oil spill which occurred during the drilling has destroyed the vital habitats of both shores and offshores and it became really very difficult to contain or to clean the water. Thousands of aquatic lives faced a terrible death because of the immediate toxic from the oil spill it contaminated the food sources and increases reproductive failure in animals for years. According to the government's own estimates, seismic airguns were used to find oil and gas deposits beneath the seafloor in Atlantic and it obviously caused major injury and disturbed marine mammals, for more than hundreds and thousands of time.

There are some major oil spill accidents happened in history: -

1] During the Gulf war there was an accidental oil spill in the southern Kuwait because of which tons of oil was spilled over the Persian Gulf which led to the death of migratory birds who visits the Persian Gulf every year and as the feathers rendered them they were unable to fly and eventually led to their death.

2] On July 25th a Japanese ship name M. V Wakashio struck a coral reef on the southeast coast of Mauritius. The vessel was carrying around 4000 tonnes of crude oil and from three weeks it was leaking into the India ocean. More than 1000 tonnes of oil leaked into the India ocean from the cracked vessel polluting the cereals, reefs, beaches and lagoons. The spill was declared as Environmental Emergency on August 7th. This also cause massive economical loss as Mauritius is a tourist spot. As situation was getting worse the Government took international help to contain the damage. France sent a naval vessel military aircraft and technical experts while Japan sent a six-member team to assist the damage control. Meanwhile looking at the situation getting worse minute by minute the local people also helped by cutting of their hair, beard. The experts fear that the vessel could break into two and spill rest of the oil into the water and cause major disaster.

3] March 24, 1989 the date on which U.S. worst manmade disaster occurred about which scientists still worries about. One evening an oil tanker name Exxon Valdez which was owned by the Exxon Shipping Company left the port of Valdez with around 53 million gallons of Prudhoe Bay Crude Oil. During midnight the ship struck to the Bligh Reef and the collision tore open the

ship's hull and cause of that 11 million gallons of crude oil spill into the water of Alaska's Prince William Sound the oil spill covered 1,300 miles of coastline and killed more than thousands of animals. The clean-up workers specially the local people skimmed oil from the water, washed oiled beaches with hot water and sprayed oil dispersant on the shore, saved and cleaned animals trapped in oil. Even after 25 years the sea otter population didn't recover to its pre-spill till 2014. All this happened because the captain on the ship Joseph Hazelwood was drinking at that time and let one unlicensed man steer the ship.

After this incident the U.S. Congress passed the Oil Pollution Act of 1990 which President George H.W. Bush signed it into law that year. This act increased the penalties for companies who are responsible for oil spills also that not even a single oil tanker in United States waters will have a double hull in it.

But to be honest the author along with many other human beings and scientists thinks that this is really high time to go deeper and find out what is there and just be ready for whatever ones next because it is 100% that exists life and that to not the ordinary ones something different, something hugs, rare and what not. By exploring the unexplored areas we'll be able to find out so many things, identify vulnerable habitats or the threatened which should be protected at all cost and not be destroyed because human beings do that they explore things and then they destroy it because they are not ready for what to do after exploring things but the time have changed now people actually do care about nature they have idea about the consequences of playing with nature and also few of them are genuinely little bit less narrow minded too. The organisations, researchers, scientists who are really working really hard risking their lives to find out the answers, government should definitely help them by taking actions and not by giving justifications for not taking actions. How do government even expect answers when no one has any idea what they are dealing with, but they have to deal with it because it is important. How can anyone possibly know all the answers before they even start their research or investigation and when most of the agencies just back off from funding the projects to avoid the risks. People should know Science is not just about having perfect answers but it is also about asking the questions.

"There are laws relating to Environmental Conservation[2] in Indian Constitution some of them are Article 253 of the Constitution of India says that the Indian Parliament has the power to make any laws for implementing any treaty, agreement or convention with any other country or

countries or any decision made at any international conference, association or other body. This has two implications:

1) This imports the standards, duties and obligations of the international instruments, and the decisions taken under such instruments, to which India is a party.
2) This places the legislative responsibility on the Centre to implement the instruments to which India has acceded. This is important in the quasi-federal structure of India, where the legislative powersare distributed between the Centre and the states.

Consequent to this provision, the Central Government can take measures to implement international treaties, even if the subject matter falls within the legislative competence of the states.

The Maritime Zones of India Act 1976, enables the Government to take measures for protection of the marine environment. The Coast Guard Act 1978 states that the preservation and protection of marine environment and control of marine pollution is the function of the Indian Coast Guard. The ICG has been accordingly nominated in 1986 as the Central Coordinating Authority for oil-spill response in the Maritime Zones of India and Coast Guard officers have been empowered under the Merchant Shipping Act 1958, for taking necessary actions against polluters. Environment (Protection) Act, 1986 and the Coastal Regulation Zone Notification of 1991 issued under the broad EPA as well as the Wildlife (Protection) Act, (WPA) 1972 since all coral reef areas in India are protected areas declared under the Wildlife (Protection) Act 1972. The other laws that would have a bearing on coral reef areas are the Indian Forest Act, 1927, the Forest Conservation Act, 1980 and the Indian Fisheries Act which is of vintage origin"

There are many case laws relating to Marine Environmental Protection few of them are: -

"1] M.C. Mehta Vs. Union Of India[3]

In this case a petition was filed by one of the activist who is also an Advocate in supreme court M.C. Mehta regarding the pollution cause by some hazardous industries into river Ganga. The historic judgement was given in this case by E.S. Venkatramiah J. ordering the closure of number of polluting tanneries near Kanpur. In this judgement it was observed that just like an industry which cannot pay minimum wages to its workers can't exist just like that a tannery which can't setup a primary treatment plant can't be permitted to continue to be in existence."

"2] A.P. Pollution Control Board Vs. Prof. M.V. Nayudu (Retd.) & Ors[4].

In this case the respondent industry is ought to be establishing a new factory for the production of vegetable oils in the State of Andhra Pradesh. Respondent industry purchased a piece of land in Indore village named Peddashpur. Within the range of the village the reservoirs that provides drinking water for the 5 million of people around the area. The Court in the present judgment directed that the authority to be appointed under Section 3(3) of the Environment (Protection) Act, 1986 that shall implement the Precautionary Principle and also the Polluter Pays Principle. Further, it had been discovered that the new conception envisages that when a risk of great or irreversible damage to the environment is perceived, the burden of proof lies on the one that is proposing to undertake the activity in question."

"3] Subhash Kumar Vs. State of Bihar & Ors[5].

In this case the petition was filed by the way of Public Interest Litigation by Subhash Kumar for preventing the pollution of the water of the river Bokaro from the discharge of sludge/slurry from the Tata Iron & Steel Co. Ltd. The Petitioner alleged that the Parliament enacted Water (Prevention and Control of Pollution) Act, 1978 for maintaining the wholesomeness of water and for the prevention of water pollution. The State Pollution Control Board failed to take actions against the Company and permitted the pollution of the water and the State of Bihar instead of taking actions, it is granting a lease on the payment of royalty for collection of slurry to various persons. The right to pollution free environment was incorporated under the head of right to life and all the laws courts within the Indian Territory were bound to follow. Public health and ecology were held to be the priorities under Article 21 and the constitution of a green bench was also ordered by the Supreme Court. The Tata Iron & Steel Co. has been granted sanction from the Board for discharging effluents from their outlets under Sections 25 and 26 of the Water Prevention and Control of Pollution Act, 1974. Before granting the discharge of the effluents to the Bokaro River, the Board has analyzed and monitored that the effluents generated did not pollute the river. It was clear from the facts that and pleadings on behalf of the Respondent that there was no good reason to accept Petitioner's contentions that the water of Bokaro River was polluted by the discharge of slurry/sludge from the respondent Company, on the other hand, the bench found that effective steps were taken by State Pollution Control Board to check pollution. Therefore, the petition was dismissed."