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REVIEW ON OCEAN CLEANING TO GET RID OF PLASTIC DEBRIS

Rohit Shankar More[1], Rajani Ramprasad Gupta[2]

[1,2]*Department of Mechanical Engineering*

[1,2]*Lokmanya Tilak College of Engineering, Koperkhairane, Navi Mumbai (India)*

ABSTRACT

In this study emphasis is given on cleaning debris from the Oceans lakes, rivers and ponds etc. A large number of marine species is known to be harmed or killed by plastic debris, which could arduous for survival. Marine animals are mostly affected through entanglement in and ingestion of plastic litter. The drones and vessels are suitable to capture and concentrate floating plastic debris, with the help of offshore experts, it has been determined that this device can be made and installed using current materials and technologies. To address the problem of plastic debris in the oceans is a difficult task, and a variety of approaches for cleaning are urgently required.

Keyword- Emphasis, Feasible, Viable, Arduous, Entanglement, Litter

I. INTRODUCTION

In India all rivers and lakes are full of plastic debris and garbage's which affects the aquatic life and it's also responsible for the Extinction of various species. We say "water is life" so it should be clean and debris free for humans and animal lives. To prevent this it is important to take some step and implement cleaning technologies to clean water sources. Being lightweight, durable, strong, and inexpensive, the very properties that make plastic so useful are also responsible for its large negative impact on marine environments. Today, plastic marine debris is found in lakes and sediment worldwide and affects marine life along most of the food chain. The long-term solution for this environmental issue involves decreasing plastic waste and creating better disposal Practices on land and at lakes, at an domestic and international Level. Many initiatives have been set up with the aim of trying to combat plastic pollution (especially in the past 5-10 years), ranging from prevention to extraction. Although not completely understood, the currently known sinks of the Indian lakes are likely to be small, and a large and continuous increase in plastic pollution has been measured over time. Given the implications for ecology, economics and human health as explained in , a cleaner would reduce these negative impacts.

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II. PLASTICS

Every year we produce about 5.6 million tons of plastic annually a portion of which enters and accumulates in the lakes. The damage to sea life is staggering: at least one million seabirds, and hundreds of thousands of marine mammals die each year due to the pollution. Even worse, the survival of many species, like the Monk Seal and Loggerhead Turtle, is directly jeopardized by plastic debris. Marine species often become entangled in larger debris, leading to "injury, illness, suffocation, starvation, and even death" (NOAA, 2014). Smaller fragments can be mistaken for food and eaten, causing malnutrition, intestinal blockage and death (Figure 1). When marine animals eat plastic, harmful chemicals move up the food chain. Ingestion of and entanglement in marine debris by marine animals has increased by 40% in the last decade. Furthermore, plastics can transport invasive species and toxic substances over great distances Even if we manage to prevent any more plastic from entering the lakes, the natural loss of plastic from the gyres is slow and likely low; therefore, a Oean Cleaning is still necessary. Since the problem gained widespread attention at the beginning of this century, several Cleaning concepts have been proposed, each based on vessels with nets – essentially, fishing for plastic.

A bird contains Plastic in its stomach.
Fig.1

III. EFFECTS ON MARINE LIFE

SPECIES GROUP	TOTAL NUMBER OF SPECIES WORLDWIDE	NUMBER & PERCENTAGE OF SPECIES WITH ENTANGLEMENT RECORDS	NUMBER & PERCENTAGE OF SPECIES WITH INGESTION RECORDS
SEA TURTLES	7	6 (86%)	6 (86%)
SEABIRDS	312	51 (16%)	111 (36%)
PENGUINS (SPHENISCIFORMSES)	16	6 (38%)	1 (6%)
GREBES (PODICIPEDIFORMES)	19	2 (10%)	0
ALBATROSSES, PETRELS, SHEARWATERS (PROCCLLARIIFORMES)	99	10 (10%)	62 (63%)
PELICANS, BOOBIES, GANNETS, CORMORANTS, FRIGATEBIRDS, TROPICBIRDS (PELICANIFORMS)	51	11 (22%)	8 (16%)
SHOREBIRDS, SKUAS, GULLS, TERNS, AUKS CHARADRIIFORMES)	122	22 (18%)	40 (33%)
OTHER BIRDS	-	5	0
MARINE MAMMALS	115	32 (28%)	26 (23%)
BALEEN WHALES (MYSTICETI)	10	6 (60%)	2 (20%)
TOOTHED WHALE (ODONTOCETI)	65	5 (8%)	21 (32%)
FUR SEALS & SEA LIONS (OTARIIDAE)	14	11 (79%)	1 (7%)
TRUE SEALS (PHOCIDAE)	19	8 (42%)	1 (5%)
MANATEES & DUGONGS (SIRENIA)	4	1 (25%)	1 (25%)
SEA OTTER (MUSTELLIDAE)	1	1 (100%)	0
FISH	-	34	33
CRUSTACEANS	-	8	0
SQUID	-	0	1
SPECIES TOTAL		**136**	**177**

Table. 1

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IV IMPLEMENTED PROJECT

	PROS	CONS
DRONES	+ units are inexpensive to replace + can potentially catch small particles + unmanned + deployment flexibility	- will take very long time - potential for by-catch - high operating expenditure - logistically impractical - low field efficiency - frequent pit-stop necessity likely - unable to catch very large debris
VESSELS	+ existing technology, so low capital expenditures	- will take very long time - potential for by-catch - atmospheric emissions - high operating expenditure - logistically impractical - low field efficiency - catching small particles unlikely due to drag
FLOATING ISLANDS	+ cleaning plastic is often its secondary goal, i.e. there is a different 'business plan' involved	- costs - similar challenges as vessel-based and drone-based concepts, but technical details to confirm this are unknown

Table.1.1

V. METHODOLOGY

Data is to be collected where project is to be implemented size, depth, location of oceans, lakes ,rivers and ponds are to be identified and also concentration of garbage's. This analyzed data can be considered as given data for which solution can be drawn by designing the model accordingly. Size, shape and design are prime importance of model. After the selection of material various component and parts experimental set up is to be done near or inside lakes to be cleaned. Trials are conducted to record and tabulate the success of working.

VI. REVIEW OF SOME RESEARCHERS

6.1 Britta Denise Hardesty[a,], Thomas P. Good, Chris Wilcox[a] et al [1]:- This paper mainly underlines the ecology system of marine harm by marine debris. The plastic marine debris harms nearly 700 marine species. Fishing gear, balloons, plastic bags are mostly dangerous for wildlife. Cleaning technology such as using nets could impairment to marine ecosysytems.

6.2 Jos_e G.B. Derraik at al [2]:- IN This study shows that there is evidence that plastic pollution is a threat to marine biodiversity, already at risk from overfishing, climate change and other forms of anthropogenic disturbance. There is a need for more research (especially longterm monitoring) to assess the actual threat posed by plastic debris to marine species. The research information by providing input for conservation management,

strengthen the basis for educational campaigns, and also provide marine scientists with better evidence that could be used to demand from the authorities more effort to mitigate the problem. Due to the long life of plastics on marine ecosystems, it is imperative that severe measures are taken to address the problem at both international and national levels, since even if the production and disposal of plastics suddenly stopped, the existing debris would continue to harm marine life for many decades.

VII. CONCLUSION

From the Study it is concluded that The Ocean cleaning method is feasible and viable method for large-scale, passive and efficient removal of floating plastic. Its prime importance to clean water sources to prevent harmful effects as discussed above, by using simple scientific technologies. Hence, the effect of a combination of both prevention and cleaning process will be greater and this combination is the only solution that could reduce the amount of plastic pollution in the oceans and other water resources within our lifetimes.

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