

# RESEARCH ON THE APPLICATION OF MARINE WASTE TREATMENT COUNTERMEASURE EDUCATION

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## ABSTRACT

In recent years, the problem of marine garbage is getting worse, whether it is the stream or the beach or even the bottom of the trench, there are residual human-made garbage, with the cigarette butt as the first come back is baot bottles and other plastic products, these problems are bound to be solved immediately. Humans have been using plastic for a long time, it can't be changed in a short time, so why not change human behavior? Even if plastics are not environmentally friendly, but after proper recycling, the damage to the environment is small, will be polluted because of human selfish behavior.

The main purpose of this study is how to use the "design permanence" and "sustainable design" approach to educate human behavior, explore design strategies to change human behavior, so that the oceans are no longer polluted, and to give living things a clean home, so as to achieve the purpose of education.

Key Words: marine garbage, marine pollution, clean beach, garbage disposal

## 1. Introduction

The problem of marine litter is an environmental issue that has received international attention in recent years, and we can see that there are traces of human-made garbage on beaches, ports, seas, reefs, sand and even animals' mouths and noses, because of the selfish behavior of human beings that cause marine pollution. This study feels that the action to protect the ocean is urgent, it is necessary to carry out larger-scale clean beach activities, net stream activities, and it is necessary to more people to invest, the environment is everyone's, to protect together, who do not want to see the garbage accumulation of "junk island" is. Apart from the clean-up or the large-scale marine garbage clean-up activities, the most important thing to do is the human behavior, if human selfish behavior can be improved, is it not so much garbage scattered in the corners of the earth? So improving human behavior patterns is more important than limiting plastics or promoting net beach activities.

## 2. Literature Discussion

Explain the scope and definition of the marine environment, and find out the reasons for the flow of garbage to the ocean, and briefly describe the current solution.

### 2.1 Definition of the marine environment

From a global environmental point of view, many pollutants produced by humans on land are still remitted to the oceans through rivers, atmospheric diffusion and precipitation, and are difficult to transfer as they enter the oceans, so that human activities on land, although not often in the marine environment, do indirectly affect the marine environment (Wen, Wen-Zheng, 2013).

The American Academy of Sciences defines marine waste as solid waste manufactured and used by humans, which is transported to the sea by being discarded at sea or through rivers, and which includes industrial waste in addition to household waste, and the United Nations Environment Programme defines marine waste as solid waste manufactured or used by humans that is persistent and discarded in the sea and coastal areas. or indirect lygnosis by rivers,

sewage, rain or wind, including malicious discards and garbage deliberately thrown into the sea by fishing vessels during navigation (Mao, Da, 2010).

**2.2 Harm of Marine Waste**

The amount of marine litter is incalculable and has far-reaching effects, including damage to environmental habitats, ecological impacts on the sea, damage to coastal landscapes and even economic damage to ships (Cai, Min-Fang, 2018).

**2.3 Top 5 Sources of Garbage**

- 1. Shoreline and recreational activities
- 2. Ocean/Waterway activities
- 3. Smoking-related activities
- 4. Dumping activities
- 5. Medical/Personal hygiene

**2.4 Collecting previous literature sedats marine litter-related research can be divided into the following four categories**

- 1. Garbage survey and analysis on the coast or beach:  
The research method sits mainly on-site monitoring and collection, and the survey period is six months, three times a month, to collect marine garbage at low tide.
- 2. Marine Waste Investigation and Research through Marine Research Ships:  
The use of research vessels or fishing vessels to investigate marine litter in the nearshore waters is a common method of marine scientific research, and the methods of ship survey are divided into trawling and visual inspection.
- 3. Explore the migration trajectory of drifting marine garbage through satellite, GPS drift tracking and numerical model:  
Using a sea surface floating cursor tracked by 140 satellites, the floating objects were observed floating in the ocean.
- 4. Study on the Impact of Marine Waste on Marine Environment and Aquatic Animals:  
Studies have shown that plastics can be mistaken for food by sea creatures and eat incorrectly, which can give them the illusion of fullness, which in turn reduces the stimulation of eating, resulting in death (Zhong, Rui-Fen, 2014).

**3. Research Methods**

The main first from the classification of marine pollution sources, to explore where marine waste comes from, how to generate, and then to find out what can be resolved, and to assess whether it has a role. The research method flowchart is shown in Figure 1.

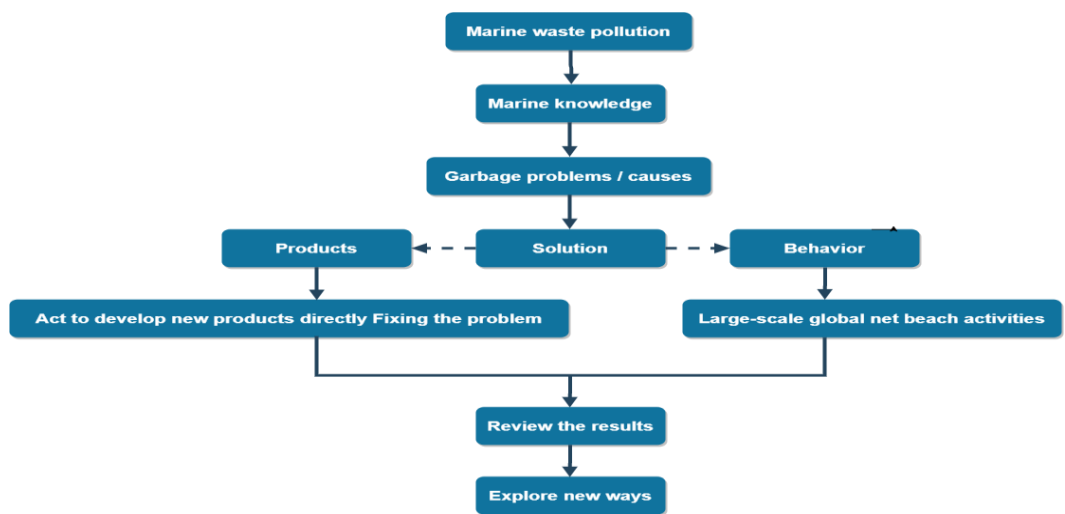


Figure 1 : Research methodology flowchar

## 4. The Results of the Study

National marine conservation plans

### 4.1 Marine Waste Monitoring Program at Home and Abroad:

Strategies for Improving Marine Pollution by Countries and Organizations around the World

#### 4.1.1 TOC:

Launched the first Clean Beach Initiative, clearing 124 tons of waste along 200 kilometres of coastline, followed by the normal international net beach operation in 1989 due to the accession of Canada and Mexico.

#### 4.1.2 ICC:

Since 1989, in order to carry out the most important marine waste removal operation in the world, every September countries call on groups, volunteers to the coastal, streams, lakes and other waters to carry out clean beach activities.

#### 4.1.3 NOAA:

Maine Debris Program presented in 2005, the main objective is not only to establish a marine waste monitoring database, but also to enable marine litter to be removed through concrete implementation.

#### 4.1.4 SEA:

From 1986 to 2008, it was collected on the ground in the North Atlantic and Caribbean, with more than 6,000 off-grid fishing for marine litter.

#### 4.1.5 UNEP:

Promoted a Regional Seas initiative in 1974, The Regional Sea Plan aims to prevent the rapid deterioration of the global marine and coastal ecological environment through the sustainable management and utilization of the sea and coast, and to enable neighbouring countries to participate in integrated and special actions to protect their shared marine environment (Hu, Fang-Wei, 2018).

### 4.2 Marine Garbage Collection Strategies and Methods

According to the distinction between man-made and non-human, and to explore what garbage is formed from these reasons, and using color to distinguish, the dotted line shown in Figure 2 is "What causes the garbage generated at what place". Here is a summary of whether "the sea, the port side, the coast" has solved the garbage problem.

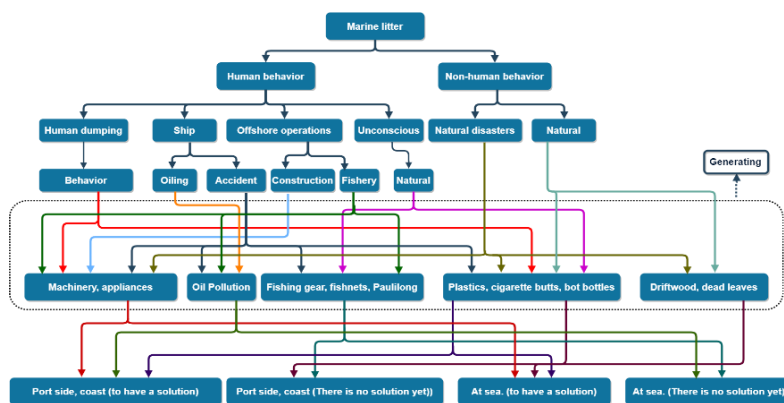


Figure 2 : Marine Waste Factor

The following image to solve the marine garbage countermeasures, the first is automatic garbage collector (Lin,Tsung-Hao, 2019). The second is the marine clean-up plan, the third is the marine garbage can, in accordance with the principle of clean-up, and then explore what restrictions (WANG,RUI-QI, 2017). As shown in Figure 3

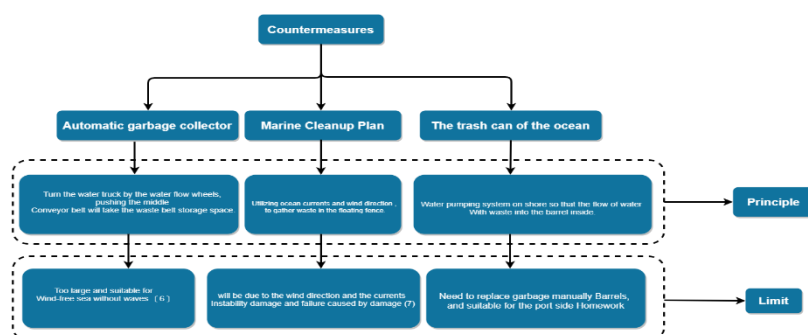


Figure 3 : Countermeasures for marine garbage

## 5. Conclusion

These products, although they may seem powerful, all have their own shortcomings, and have their own restrictions, such as the garbage cans used on the port or river banks to collect marine litter, there are also very strong garbage fishing boats, but because of the difficulty of fighting the currents and the strength of the wind, the planning is suspended. Since you can't solve the problem with the product, it's better to solve the human behavior treatment! If today's human resources are well recycled, if human beings do not litter, then the ocean will not have these garbage! The current solution to the problem of marine litter products, the current function is not very sound, it is better to develop products to solve the problem of human behavior, through this educational approach, directly improve human behavior, indirectly reduce marine litter (of course, the impact is not just the ocean, the whole earth is the same), Generation after generation, through uploading the educational approach, although the study concluded that it is a long-term plan, but there is always better than not to do, complete the design of sustainable and sustainable design, extend the life of the Earth.

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