

## **To reduce the trash in the sea, To protect the sea creatures**

### 1. Motivation behind Research Paper

Why do Japanese supermarkets have countless plastic bags? This was the start of my interest in environmental issues such as plastic trash. In order to further my research, I studied about the Sustainable Development Goals (SDGs) at school. Through my studies, my research led me to also focus on the reasons why there is so much waste in oceans. The following research paper will focus on how people can raise awareness to reduce the amount of trash in oceans. In addition, we want to change the thinking of people who throw garbage away easily through a social experiment. We believe that if people can change their thinking, we can help protect the environment.

### 2. Introduction

#### Aim:

The aim of this research paper is to influence the emotions of people who loiter, but our final mission is to reduce the trash in the sea, and to protect the sea creatures.

## Research:

To reduce the trash in the sea, and to protect the sea creatures. This is our final mission. Even if you go to the sea and pick up trash, the sandy beach will only be temporarily cleaned. People who throw trash without thinking will continue to do so. The people who pick up the trash will have to continue picking up the trash. This infinite loop is far from achieving a sustainable society. Our prefecture is surrounded by forest. That means we grew up with no exposure to the sea. So we had to conduct research before our experiment strategy.

In the middle of researching, we found a page which is about the results of an experience from Kanagawa Kaigan-bike Foundation. 30% of the garbage has been dumped in the ocean, while 70% of it comes from rivers. Since this research indicated that garbage comes from rivers, we decided to focus on the importance of clean rivers.

We started off by supporting the group called the group of loving the origin of the Akishino river, who has been cleaning the Akishino river for more than 25 years near our high school. On the third Saturday of each month, we went out and cleaned the river with them. After that, we sorted the garbage and measured what kind of garbage was found the most. Although people have an image of a large amount of garbage being plastic and paper, it was actually cigarette butts. We feel that this trash is a result of loitering. This “infinite loop” that was mentioned earlier can only be broken if we influence the feelings of the people. We assumed that if we could change people’s consciousness, they would not tend to throw away the trash and it

would gradually decrease. Following these research results, our team started a new project and made a new poster with pictures of our eyes.

### Sources and data collection:

Sources include a study conducted by Susumu Onuma who did an experiment to reduce garbage near rivers. The most important information comes from volunteer activities conducted by the research group.

### 3. Results and Analysis

Experiments were conducted using the following steps:

1. We used five trees that grow next to each other. We made one set to compare to the other one.
2. One set of trees had a poster placed on it, and the other did not
3. Each space was sorted and each of them were called A1, A2, A3 and A4.

We recorded the amounts of trash from each section every two weeks.

4. We helped with volunteer activities and picked up rubbish once a month.

We understood that we could raise people's awareness due to hearing from residents when we started our experiment. The amount of trash was reduced by approximately 60% after the experiment.

### 2 April 2022

There were no changes in each of the areas. In addition, in Area 4, there was no trash. I thought it was too hard to see the results and the effects of the posters in two weeks. I kept doing my experiment to make an obvious result. I did not pick up the trash.

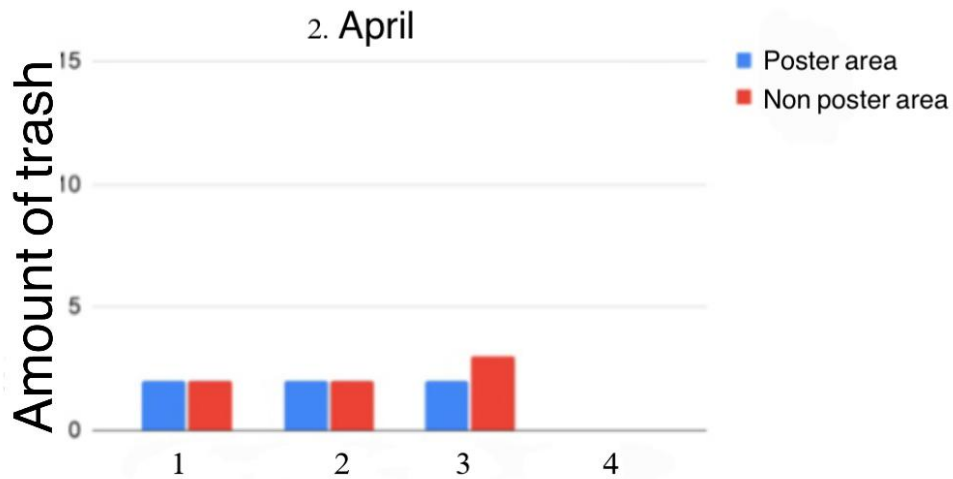


Figure 1. Graph showing amount of trash. 2 April

16 April 2022

In area 1, there was one more amount of trash than the no poster place. However, in area 2, there was two less trash in the no poster area. In area 3, both areas showed a decrease in the amount. In area 4, no poster's area's amount of trash suddenly increased. There were some possibilities but none that were concrete. For instance, that day, there was a lot of styrofoam trash so some of it might have been scattered there.

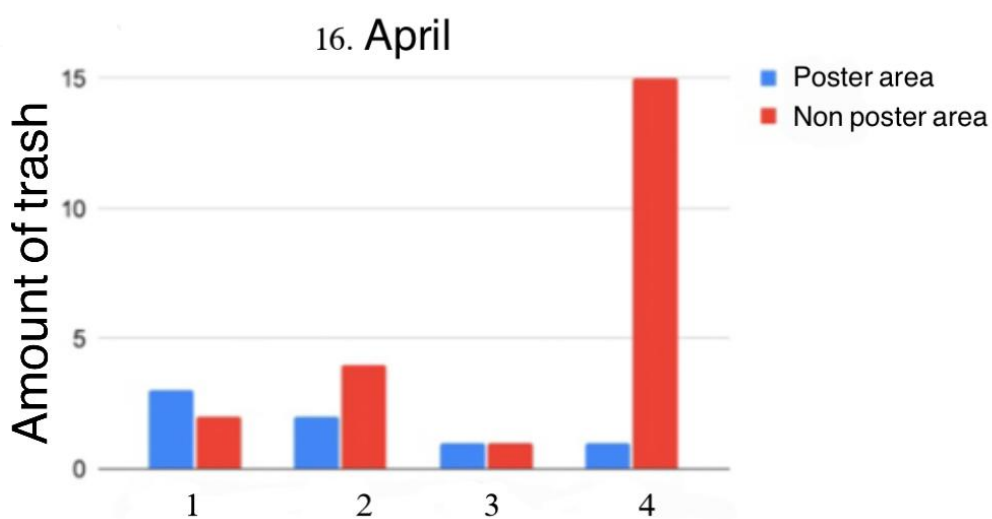
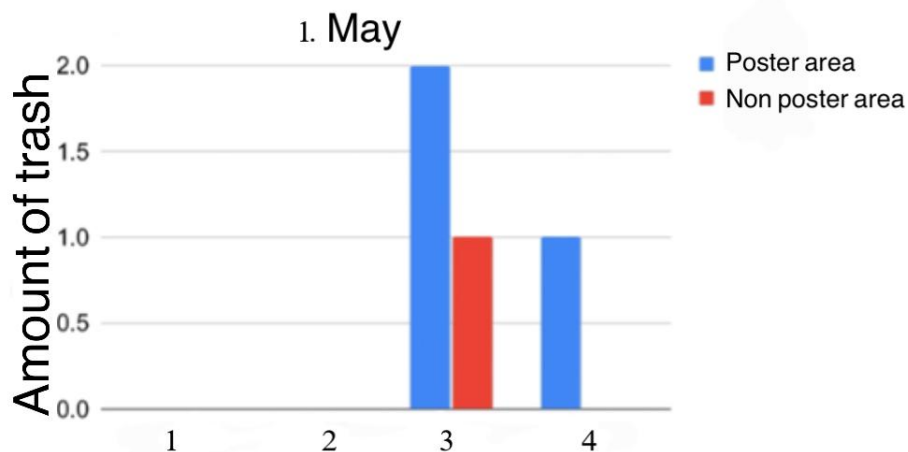


Figure 2. Graph showing amount of trash. 16 April

1 May 2022

There was no garbage in area 1 and 2 which were not related to the existence of posters. In area 4, the last time there was 15 amounts of trash, this time it decreased to 0. In area 3, there was no change. In conclusion, the amount of trash decreased in all areas. But , this is because the trash flew due to the rain or most of the grass grew a lot.



*Figure 3. Graph showing amount of trash. 1 May*

21 May 2022

No poster's area's amount of trash decreased which can be obviously seen from the graph. No poster's area's amounts of the trash was well above the other one. I thought this was the effect of the poster but there was much more garbage than before. I expected this was why the Hanami festival.

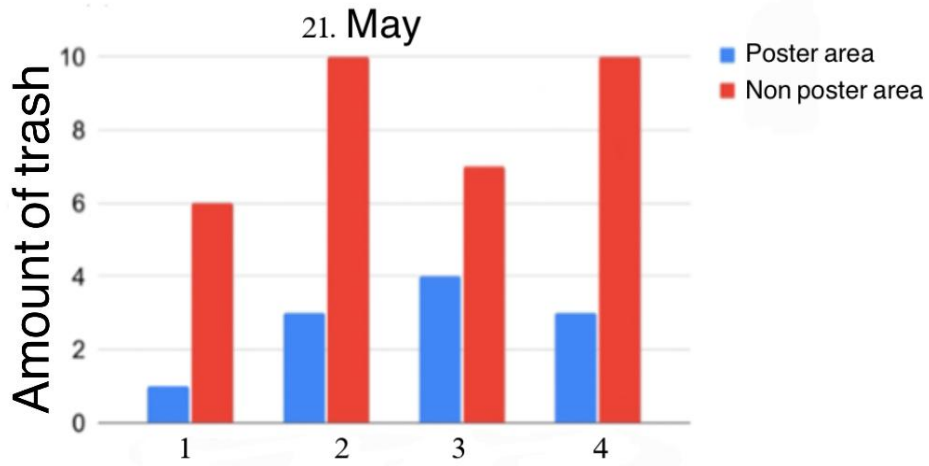


Figure 4. Graph showing amount of trash. 21 May

4 July 2022

There wasn't much trash because of the rain. In area 1 and 2, there was no garbage. Only in area 3, the poster's area's figure increased. In area 4, no poster's area, only there was some trash. From these results, poste's area is less trash than no poster's area.

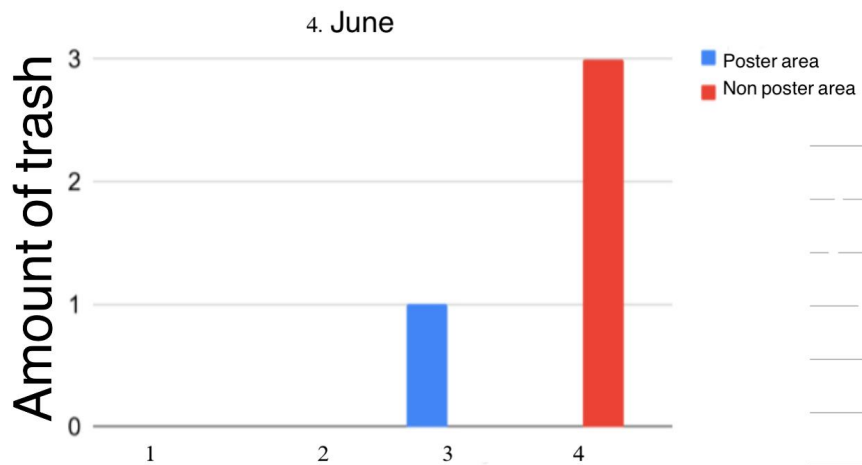
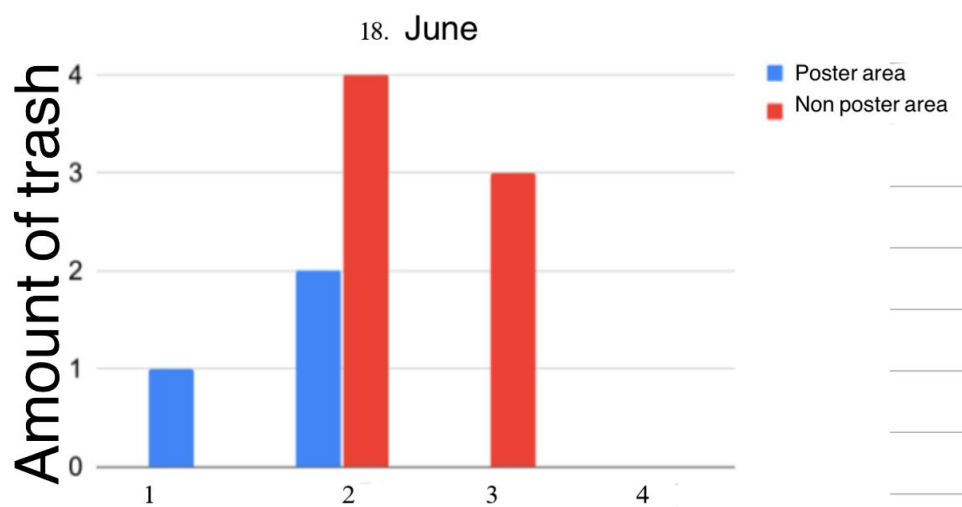


Figure 5. Graph showing amount of trash. 4 June

18 July 2022

If I only see the results of area 2, no poster place had much more trash, however, in area 1, no poster's area also had some garbage. In area 3, the trash was thrown swaying in an area without a poster. In area 4, both areas did not have any trash. For these results, the poster has an effect to stop dumping trash. I can see results obviously in area 2 and 3 but not in area 1. Area 1 was the edge of the experiment place, so I expected some people had already been used to seeing it.



*Figure 6. Graph showing amount of trash. 18 June*

#### 4. Conclusion and Future Problems

To summarize, our research project focused on researching different ways to reduce water pollution. We could accomplish our goals for the most part, however we did encounter problems such as bad weather conditions and other natural causes such as weeds. Sometimes, it was difficult to conduct our experiment properly because of such problems. From the experiment, we obviously demonstrated that the amount of trash decreased by 59.52%. In addition, we understand when someone is exposed to external influences, there is the possibility of changing their consciousness. Therefore, we need to change the consciousness of those who are

likely to dump trash. From our assumption, the effect of posters will be lessened gradually. However, the amount of trash decreased day by day. There are some not so obvious results. The two sets were not changed. Thus the results might be changed because of the amount of people who use the pavement. There were no demonstrations because the results were just from one place, not the whole place.

## 5. Reflection

Through this research, I became more aware of my own behavior. Of course, I do not dump trash. I changed my mind, which is for the environment, such as usually bringing an eco-bag to reduce the origin of the trash. In addition, I am interested in some posters and books which are related to the environment that I have never cared about till I finished my research. I am aware of a lot of things, that's why I studied this topic. I found new problems in my life.

For instance, what makes our society worse. Thus, I considered awareness as being really important. From the result of my experiment, I understood that I can change people's mind by using posters. I use a train as a way of school, there are always many plastic bottles and wrappers. Since this research was not very extensive, I acted in the hope that I could change the awareness of the people around me about the environment by acting on my own.

## 6. Work Cited

Kanagawa Coastal Beautification Foundation. "About the trash in the sea" Web.16 Jul. 2021.



Susumu, Onuma. Koji,Mori. Tomoko, Nakamata. "To reduce litter beside a river"  
2020. Print.