

AWARENESS ON IMPACT OF OIL SPILL AMONG RESIDENTS NEARBY PENANG PORT

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ABSTRACT

When oil spills occur, many people are affected. The oil contamination has a negative impact on the marine environment as well. Human and technical error can contribute to oil spills in some cases. According to the research, the oil spill was caused by human error. There are several precautionary measures that can be taken to prevent or reduce the percentage of oil spills in the future. As a result of the research, there are 2 objectives and 2 research questions. As for the research objectives, the researcher wants to identify the causes that contribute to oil spill incident and to determine the most effective precautionary measures for preserving the marine environment. Concerning the study's research questions, it specifies what precautions can be made to preserve the maritime environment as well as what the most efficient preventative methods are for conserving the marine ecosystem.

Keywords: oil spill, impact, port

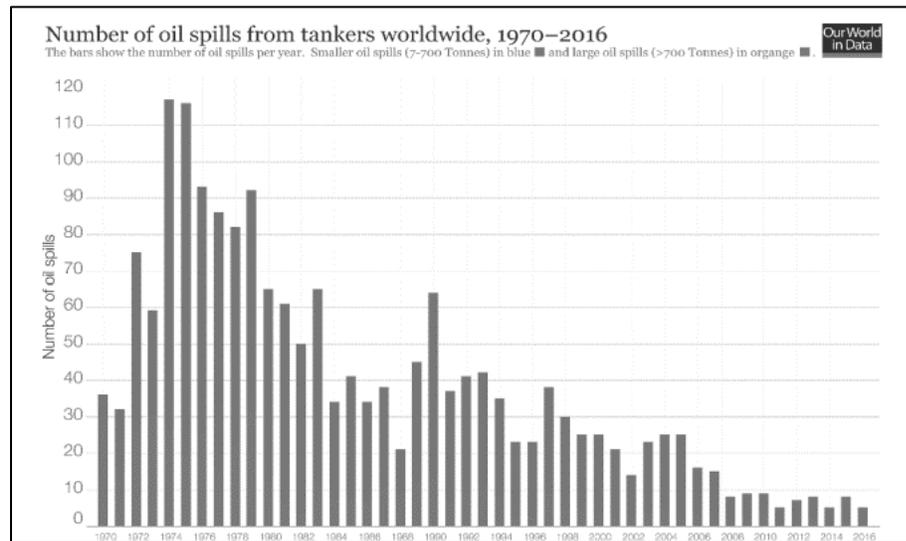
1.0 INTRODUCTION

Oil pollution is a major environmental problem that can have both short- and long-term consequences for the surrounding ecosystems. According to Maritime Executive (2016), Malaysian Marine Department reported a spill of 15 tons of fuel oil near the Prai Bulk Cargo Terminal near Penang and said that it may have originated from a tanker berthed at the facility. Sasedharan in Maritime Executive (2016), who is COO of Penang Port said that the tanker, the Nautica Maharani, remains detained in port while authorities look at all potential sources of the spill, including shoreside fuel transfer infrastructure. It was the only vessel present at the time of the incident, and authorities asked it to stop delivery of fuel when the slick was discovered. Oil was transported to shore by currents, forming a two-meter-wide strip of heavier layer along a five-kilometer stretch of beach near George Town, the state capital of Penang. According to Murugan in Maritime Executive (2016), confirmed that spills were common and had negative effects, including the oiling of nets, requiring the purchase of clean replacements.

2.0 LITERATURE REVIEW

Unexpected incidents that occur in the sea or any other location where the vessels are docked make it difficult to completely prevent oil spills from occurring. Instead of completely eradicating this generating item, it is only possible to minimize it. Intentional or unintentional oil spills can occur, although most of the time, oil spilling occurs accidentally, resulting in significant losses and consequences for many parties and places.

Oil spills have occurred for many years and have continued to occur; nevertheless, from time to time, the percentage of oil spillage has dropped significantly, making a significant difference. The following statistics shows that the percentage of oil spills is decreasing, as seen in the table below.

Table 1: Number of Oil Spill from Tanker

According to the table, the percentage of oil spillage is decreasing, while the number of spills is increasing significantly. Although this is a significant accomplishment, additional precautions must be taken to protect marine life and any other parties who may be harmed because of the disaster. During the 1970s, there were 24.5 huge (> 700 tons) oil spills per year, which is a significant increase, and the percentage number has reduced to 1.7 oil spills per year during the 2010s, which is a significant decrease. (Adzibli & Yüewen, 2018). As a result of the extra elements that make the spread worse, oil spills have the potential to cause severe damage to many people and animals. Severe damage can be caused by a variety of causes, including wind velocity, sea state (current and tides), temperature and atmospheric conditions, among others. (Al- Majed, Adebayo & Hossain, 2012).

Because of the oil, there are negative effects and consequences, particularly where the ocean's surface and marine life are threatened. Among the chemical chemicals found in oil are those that are harmful to all living things, including humans. Numerous species of aquatic life are affected by oil exposure and are extremely sensitive (Chang, 2021). The pollution of the water by oil will result in the extinction of marine life once the oil reaches the ocean's surface. However, it will take years to clean up, preserve, and ensure that the ocean is free of oil contamination. The process of getting free from oil is an expensive process, and those who are liable must be held accountable for the consequences of their actions.

Malaysia is primarily covered and surrounded by mangrove forest, and parties that are in - charge of cleaning up the damage believe that it is difficult to clean up these regions. Oil spills cause a variety of problems for the maritime environment, marine life, and other things (Taylor et al., 2021). According to the findings of the research, most oil spills occur in ports or coastal seas, and that this is where most of the spills occur. There are numerous tasks that must be completed to clean up the oil leakage that has occurred near the shoreline because of the contamination (Asif et al., 2022).

2.1 PROBLEM STATEMENT

The focus of this study is on oil spills that occur because of an accidental discharge from the tanker that leads the oil to spill which creates a two-meter-wide strip of a thicker layer along five kilometers of coastline at George Town. The oil spill is one of the factors that has contributed to losses in a variety of areas, including marine life, human society, and the environment, including the mangroves and the marine system. This research is concerned with finding methods to protect the marine ecosystem and the ocean from contamination. This is necessary to shape a better future for future generations. Furthermore, because

oil spills have occurred on a regular basis and have had a negative impact, it is critical to concentrate on and emphasize the avoidance of oil spills. Even though oil spill is harmful and causes a great deal of damage, cleaning up the mess caused by the spread of oil in the ocean takes time. The objectives for this study were to identify the impact of oil spill towards residents near Penang Port and to create awareness on legal rights among residents.

2.2 SIGNIFICANCE OF RESEARCH

This study focused on oil pollution prevention because of an accidental discharge from the tanker. A primary goal of this study is to discover and develop new knowledge for the researcher. As a result of conducting this study, the researcher will have the opportunity to gain experience and improve their knowledge. Returning to the original problem statements, it aids in the preservation of oil pollution by utilizing solutions discovered by researchers. This research focuses on preservation and prevention because of a major issue that has been causing people concern recently. Various industries are adversely affected by pollution, and the cumulative effect is larger harm. Keeping damage under control at any time may be difficult, as it is in some cases with pollution. Taking society and the community into consideration helps to create awareness about oil pollution and the devastating consequences of an oil spill in the environment. As stated by the researcher, this issue is being disregarded because of a lack of understanding on the subject. It is vital that this matter be brought to the attention of the public so that everyone is aware of what is going on in this situation. The research truly has a positive impact on society and the community since the researcher plays a significant and crucial function in the field as an expert in the subject matter.

3.0 RESEARCH METHODOLOGY

This study utilized survey as the data collection method, where both open and close ended questions were included in the survey. There were three sections in the questionnaire, namely, Section A: Demographic Profile, Section B: Impact of oil spill towards residents near Penang Port, and Section C: Awareness on legal rights among residents. Section B required the respondents to state their agreement in a 5-point Likert Scale measurement. The respondents were residents from nearby residential areas in Penang Port. The survey was conducted virtually, which Google Form link was shared to several representatives of the residential areas, and they were asked to help distributing the link to the rest of the residents. A total of 111 responses was received within one month after the link was shared.

4.0 RESULTS AND DISCUSSION

The study managed to collect 111 responses through the survey conducted. The demographic profile of the respondents is presented in the table below.

Table 2: Respondents' Demographic Profile

DEMOGRAPHIC	CATEGORIES	FREQUENCY	PERCENTAGE
Gender	Male	77	69.4
	Female	34	30.6
Age	18-25	2	1.8
	26-33	24	21.6
	34-41	51	45.9
	42 and above	34	30.6
Marital Status	Single	32	28.8
	Married	79	71.2

Distance from House to Port (km)	Less than 5km	53	47.7
	6-10km	28	25.2
	11-20km	23	20.7
	21km and above	7	6.3

Majority of the respondents were male (69.4%) and many of them aged between 34 to 41 years old (45.9%). 53 (47.7%) respondents stated that their house(s) are located less than 5 kilometers from Penang Port.

Table 3: Impact of oil spill towards residents near Penang Port

Item	Statement	Response				
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Oil spill affects fishing activity nearby Penang Port area.	0	0	8 (7.2%)	55 (49.5%)	48 (43.2%)
2	Oil spill affects tourism activity nearby Penang Port area.	0	0	11 (9.9%)	43 (38.7%)	57 (51.4%)
3	Oil spill affects marine life in Penang Port area.	0	0	14 (12.6%)	38 (34.2%)	59 (53.2%)
4	Water in Penang Port is not safe to be used.	0	0	15 (13.5%)	41 (36.9%)	55 (49.5%)
5	Oil spill may cause severe health problems.	0	0	10 (9%)	48 (43.2%)	53 (47.7%)
6	Irresponsible parties who carelessly disposed oil into the sea have polluted the sea water.	0	0	13 (11.7%)	44 (39.6%)	54 (48.6%)

Based on Table 3, majority of the respondents answered either 'Agree' or 'Strongly Agree' to the statements given. They agreed that oil spill has affected the fishing and tourism activities, as well as the marine life nearby Penang Port. Besides that, they agreed that due to the spill, the sea water is not safe and those irresponsible parties who carelessly disposed oil into the sea have polluted the sea water. The most serious effect of oil spill, as agreed by the respondents, is that it may cause severe health problems.

When the respondents were asked whether oil spill is the main cause of pollutions in Penang Port, most of them answered yes, since "there are many boats and vessels sailing in and out of the port". They also observed large oil spills are typically caused by oil tankers because they frequently "experience mechanical problems or because some of them crash with other ships". On top of that, carelessness or mistakes or errors made is one of the primary causes of oil spills. In addition to oil ships leaking oil, additional types of pollution caused by transportation including pipelines that travel beneath the ocean. As a result of the lack of maintenance, the pipelines can start leaking. This invariably resulted in the release of oil. However, this kind of accident does not happen very often, and oil tankers are the most common cause of oil leaks.

5.0 CONCLUSION AND RECOMMENDATION

This study has proven that oil spill nearby Penang Port has affected the fishing and tourism activities. It also affects marine life, which is to be the disadvantage especially for the fishermen around the area. This impact has resulted many fishermen not able to get good amount of catch and income. Other than that, due to the spill, the sea water is no longer safe and dangerous too. This impacts also on the recreational area in Seberang Prai, Penang. The most serious impact of oil spill, as agreed by the respondents, is that it may cause severe health problems, as the sources of food from the sea might be contaminated. .

As previously discussed, and stated, oil spillage causes damage and injury to those who are impacted or involved since the oil itself is difficult to clean up and because the oil spillage contains chemical and other hazardous chemicals that are difficult to remove. According to Feng et al. (2021), oil spillage is defined as the accidental discharge of liquid petroleum hydrocarbon into the ocean or environment because of human error from operations. Oil spillage results in severe pollution that causes concern to many parties that are affected and accountable for the damages.

This topic of oil spills is very importance to be contained as the impacts are greater and greater each day, especially towards the environment and human life. Thus, it is recommended for future researcher to cover wider area of research, for example, small ports and terminals, as these areas are occupied with residents who may not be aware of the impacts to them. It is very essential to educate the people on their rights and stand for their justices.

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