**1 Problem Statement**

Plastic pollution is a serious problem in the marine environment where they have major impact on marine and human health. In order to understand the depth of the problem, it is essential to understand the amount and composition of marine litter. This can help in applying various mitigation strategies. This section will include:

* An overview of the marine pollution
* Motivation behind this topic
* Aim and objectives of this report

**1.1 Overview**

Marine pollution is a major global issue which impacts environment, economy and human health. Although marine pollution is caused by many different materials, plastics consist of 60-80% of the marine litter. Synthetic organic polymer derived from polymerisation of monomers extracted from oil and gas make up the plastics.[1] [4] The lightweight feature and its durability make it very suitable to make a range of products that we use in our everyday life.[5] [6] These same features have been a major cause of pollution due to overuse and non-managed waste disposal system worldwide with plastic contributing to the 10% of the waste generated worldwide.[5] Due to its buoyancy, plastic debris can be dispersed over long distances and they can persist for a long time. Although, plastic litter has been a major cause of marine pollution for a while, its seriousness has only been realised recently. Jambeck et al.,[7] reported that in 2010 alone, between 4.8 million to 12.7 million metric tons of plastics entered the ocean. Plastics are now everywhere in the marine environment and urgent action is required to mitigate this problem and reduce the harmful impact.[4] [8].

**1.2 Motivation**

Impact of plastic pollution on marine life have been reviewed extensively [9] [10] [13] [14]. Over 700 marine wildlife species are affected due to entanglement in plastic ropes and materials and in- gestion of plastics in the ocean.[9] Over 340 species of marine animals were found to be entangled.[10] Over time plastic disintegrates into small microplastics which are easily consumed by fish from where they enter the food chain. Plastics have been found in a third of fish caught in the UK which included the popular fishes such as cod, haddock and mackerel (Lusher et al., 2013). Impact of plastic entering the human food chain and the effects are still to be studied. Plastic toxicity and the occurrence of microplastics and nanoplastics in the water supply can also be a direct impact on human health in addition to the contamination in seafood.[8] [17]

Reducing plastic pollution has recently been a global aim. Research in plastic pollution in marine environment has played a big role in reducing it and raising awareness all over the world. In order to understand the plastic pollution in marine environments and its effect in long term, it is essential to keep collecting data on patterns of marine debris around the world. Effective monitoring of plastic debris is very essential in order to reduce the abundance of plastic debris everywhere. In addition, monitoring the type, frequency and the source of the litter is also important for prevention initiative of marine pollution. Most of the monitoring are done by surveys looking at frequencies of beach litter collected by organisations and volunteers.[18] Most abundant litter can be found close to urban areas where beach visitor numbers are higher.[19]

**1.3 Objectives**

The main objectives of this project are outlined as follows:

* To research marine plastic problems and their impacts
* To find a dataset suitable for this study
* Look at the composition of litter collected
* Summarise the results that were found