CHAPTER I. INTRODUCTION

A. Background

Indonesia is known as a country which is rich in biodiversity and blessed with its ocean wonders, covering an area over 3,1 million km^2 and has at least 17.504 islands (Ministerial of Decree, 2014). Taman Wisata Perairan (TWP) or Marine Protected Area (MPA) of Pieh island and its surrounding waters is one of west regional conservation areas in Indonesia. These waters are considered as the Agency of Nation Marine Protected Area on Pekanbaru or Loka Kawasan Konservasi Perairan Nasional (LKKPN) and targeting to be a nautical tourism and a conservation as it has been specified in minesterial decree number Kep. 70/Men/2009 by Marine Affairs and Fisheries of Indonesia, and the waters encompass an area of approximately 39.900 ha. The area consists of five small islands (from north to south), which are: Bando island, Pieh island, Air island, Pandan island and Toran island. Those islands are uninhabited and parrarel to latitude of West Sumatra's coastline.

Pieh Island MPA is one of many options to be visited by the tourists, due to its clean and clear water and has high value of marine life such as underwater biodiversity and coral reef ecosystems which is established as a landscape and a visual object that can be enjoyed by the divers (COREMAP CTI LIPI, 2014). This area has five islands which have high potential in ecosystems services according to the Agency of Nation Marine Protected Area's data in 2010 and are covered with widespread of corals up to 43%. The existence of coral reefs creates a

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dynamic ecosystem inhabited by thousands of species with high productivity (Suryati *et al.,* 2011). Based on ecological function, coral reefs is as a spawning habitat and foraging for most marine biota. Therefore, over the past five years, some of the marine mammals were found since the avaibality of food sources and the water condition in this area are highly favourable.

Cetacean is a name for marine mammal's group where their whole life spent in water, both fresh water or sea. Cetacean consist of dolphin, whales anda porpoise. Indonesian waters are important migratory areas for more than 30 species of cetaceans (Salim, 2011). As stated by Klinowska in 1991, Indonesia becomes the migration route of many kinds of cetaceans, specifically across Pacific Ocean and Indian Ocean, passing through Lesser Sunda islands with the distance more than 900 kilometers. Notably, in Indonesia, only 31 species of dolphins, porpoises and whales are recognized, whereas there are at least 86 known cetacean species in the world (Fauziah et al. 2006), 7 species of dolphin and 3 of whales were found and identified in the Pieh island MPA by the institute of the Agency of Nation Marine Protected Area of Pekanbaru (LKKPN, 2020). Many fascinating cetacean families are scattered around Indonesia's territorial waters, thus, the one that is mostly sighted is the Delphinidae family or oceanic dolphins, especially the one that comes from *Stenella* and *Tursiops* genus (Siahainenia, 2010). Thanks to their distribution and their attractively acrobatic and aerial behaviors within their nature which they like performing those behaviors on the surface of the water (Lammers, 2004), a group of *S.longirostris*

often catches the sight of the Agency of Nation Marine Protected Area of Pekanbaru throughout monitoring. A group of dolphins is called a pod.

This research will be focusing on only one species of cetacean, which is *S.longirostris,* because the updated data in 2020 shows that a pod of *S. longirostris* was sighted seven times in February, March, June, August, and September during monitoring in Apendix 2, and that indicates this species of dolphin (*S. longirostris*) consistently makes an appearance almost in every month. The high mobilitiy of the distribution of the dolphins causes a pod could be found in any grid point of waters (Mujiyanto *et al.,* 2017). Dolphins often like to travel and hunt their prey such as pelagic fish in groups. But sometimes dolphins stay in one specific place or territory because there are much of food resources or that place could be the perfect place for nurturing.

The sighting of *S. longirostris* in 2016 until 2020 is the most frequently one compared to the other cetacean species in the Pieh island MPA (LKKPN, 2020). The data from 2020 represents the appearances of *S. longirostris* were counted as 19 times. Total frequency of its per sighting in the Pieh island MPA is 65% higher than any other cetacean species. During the monitoring, the Agency of Nation Marine Protected Area of Pekanbaru discovers th at *S. longirostris* constantly like appearing and doing their activity on the surface. This behavior is meant to save their energy, to communicate, to show an emotional expression to the others, and to help them remove ectoparasites on their skin. *S. longirostris* behavior of frequently appearing to the surface is actively occured by some kinds of energy that encourage them, such as when there is a movement caused by a

boat. According to LKKPN (2020), the behaviors of cetacean can be visualized at 10 a.m until 3 p.m and it is supported by Lammers *et al.,*'s theory in 2001, as stated that in many cases, this type of dolphins (*S. longirostris)* can be more often encountered in the morning rather than in the afternoon.

Currently, there is still not much of information regarding the dolphins (MacLeod *et al.,* 2006), especially in Indonesia. So that there is a need for research at the Pieh Island MPA related to the distribution, frequency of occurrence and behavior patterns of *S. longirostris* on the sea surface, namely acrobatic movements (Lammers, 2004), as well as behavior at a minimum depth of occurrence, which is less than one meter below sea level (LKKPN, 2020). Moreover, this research will hopefully provide information for tourists, conservation, long-term management and new knowledge to open up other related research avenues. The result of this research will optimistically be able to add more information and to fill up LKKPN of Pekanbaru data in relation to cetacean ecology of the mentioned marine conservation area.

B. Formulation of the Problems

In relation to the background, the problems are formulated as follows:

1. How is the distribution of *S. longirostris* in the Pieh island MPA?

2. How is the frequency of *S. longirostris* sightings in the Pieh island MPA during the research period?

3. How is the behavioral pattern of *S. longirostris* in the Pieh island MPA?

C. Objectives of the Research

This research is aimed to achieve three objectives, which are:

1. To analyze the distribution of *S. longirostris* in the Pieh island MPA.

2. To analyze the frequency of *S. longirostris*' sightings in the Pieh island MPA during the research period.

3. To analyze the behavioral pattern of *S. longirostris* in the Pieh island MPA.

D. Benefits of the Research

The result of this research is expected to give some contributions, such as: This proposal is expected to give an insgiht and to expand the knowledge of marine mammals, especially one of the species of dolphin, *S. longirostris*, concerning its distribution, the frequency of its sightings during the research period, to give a contribution and a benefaction to the Agency of Nation Marine Protected Area of Pekanbaru.