

CHAPTER 1

INTRODUCTION

1.1 Background

Malaysia is to be positioned in between the of latitudes 1° and 7° north and longitudes 107° and 119° east. It is made of two different regions which are Peninsular Malaysia and States of Sabah and Sarawak. States of Sabah and Sarawak is separated by the South China sea from the East Coast of Peninsular Malaysia where else; on the West Coast of Peninsular Malaysia it is facing Straits of Malacca and Andaman Sea on the north of it. The total land covered by Malaysia is $330,440 \text{ km}^2$ with a total coastal length of 4,809 km. Coastal zones of Malaysia plays an important role in its socio-economic significance.

Malaysian coast lines cover 70% of population percentage. Despite of population it is also the economic centre which includes mainly agriculture, aquaculture, oil and gas exploitation, urbanisation, recreation, and fisheries, etc.(Ooi & Ann, 1996) Sadly, this important asset of nature is facing an enormous problem which is coastal erosion. Studies on coastal erosion in Malaysia was started by the Malaysian Government long time ago realising the danger and the importance of its studies for the future improvement.

The Government has joined force with the Department of Irrigation and Drainage to start The National Coastal Erosion Studies; which was from November 1984 to January 1986. From the studies done, it can be concluded that 29% of Malaysian shoreline is under erosion (DID, 2015)..

This percentage of studies concludes both the region of country which experiences coastal erosion; in which Peninsular Malaysia makes up to 7.2% and States of Sabah and Sarawak comes with 21.8%. This results shows that coastal erosion has started long ago in Malaysia but unfortunately there are not much studies about it. This pro long natural phenome would have reached a higher percentage by 2016 and in such it is concluded to be an alarming issue

Negeri	Panjang	Pantai Yang Mengalami Hakisan (Mengikut Kategori)						Jumlah Panjang/Bilangan Pantai Yang Mengalami Hakisan		
		Kategori 1		Kategori 2		Kategori 3		(KM)	Bil.	(%)
	(KM)	Bil.	(KM)	Bil.	(KM)	Bil.				
Perlis	20	4.4	3	3.7	1	6.4	4	14.5	8	72.5
Kedah	148	31.4	16	2.2	1	9.9	3	43.5	20	29.4
Pulau Pinang	152	42.4	9	19.7	5	1.1	1	63.2	15	41.6
Perak	230	28.3	4	18.8	2	93.1	4	140.2	10	61.0
Selangor	213	63.5	10	22.3	7	66.1	3	151.9	20	71.3
N. Sembilan	58	3.9	2	7.7	4	12.9	1	24.5	7	42.2
Melaka	73	15.6	5	15.1	2	6	2	36.7	9	50.3
Johor	492	28.9	9	50.3	9	155.6	11	234.8	29	47.7
Pahang	271	12.4	11	5.2	3	107.8	8	125.4	22	46.3
Terengganu	244	20	6	10	6	122.4	10	152.4	22	62.5
Kelantan	71	5	3	9.5	3	37.6	5	52.1	11	73.4
W.P Labuan	59	2.5	2	3	2	25.1	2	30.6	6	51.9
Sarawak	1035	17.3	8	22.3	10	9.6	7	49.2	25	4.8
Sabah	1743	12.8	5	3.5	2	279.2	12	295.5	19	17.0
JUMLAH	4809	288	93	193	57	933	73	1414.5	223	29.41

Table 1.1: List of Coastal Erosion area in Malaysia.

Source: DID,2015

1.2 Problem Statement

Studies on coastal erosion in Malaysia has been conducted since 1984 up till now; by the Government joining forces with Department of Irrigation and Drainage (DID, 2015) Some of the data that are used currently are from the studies done long ago. These collected data have proven that coastal erosion in Malaysian should not be taken lightly. As per mentioned; above about 29% of shoreline in Malaysia is undergoing coastal erosion dated back at 1987 (DID, 2015). Based on this, we can say that the percentage of coastal erosion would have increased; more than 29% up till year

2016. This percentage would increase steadily over the years if a counter approach is not taken.

In Malaysia, coastal erosion is still aggravated by human activities and seasonal monsoon winds. This issues causes a lot of major problems in variety of sector in Peninsular Malaysia; such as properties that are being held at the side of the shoreline is destroyed, aquatic life ecosystem is damaged, economy lost in aquaculture sector and etc. Based on statistics; Peninsular Malaysia makes approximately 7.2% of coastal erosion out of the whole 29% (DID, 2015).

As mentioned above, coastal erosion shows a very serious impact in Malaysia shoreline. The responsible authority is taking all the approach to prevent and manage the coastal erosion but unfortunately; these approaches are not very effective as the erosion still continues. The upcoming incidents and economical lost proves that coastal erosion remains as an alarming issue. Therefore, a study which concludes the wind-wave relationship needs to carried out. Understanding this basic relationship between wind and wave shall provide further assistance in solving the coastal erosion problems in Malaysia.

1.3 Objectives of Research

In general, coastal erosion has been happening for the past few decades. The responsible authorities have only found ways to control and manage it but never a solved solution. Despite of a proper solution we also need to set a proper goal in directing this research in regards to study the relationship between wind and wave which is a cause of coastal erosion. Hence, the main objective of this research is:

- To determine and construct the database of coastal erosion in Peninsular Malaysia.
- To study the relationship between wind and wave which results in coastal erosion.