

## Evaluation on Tourism Recreation Suitability in Libuo Beach

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### Abstract

This study aims to determine the suitability of recreational tourism in Libuo Beach, District of Paguat, Pohuwato Regency based on biophysical parameters. The research was conducted from January to December 2015. The method used is descriptive method using direct observation and measurement in the field. The data used are primary data obtained from observations and direct measurements in the field includes the parameters depth, type of beach, wide beaches, seabed material, current speed, water transparency, harmful biota, and the availability of fresh water. Analysis travel suitability index is calculated according Yulianda travel (2007). The analysis showed that the three research stations in Libuo Beach are in "appropriate" category (SI) with values ranging between 88-93%, making it feasible as a location for leisure travel.

Keywords: tourism; suitability; beach; recreation.

### Introduction

Beach is one of the coastal areas most productive with characteristic shapes of different beaches and the most common human activities such as are used for tourist activities.

According Yulianda (2007), tourism is a form of natural resource utilization that rely on services to the satisfaction of human nature. Human activities for the sake of tourism, usually done in spare time, that impinges on the physical, mental, or creative power, willingly without coercion from others, enjoyable and rewarding are called recreational (Banowati, 2012).

In Indonesia alone, tourism is a sector with huge potential to be developed considering the potential of tourism in Indonesia. Tourism activities in Indonesia has been growing very rapidly and has a bright prospect to be developed into one of the country's economy braces for Indonesia's tourism sector is the third largest source of revenue for the country's foreign exchange after oil and gas. The maritime field used as a marine tourism sector, fisheries, marine transportation and marine services, can become one of the Indonesian tourism products. With the bases aspects of the exploration, conservation and integrated management, coastal tourism is one area

that is a potential area to be developed (Armos, 2013).

Natural resources and the sea coast can be developed into a tourist area in the form of beautiful coastal scenery and authenticity of environments such as under water, form the beach and the coastal forest with a variety of plants and animals. Development of the beach as a tourist area is an environmental services that would tend to confer benefits on a person's inner satisfaction because of it's certain aesthetic value (Ali, 2004 in Armos, 2013). Many charming coastal region add to the natural beauty of Indonesia, one of which is Libuo Beach in Pohuwato Regency, Gorontalo Province.

Pohuwato has a long coastline of 165 km (Tunreg, 2010). Libuo Beach has been used as a beach resort, which was developed by the government Department of Tourism and Culture of Pohuwato. The recreational area is very beneficial for the community, especially people in Libuo Village. With the construction of adequate facilities and infrastructures to support leisure activities Libuo Beach will bring in more tourists. Currently the dominant coastal tourist activities carried out are recreational tourism.

Thus there should be a study to evaluate the suitability especially for leisure activities in order to determine the safety and security of visitors in their activities.

Research Methodology

The technique is performed in this study are on two stages, i.e. the preparation stage and preliminary observations made through observation and study of literature and the stage of determining the research station. Location of data collection is divided into three stations, namely in the middle left and right with distance between stations ± 200 m, then performed the measurement points coordinates using GPS. Here is a map of the location study Libuo Beach.



Figure 1 Research site

Site suitability analysis in this study refers to the formula of land suitability for shore excursions in Yulianda (2007). Determining a value for each parameter refers to conformity assessment of land according to site suitability matrix Yulianda (2007), as in Table 2.

Table 2 Matrix of Site Suitability for Beach Recreation category.

No	Parameter	indicators	Criteria	Score	Value
1	depth (m)	0-3	SI	3	5
		3-6	S2	2	
		> 6	N	1	
2	beach type	White sand	SI	3	5
		White sand, a bit coral,	S2	2	
		muddy	N	1	
3	Beach width (m)	> 10	SI	3	5
		3-<10	S2	2	
		< 3	N	1	

4	Water bottom	sandy	SI	3	4
		Sandy coral	S2	2	
		muddy	N	1	
5	Current (m/dt)	0 – 0,17	SI	3	4
		0,17 – 0,51	S2	2	
		> 0,51	N	1	
6	Brightnes s (m)	>10	S1	3	3
		> 5-10	S2	2	
		< 2	N	1	
7	Danger Biota	None	S1	3	3
		urchin, stingray sea urchin, stingray, stone fish, shark	S2	2	
		urchin, stingray sea urchin, stingray, stone fish, shark	N	1	
8	Fresh water (km)	< 0,5 km	S1	3	3

Source: Yulianda (2007)

Result and Discussion

Site suitability parameters for beach recreation category

Depth

Depth in a beach recreation area is closely related to safety and comfort of the visitors, especially when swimming. Kids are wandering around the beach area for playing and swimming, make the condition vulnerable for them if the water is too deep. Physically shallow beach is the most suitable for tourist spot and for swimming. The depth sounding on the site shows depths at the three stations of observation. Measurements were done in 24 hours started at 12.00 Wita to 00.00 Wita on both and low tides. Measurement was done at 10 meters from the beach line (Table3).

Table 3 Depths.

No.	Station	Kedalaman
1.	I	0,25 – 1,68 m
2.	II	0,32 – 1,45 m
3.	III	0,20 – 1,36 m

Source : Primary Data, March 2015

According to Yulianda (2007), a tourist area can be said to correspond or SI categories, if it has a depth of 0-3 m.

### Beach Type

The results of visual observation on each station found that sand along a white sand beach Libuo. The white sand gives the impression for Libuo Beach to be a recreational beach tourism activities. Pangesti (2007) in Armos (2013), visually, the type and color of sand at a tourist attraction giving value to the aesthetics of the beach itself where the beach has a kind of white sand and black sand medium to coarse highly appreciated by tourists.

Based on the results of visual observation station beach type I, II, III, obtained that Libuo Beach have a category type of sandy beach. This is compared with the matrix suitability of land for recreational beach tourism category according to Yulianda (2007), then obtain a high score. As according to Widiatmaka (2007) in Armos (2013) that the type of beach suitable for beach tourism activities based on the type of substrate / sediment is sandy beach.

### Beach wide

From the beach width measurement results show that the Libuo Beach has a wide beach that support recreational tourism activities. The measurement results Libuo beach as presented in Table 4.

Table 4 Beach width

No.	Station	Beach Width (m)
1.	I	7,60 m
2.	II	11,5 m
3.	III	8,22 m

Source: primary data (March 2015)

Each part of Libuo Beach sandy shore can be made into playing facilities for children. With a fairly wide beach with white sand, it is possible to perform the activity along the coast, whether it's recreational activities such as play ground, especially for children, and other activities.

According to Rahmawati (2009), that the width of beach associated with the extent of coastal land can be utilized for a variety of beach tourism

activities. The width of the beach is very important, the wider the beach, the better for tourists in their activities and vice versa.

### Water bottom

Measurement of bottom material intended to identify the substrates. The results of visual observation at Stations I, II, III, are all sandy. According to Sugiarto and Ekariyono (1996) in Armos (2003), the sandy beach is a beach dominated by the expanse of sand or land, either in the form of black sand, gray or white. Based on the matrix of suitability for recreational activities, then all stations are on the "appropriate" criteria.

### Current

Current speed is also associated with the safety and comfort of traveling. Too high velocity would endanger visitors, given the absence of restrictions on the area for swimming. This parameter is very important to measure compliance.

Tabel 5 Average current

Station	Kecepatan arus (m/s)		Rata – rata kecepatan arus (m/s)
	Saat pasang	Saat surut	
I	0,02	0,6	0,04
II	0,16	0,03	0,023
III	0,02	0,06	0,04

Source : primary data, March 2015

According to the matrix suitability for recreational activities by Yulianda (2007), the current velocity is suitable for swimming activities.

### Water brightness

Water transparency is also an important parameter in the beach tourism activities, as it relates to the convenience of tourists, while doing recreational activities, such as bathing and swimming.

Table 6 Water brightness

No.	Station	brightness (m)
1.	I	1,68 m
2.	II	1,45 m
3.	III	1,36 m

Source: Primary Data, March 2015

Based on the matrix of suitability for beach tourism category of recreation (Yulianda, 2007), water transparency of Libuo Beach is not suitable for beach tourism activities. The substrate of Libuo Beach's bottom is fine sandy substrate. The fine sandy substrate is more easily agitated by the movement of water such as the waves which ultimately will affect the brightness of the water.

**Dangerous Biota**

Dangerous biota is an important factor in both leisure travel and swimming. Because the harmful organisms can disturb the security and convenience of tourists when making leisure travel activities.

If seen from the results of visual observations and interviews, the stations I, II, and III, there were no harmful biota, so that this area is safe to support the activities of recreational travel or swim. Collecting data about the presence of harmful organisms in the water by digging in-depth information for the surrounding communities, and the manager. Based on matrix suitability of land for recreational tourism that all research stations entered on the appropriate criteria. In accordance with the opinion of Yulianda (2007), that the harmful biota which can disturb the comfort of tourists are sea urchins, stingrays lionfish and sharks.

**Availability of freshwater**

According to Armos (2013) Water is an essential element for the cleanliness of the recreational area and activities at the beach. Therefore, the closer the distance between the shoreline and the availability of fresh water, the better the area was used as a beach resort.

Tabel 7 Availability of fresh water

No.	Station	Water availability (km)
1.	I	0,12 km
2.	II	0,77 km
3.	III	0,37 km

Source : Primary Data, Maret 2015

These distances are relatively close and very affordable for tourists. Based on the land suitability

matrix for recreational tourism, all research stations enter the criteria "suitable".

The results of observations and measurement of parameters for the assessment of the level of land suitability at all research stations, then analyzed based on categories of suitability levels. The results of the calculation of the tourism suitability index formula (IKW) are shown in Table 8.

Tabel 8 Rate of Suitability at Station I

No	Parameter	value	result	criteria	score	Ni
1	depth (m)	5	0,25-168	SI	3	15
2	Shore type	5	White sand	SI	3	15
3	Beach width (m)	5	7,60	S2	2	15
4	Water bottom	4	sandy	SI	3	12
5	Current m/sec	4	0,04	SI	3	12
6	brightness m	3	1.68	N	1	3
7	Dangerous biota	3	None	SI	3	9
8	Fresh water (km)	3	0,012	SI	3	9
TOTAL					85	
Suitability Index			88			

Source : Primary Data, March 2005

Station I for depth parameters including category (SI) is a depth of 0.25 to 1.68 m, beach type parameters based substrates included in the appropriate category (SI) is a type of white sandy beaches, beach width parameter included in the category enough suitable (S2) , ie with a width of 7.60 m beaches, waters basic material parameters based substrates included in the appropriate category (SI) that is sandy, flow velocity parameters are included in the appropriate category (SI) is 0.04 m / sec, brightness parameter waters included in the category not suitable (N) is 1.68 m, the parameters of harmful

organisms included in the appropriate category (SI) that does not exist, and freshwater availability parameters included in the appropriate category (SI) is a distance of 0,012 km. By calculating the value of the allotment of the station I travel suitability based index that shows the value of 88%.

The results of the calculation of travel suitability index formula (IKW) shown in Table 9

Tabel 9 Rate of Suitability at Station II.

No	Parameter	value	result	criteria	score	Ni
1	Depth (m)	5	0,32-1,45 m	SI	3	15
2	Shore type	5	White sand	SI	3	15
3	Beach Width (m)	5	11, m	SI	3	15
4	Water bottom	4	sandy	SI	3	12
5	Current m/sec	4	0,02	SI	3	12
6	Brightness m	3	1.45	N	1	3
7	Dangerous Biota	3	none	SI	3	9
8	Fresh water km	3	0,077 km	SI	3	9
TOTAL					90	
Suitability Index			93			

Source : Primary Data, March 2005

Station II for depth parameters including category (SI) is a depth of 0.32 to 1.45 m, beach type parameters based substrates included in the appropriate category (SI) is a type of white sandy beaches, beach width parameter included in the appropriate category (S1), namely the beach width of 11.5 m, the basic material parameters based substrates waters included in the appropriate category (SI) that is sandy, flow velocity parameters are included in the appropriate category (SI) is 0.02 m / sec, brightness parameter waters included in the

category of not appropriate (N) is 1.45 m, the parameters of harmful organisms included in the appropriate category (SI) that does not exist, and freshwater availability parameters included in the appropriate category (SI) is a distance of 0.077 km. By calculating the value of the allotment of the station I travel suitability based index that shows the value of 93%.

The results of the calculation of travel suitability index formula (IKW) shown in Table 10.

Tabel 10 Rate of Suitability at Station III

No	Parameter	value	result	criteria	score	Ni
1	Depth (m)	5	0,20-1,36	SI	3	15
2	Shore type	5	White sand	SI	3	15
3	Beach width (m)	5	8,22 m	S2	3	12
4	Beach bed	4	sandy	SI	3	12
5	Current m/sec	4	0,04	SI	3	12
6	Brightness m	3	1.36	N	1	3
7	Dangerous biota	3	none	SI	3	9
8	Fresh water (km)	3	0,037 km	SI	3	9
TOTAL					85	
Suitability Index			88			

Source : Primary Data, March 2005

Station III for depth parameters including category (SI) according to which the depth of 0.20 to 1.36 m, beach type parameters based substrates included in the appropriate category (SI) is a type of white sandy beaches, beach width parameter included in the appropriate category (S2) , ie with a

width of 8.22 m beaches, waters basic material parameters based substrates included in the appropriate category (SI) that is sandy, flow velocity parameters are included in the appropriate category (SI) is 0.04 m / sec, brightness parameter waters included in the category not suitable (N) is 1.36 m, the parameters of harmful organisms included in the appropriate category (SI) that does not exist, and freshwater availability parameters included in the appropriate category (SI) is a distance of 0,037 km. By calculating the value of the allotment of the station I travel suitability based index that shows the value of 88%.

Based on the results of the calculation of the index value leisure travel suitability station I, II, and III, respectively 88%, 93%, 88%. Thus Libuo Beach included in the category of SI, so that Libuo Coast region are categorized according to leisure travel. According to (Djurdjani, 1998, in Hamzah, 2005), a

coastal tourist area can be said to be appropriate if it has a value of 79-100%, (category SI), quite in accordance with the value of 56-79% (category S2), does not correspond to the value of 55%.

#### Conclusion

Based on the results of research on the suitability of recreational tourism in Libuo Beach obtained value of 88-93%, which indicates that the Coast region Libuo included in the category of SI (as appropriate) for tourist activities available, because Libuo Beach has a depth of waters, wide beach, type of beach, basic materials waters, current speed, dangerous organisms, freshwater availability is obtaining a high score. However, when viewed from the brightness of the waters Libuo Beach obtain a low score because it has water transparency is not optimal.

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