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Tourism Suitability Index (TSI) and Regional Carrying Capacity (RCC) of Pesona Beach in Teluk Rhu Village, North Rupat Bengkalis Regency, Riau

Indeks Kesesuaian Wisata (IKW) dan Daya Dukung Kawasan (DDK) Pantai Pesona di Desa Teluk Rhu, Rupat Utara Kabupaten Bengkalis, Riau

Merry Manalu[1], Trisla Warningsih[1*], Darwis AN[1]
[1]*Department of Socio Economic of Faculty of Fisheries and Marine, Universitas Riau*
Kampus Bina Widya KM 12.5 Simpang Baru, Kec. Binawidya, Kota Pekanbaru, 28293
**email: trisla.t.warningsih@lecturer.unri.ac.id*

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Abstract

Rupat island in Riau Province has many beaches as tourist destinations. One of the beaches is Pesona Beach which is located in Teluk Rhu village, North Rupat, Riau Province. This beach has the beauty of white sand that stretches along the coast. This study was conducted in July 2021 with the aim of knowing the tourism suitability index and calculating the carrying capacity of the region to develop into a beach tourism destination. This research method used is descriptive and qualitative method then the data is based on the parameters of the Tourism Suitability Index (TSI) and Regional Carrying Capacity (RCC). The final results showed that the tourism suitability index for four categories: beach recreation S2 (appropriate), swimming S2 (appropriate), fishing S1 (very suitable), and boating S1 (very suitable). The regional carrying capacity of the pesona beach area for tourism activities can accommodate 821 people/day. If there is an excess of visitors, it will have a negative impact on the ecosystem, therefore it is necessary to pay attention to the operation of the tourist area so that it is preserved and sustainable.

Keywords: Pesona beach, Tourism Suitability Index, Regional Carrying Capacity

Abstrak

Pulau Rupat di Provinsi Riau memiliki banyak pantai sebagai tujuan wisata. Salah satunya Pantai Pesona yang terletak di desa Teluk Rhu, Rupat Utara, Provinsi Riau. Pantai ini memiliki keindahan pasir putih yang terbentang di sepanjang pantai. Penelitian ini dilakukan pada bulan Juli 2021 dengan tujuan untuk mengetahui indeks kesesuaian pariwisata dan menghitung daya dukung kawasan untuk berkembang menjadi destinasi wisata pantai. Metode penelitian yang digunakan adalah metode deskriptif dan kualitatif kemudian data didasarkan pada parameter Indeks Kesesuaian Pariwisata (IKW) dan Daya Dukung Wilayah (DDK). Hasil akhir menunjukkan indeks kesesuaian pariwisata untuk empat kategori: rekreasi pantai S2 (sesuai), berenang S2 (sesuai), memancing S1 (sangat sesuai) dan berperahu S1 (sangat sesuai). Daya dukung daerah kawasan pantai pesona untuk kegiatan wisata dapat menampung 821 orang/hari. Apabila terjadi kelebihan pengunjung, maka akan berdampak negatif terhadap ekosistem, oleh karena itu perlu memperhatikan pengoperasian kawasan wisata agar tetap terjaga dan lestari.

Kata kunci : Pantai Pesona, Indeks Kesesuaian Wisata, Daya Dukung Daerah

1. Introduction

Coastal ecosystems have auspicious benefits in the field of tourism (Warningsih *et al.,* 2020). What can be developed from coastal areas is to make tourist areas in the form of views of the coast and authenticity of the environment (Lelloltery *et al.,* (2016). Tourism is traveling that is carried out repeatedly by visiting one place to another (Damardjati, 2001). The purpose of tourism is to get the enjoyment that nature gives to humans, so humans also need to protect and maintain the existence of natural resources (Yulianda *et al.*, 2019).

Tourism is one of the crucial sectors for a country because it can be a source of income or tourist area income (Nugraha *et al.,* 2013). Tourism development is related to natural resources found in nature (Sari, 2019). North Rupat District is in Bengkalis Regency, located at 0 0 55'24" – 2 0 7'41" North Latitude and 101 0 25'43" – 101 0 47;14 East Longitude. North Rupat District has an area of ± 638.50 km 2 with a coastline of 17 km (Anonim, 2021). The coastal area in Teluk Rhu Village, North Rupat District, is utilized as a tourist spot, namely Pesona Beach (Warningsih *et al.,* 2021). The beach is one of the coastal ecosystems where many human activities occur, such as tourism.

Pesona Beach is one of the coastal areas that have been developed into a tourist spot that presents natural beauty so that many tourists visit to unwind. Beach tourism activities prioritize coastal resources and the culture of coastal communities, such as recreation, sports, and enjoying the natural scenery. Geographically, Pesona Beach is located directly opposite Malaysia, from which the Malacca Strait separates. Pesona Beach is a white sandy beach where the land is sloping. This beach is one of the destinations tourists visit, but beach tourism activities indirectly have an impact. Therefore, the use of coastal tourism must refer to the carrying capacity plan of the area so that it continues to observe the ability of the area to guarantee that no damage will occur and maintain the authenticity of nature (Yulinda, 2007).

This study aims to determine the level of tourism suitability index and the extent of region carrying capacity of the Pesona Beach area of Teluk Rhu Village, North Rupat.

2. Material and Method

2.1. Time and Place of Research

This present research was carried out in July 2021 at the Pesona Beach area of Teluk Rhu Village, North Rupat (Figure 1). The location of Pesona Beach is adjacent to the Malacca Strait in the north, Titiakar Village in the south, Tanjung Punak Village in the east and Tanjung Medang Village in the west. Data collection was carried out in two different places, with the coordinates of the first place being 2^{0}07’03.0’ N 101^{0}40’08.3’’ E and the second place being 2^{0}06’57.8’’ N 101^{0}40’17.4’’ E.

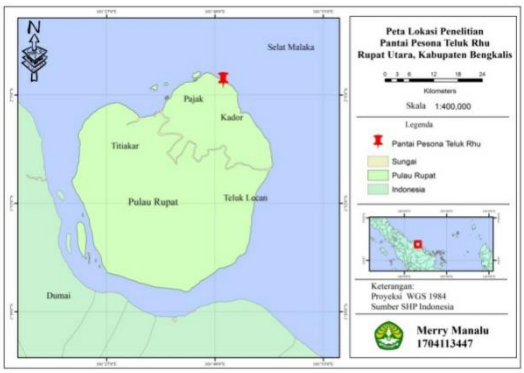

Figure 1. The Map of the Pesona Beach Research Location, Teluk Rhu Village

2.2. Method

This study used a *quantitative method* to estimate the Tourism Suitability Index (TSI) referring to Yulinda (2007) and a *descriptive method* to study questionnaires in interviews using the *accidental sampling method* so that tourists visit the research location (Sugiyono *in* Ajis *et al.*, 2022). The determination of sampling points for this research station was based on the consideration that visitor activities take place at that station.

2.3. Parameters Observed

2.3.1. Water Depth

The water depth was measured using ballast connected to a rope that was inserted into the waters and measured.

2.3.2. Beach Types

The type of beach was determined by observing directly how the shape and color of the beach sand was.

2.3.3. Beach Width

Activities from the width of the beach are carried out using a measuring tape or roll meter, from the location of the last living flora or plants on land to the last ebb limit on the shoreline or the lowest ebb limit of seawater on the beach.

2.3.4. Water Base Materials

The determination of the material found on the beach bottom was done by taking the substrate directly on the beach bottom and making visual observations in the field, and classifying whether it included sand, silt, or sand coral substrate (Yulisa & Nasal, 2016).

2.3.5. Flow Speed

The activity of measuring the speed of the current was carried out by determining the distance traveled by the float ball which then measured the travel time spent by the ball through a tool, namely a randek clock or stopwatch (Bibin *et al*., 2017).

2.3.6. Beach Slope

The slope of the beach was measured by spreading a measuring stick in the beach area and then pulling it perpendicular to form an angle. Then, the angle was measured.

2.3.7. Water Brightness

The determination of the beach water brightness used a tool called a Secchi disk connected using a rope and then slowly dropped into the waters. The calculations were performed using the formula (Khairuman, 2007):

Water brightness (cm) = (visibility distance + visible distance) / 2

2.3.8. Land Closure

The activity of observing land closure was carried out by paying attention to the surroundings of the site as well as classifying whether it fell into the category of open land that was overgrown with coconut trees, savanna, shrubs or settlements.

2.3.9. Dangerous Biota

Dangerous biota could be observed or conducted interviews to obtain information.

2.3.10. Fresh Water Availability

The determination was made by observing directly and measuring the shortest distance from the beach to a clean water source.

2.4. Data Analysis

2.4.1. Tourism Suitability Index Analysis

Benchmarks were used as a reference for determining tourism suitability indexes with types of activities such as swimming, beach recreation, fishing and boating (Domo et al., 2017) (Table 1 – Table 4).

Table 1. Resource Suitability Parameters for Beach Recreation

No	Parameter	Weight	Category S1	Score	Category S2	Score	Category S3	Score	Category N	Score
1	Beach Type	5	White sand	3	White sand, coral	2	Black sand and steep coral	1	Steep rocky mud	0
2	Beach Width (m)	5	>15	3	10-15	2	3-<10	1	<3	0
3	Water Depth (m)	5	0 - 3	3	>3-6	2	>6-10	1	>10	0
4	Water Base Materials	3	Sand	3	Sandy coral	2	Muddy sand	1	Mud	0
5	Flow Speed	3	-0.17	3	0.17-0.34	2	0.34-0.51	1	>0.51	0
6	Beach slope (0)	3	<10	3	10-25	2	>25-45	1	>45	0
7	Water Brightness	1	>10	3	>5-10	2	3-5	1	<2	0
8	Coastal Land Closure	1	Coconut, Open Land	3	Shrubs and low savanna	2	High thicket	1	Harbor settlement mangroves	0
9	Dangerous Biota	1	There isn't any	3	Sea urchins	2	Sea Urchins and Stingrays	1	Sea urchins, stingrays, lionfish, sharks	0
10	Availability of Fresh Water	1	<0.5 (km)	3	>0.5-1	2	>1-2	1	>2	0

Table 2. Resource Suitability Parameters for Fishing

Number	Parameter	Weight	Category S1	Score	Category S2	Score	Category S3	Score	Category N	Score
1	Beach Width (m)	1	x≥8	3	4≤x<8	2	1≤x<4	1	<1	0
2	Scenery (Beaches, Forests, Mountains and rivers)	5	4	3	2 s.d 3	2	1	1	0	0
3	Vegetation that lives by the beach	5	>4	3	2-3	2	1	1	0	0
4	Land expanse	3	Grass/Sand	3	rocky	2	Clay	1	Mud	0
5	Dangerous biota	3	There is no	3	1 kind	2	2 to 3	1	>3	0

Source: Modification Yulianda (2019)

Table 3. Resource Suitability Parameters for Boating

Number	Parameter	Weight	Category S1	Score	Category S2	Score	Category S3	Score
1	Depth	5	>8	3	>4-8	2	<4	1
2	Flow Speed	3	0-0.15	3	>0.15-0.40	2	>0.40	1

Source: Tambunan *et al.* (2013)

Table 4. Resource Suitability Parameters for Swimming

Number	Parameter	Weight	Category S1	Score	Category S2	Score	Category S3	Score	Category N	Score
1	Beach Type	5	White sand	3	White sand, coral	2	Black sand and steep coral	1	Steep rocky mud	0
2	Beach Width (m)	5	>15	3	10-15	2	3-<10	1	<3	0
3	Water Depth (m)	5	0.3	3	>3-6	2	>6-10	1	>10	0
4	Water Base Materials	3	Sand	3	Sandy coral	2	Muddy sand	1	Mud	0
5	Flow Speed	3	1-0.17	3	0.17-0.34	2	0.34-0.51	1	>0.51	0
6	Beach slope	3	<10	3	10-25	2	>25-45	1	>45	0
7	Dangerous Biota	1	There isn't any	3	Sea urchins	2	Sea Urchins and Stingrays	1	Sea urchins, stingrays, lionfish, sharks	0
8	Availability of Fresh Water	1	<0.5 (km)	3	>0.5-1	2	>1-2	1	>2	0

Source: Modification Yulianda *et al.* (2019)

Description*:*
Total = (Score x Weight) with the maximum value
S1 = Highly corresponds to the value of 83-100%
S2 = Corresponds to a value of 50-<83%
S3 = Conditional compliance with a value of 17-<50%
N = Does not correspond the value <17 %

According to Yulianda *et al.* (2019) the formula used for the suitability of beach tourism and marine tourism is:

$$IKW = \sum_{i=0}^{n} \left(\frac{Ni}{N_{maks}}\right) X\ 100\%$$

Description:
TSI : Tourism Suitability Index
Ni : The value of the i-parameter (weight x score)
N_{max} : The maximum value of a tourism category
i : Compliance parameters
n : Number of parameter types

2.4.2. Regional Carrying Capacity Analysis

Determining the carrying capacity of the area for each activity can be determined using the formula (Yulianda *et al.*, 2019):

$$RCC = K \times Lp/Lt \times Wt/Wp$$

Description:
RCC = Regional Carrying Capacity
K = visitor ecological potential per unit area
Lp = total area or visitor area that can be utilized
Lt = Unit area that can be used for certain activities
Wt = Time provided by the area for tourism activities in 1 day
Wp = Time spent by visitors for each specific activity

The ecological potential of the regional carrying capacity and the size of the area in carrying out a tourism activity were calculated to determine the ability of the area to accommodate tourists (Table 5).

Table 5. Ecological Potential of Visitors (K) and Area of Activity (Lt)

Number	Type of activity	K (Σ Traveler)	Area Units (Lt)	Information
1	Fishing / Sitting Relax	1	5 m^2	1 person needs 5 m of space
2	Swimming	1	50 m^2	1 person every 10 × 5 m long beach
3	Beach Recreation	1	50m^2	1 person every 10 × 5 m long beach
4	boating	1	500 m^2	1 person every 100 m Beach length

Source: Yulianda Modification (2019)

Tourist visit activity time (Wp) was determined based on the length of time needed by tourists to carry out activities at tourist attractions. Tourist time is estimated based on the estimated length of time determined by area guards (Putri *et al*., 2020) (Table 6).

Table 6. Predict the time needed for each tourist activity

Number	Type of activity	Time required (Wp-hour)	Total Time 1 day (Wt-hour)
1	Fishing/ Sitting Relax	2	8
2	Swimming	2	4
3	Beach Recreation	3	8
4	boating	0.5	2

Source: Yulianda *et al.* Modification (2019)

3. Result and Discussion

Pesona Beach was located in a village called Teluk Rhu Village. This village is in North Rupat, Bengkalis, Riau. It is an area on the beach/coastal and has an area of 7,250 Ha. Teluk Rhu Village is located at 101.651516 south latitude and north latitude 2.073813 longitude, east longitude.Teluk Rhu Village is bordered on the north by the Malacca Strait; on the north by Titiakar; on the side by Tanjung Punak Village; and on the west by Tanjung Medang Village (Teluk Rhu Village monographic data).

3.1 Tourism Suitability Index (TSI) for Pesona Beach Teluk Rhu Village

Tourism Suitability Index (TSI) was used to assess the feasibility of a tour from two observation stations in the Pesona Beach area (Figure 2).

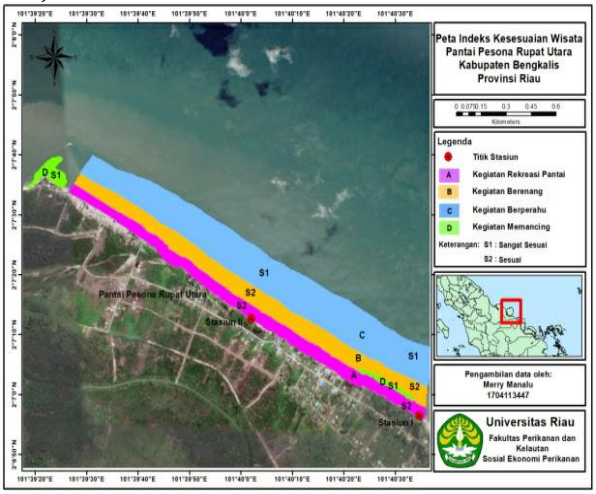

Figure 2. Tourism Suitability Index Map

The results of the calculation of the suitability index for Pesona Beach tourism are presented in Table 7.

Table 7. Calculation results of suitability for Beach Recreation Activities

Number	Parameter	Weight	Station 1			Station 2		
			results	score	Ni	results	score	Ni
1	Beach Type	5	White sand	3	15	White sand	3	15
2	Beach Width (m)	5	4,61 m	1	5	7 m	1	5
3	Water Depth (m)	5	1 m	3	15	1,2	3	15
4	Water Base Materials	3	Muddy sand	1	3	Mud	0	0
5	Flow Speed	3	0,24	2	6	0,26	2	6
6	Beach slope (0)	3	8	3	9	6	3	9
7	Water Brightness	1	0,115	0	0	0,165	0	0
8	Coastal Land Closure	1	Settlement	0	0	Settlement	0	0
9	Dangerous Biota	1	Jellyfish	2	2	Jellyfish	2	2
10	Availability of Fresh Water	1	700 m	2	2	500	2	2
Nmax		84			57			54
Tourism Suitability Index					67,86%			64,29%
Travel Suitability Level					S2			S2

Source: processed data, 2021

Table 8. Results of the Measurement of the Tourism Conformity Index for the Fishing Category

Number	Parameter	Weight	Station 1			Station 2		
			results	score	Ni	results	score	Ni
1	Beach Width (m)	1	4,61 m	2	2	7 m	2	2
2	Scenery	5	Beach	4	20	Beach	4	20
3	Vegetation that lives by the beach	5	2 types	2	10	4 types	3	15
4	Land expanse	3	rocky	2	6	rocky	2	6
5	Dangerous biota	3	Jellyfish	2	6	Jellyfish	2	6
Nmax		51			44			49
Tourism Suitability Index					86,27%			96,07%
Travel Suitability Level					S1			S1

Source: processed data, 2021

Table 9. Results of Measurement of Tourism Suitability Index for Swim Category

Number	Parameter	Weight	Station 1			Station 2		
			results	score	Ni	results	score	Ni
1	Beach Type	5	White sand	3	15	White sand	3	15
2	Beach Width (m)	5	4,61 m	1	5	7 m	1	5
3	Water Depth (m)	5	10 m	1	5	10	1	5
4	Water Base Materials	3	Mud	0	0	Mud	0	0
5	Flow Speed	3	0,24	2	6	0,26	2	6
6	Beach slope (^{0})	3	8	3	9	6	3	9
7	Dangerous biota	1	Jellyfish	2	2	Jellyfish	2	2
8	Availability of Fresh Water	1	500 m	2	2	700	2	2
Nmax		78			44			44
Tourism Suitability Index					56,41%			56,41%
Travel Suitability Level					S2			S2

Source: processed data, 2021

Based on the location of the research, it showed results such as the type of beach at Pesona Beach, which is a type of beach that has white sand with a water substrate of muddy sand and sand material at certain seasons. Both of these research locations fall into the S2 category (appropriate). This type of beach is suitable for beach recreation activities because, generally, beaches with white sand are types of beaches that have more aesthetic value, but the bottom substrate of Pesona Beach's waters is a type of muddy sand. The above is the same as Tambunan *et al.* (2013) who suggest that beach tourism is very good on beaches with white sand, compared to beaches with rock and coral substrates, because stones and coral can cause disturbance to tourists who carry out activities on the beach.

After taking measurements, the depth of the waters for recreational activities at Pesona Beach is 1 meter at station one and 1.2 meters at station two. For swimming, fishing, and boating activities, it has a depth of 10 m. According to Yulianda *et al.* (2017), a beach recreation area is declared suitable if it has a water depth of 0–3

meters. Meanwhile, according to Edward in Juliana (2013), water depths of 3.2 – 3.5 meters are still suitable for swimmingactivities. The measurement of the width of the beach at station one is 4.61 meters and for station two, it is 7 meters. According to Mukthar *et al.* (2016), the width of the beach is closely related to the area used for beach recreation activities or playing on the beach, so that visitors can freely carry out various beach recreation activities.

Observations of the bottom material for Pesona Beach waters at both stations show that the bottom material for the waters is mud and muddy sand. According to Rahmawati *in* Habibi *et al*. (2017), the basic material of sand waters is very suitable for recreational activities such as playing on the beach, sunbathing, and swimming. Measurement of the current speed at Pesona Beach yields 0.24 m/s for station one and 0.26 m/s for station two. This shows that the current speed at Pesona Beach is less than ideal, according to Yulianda *in* Nugraha *et al*. (2013), the current speed, which is very suitable for beach recreation activities, is 0–0.17 m/s.

Measurement of the slope of the beach at Pesona Beach yields 8^0 for station I and 6^0 for station II. This shows that Pesona Beach is very suitable for beach recreation activities. Pesona Beach is part of the sloping beach. According to Yulianda *in* Febyanto *et al.* (2014), a beach slope of less than 100 is a sloping beach, which is very suitable for carrying out activities on the beach. This makes beach visitors feel safe and comfortable doing beach recreation activities (Kurniawati *et al*., 2019).

Based on the results of measuring the brightness of the waters, the brightness of the waters of Pesona Beach is 0.115 m for station one and 0.165 m for station two. This means that the water at Pesona Beach is not clear enough for swimming because the water is considered murky. In the decision of the Minister of Environment No. 51 of 2004 concerning seawater quality standards, it is stated that tourism activities must have a seawater brightness value of > 6 meters. Water clarity is a factor that must be considered when carrying out swimming activities in coastal waters. This must pay attention to the comfort and safety of everyone who visits and carries out swimming activities in these waters.

The closure of the beach land on Pesona Beach is a settlement. According to Yulianda *in* Wunani *et al.* (2013), the benchmark used in determining coastal land cover is said to be very suitable if the area has open land overgrown with coconut trees. This shows that Pesona Beach is not suitable for beach recreation and swimming. Through direct observation of the location and from interviews with area managers, it was found that there are dangerous biota, namely jellyfish, in the waters, but in certain seasons, this makes the Pesona Beach area less safe as a place to carry out activities on the beach and swimming activities in those seasons. certain. This refers to Muntasib's statement *in* Muqsit *et al.* (2020) stating that the level of security and comfort in an area will decrease if there are dangerous biota in the area. These dangerous biota can be jellyfish, sea urchins, sea snakes, or lionfish. This can be a factor causing a reduction in the number of visits by tourists (Bibin & Mecca, 2021).

Based on the activity of measuring the distance of fresh water sources from the coast, at station one it is 700 meters and at station two it is 500 meters. From measurements at the two stations, it was found that both were less than 1 kilometer away, which indicated that fresh water sources were not too far from tourist areas and residential areas. According to Wabang *et al*. (2017), fresh water or clean water is very useful in supporting facilities for managing tourist attractions and supporting the convenience of tourism activities. This becomes a reference in assessing the feasibility of developing tourist areas. The closer the distance of fresh water availability to the coastal area, the better. Based on the measurement results, it was found that Pesona Beach was suitable (S2) for beach recreation activities, suitable (S2) for swimming activities, very suitable (S1) for fishing activities, and declared very suitable (S1) for boating activities

3.2. Regional Carrying Capacity (RCC)

The results of the calculation of the regional carrying capacity are given in Table 11.

Table 10. Data on the Carrying Capacity of the Pesona Beach Area

Number	Type of activity	K	Lt (m^2)	Lp(m^2)	Wp (o'clock)	Wt (o'clock)	RCC
1	Swimming	1	50 m^2	3100 m^2	2	8	124
2	Fishing	1	5 m^2	500 m^2	2	4	400
3	Beach Recreation	1	50 m^2	4530 m^2	3	8	242
4	boating	1	500 m^2	6870 m^2	0,5	2	55
Total area of the beach				15000 m^2	RCC Total		821 people

Source: processed data, 2021

Each activity at Pesona Beach has a different carrying capacity. These activities include playing on the beach (beach recreation), boating, fishing, and swimming. Through the activities of measuring and calculating the regional carrying capacity carried out at Pesona Beach, it can accommodate 821 people per day, where the area of Pesona Beach is 2 hectares. Meanwhile, the area used for various beach activities is 1.5 hectares. For playing activities on the beach or beach recreation, it is predicted that it is comfortable to have an area of 50 m^2; for the Pesona Beach area that is utilized, it has an area of 4530 m^2. Managers of tourist attractions have provided time that can be used for playing activities on the beach or beach recreation, namely 8 hours per day. The time usually used by tourists is 3 hours. Calculations using the regional carrying capacity formula show the carrying

capacity of the area to be as many as 242 people per day. These tourists usually carry out beach recreation activities such as chatting, playing with the sand, enjoying the scenery, taking pictures, walking, and sitting relaxed and comfortable. For swimming activities, an area of 3100 m^2 is provided. For safe and comfortable swimming activities, it is predicted to use an area of 50 m^2. The manager of the Pesona Beach area provides time for swimming activities of around 4 hours per day, and the time used by tourists is 2 hours. From this information, the carrying capacity for swimming activities is as many as 124 people per day by utilizing an area of 3100 m^2.

Fishing activities can be carried out on the pier, which has an area of 500 m^2. Comfortable fishing activities are predicted to require an area of 5 m^2. Pesona Beach tourist attractions provide time that tourists can use for fishing, which is 8 hours per day. From interviews with tourists, it can be seen that the time used by tourists is generally only 2 hours. As a result, the carrying capacity for fishing activities on a 500 m^2 area is 400 people per day. Boating activities can be done on Pesona Beach, which has an area of 6870 m^2. Carrying out boating activities safely is predicted to only require an area of 500 m^2. Tourists to carry out boating activities, namely 2 hours per day can use the manager of the Pesona Beach tourist spot provides time that. The average time needed by tourists is 30 minutes. From this information, it is obtained that the carrying capacity for boating activities is as many as 55 people by utilizing an area of 6870 m^2.

By measuring the carrying capacity for the Pesona Beach area, the results obtained were 821 people per day, with 242 people in the category of beach recreation, 124 people swimming, 400 people fishing, and 55 people boating. From these calculations, if a comparison is made with the number of tourists obtained when conducting research, it will yield information that Pesona Beach is still able to accommodate the increase in the number of tourists because the number of visitors who come has not exceeded the carrying capacity of the beach. From the results of the discussion, it can be used as a source of input as a consideration for developing the quality of Pesona Beach ecotourism so that there is no excess carrying capacity, Pesona Beach ecotourism is maintained and sustainable as a tourism place, and its natural sustainability is maintained.

4. Conclusions

Based on the results of the study, it was found that the Pesona Beach Tourism Suitability Index (TSI) was very suitable (S1) for boating activities, very suitable (S1) for fishing activities, suitable (S2) for beach recreation activities, and suitable (S2) for swimming activities. The carrying capacity of the Pesona Beach ecotourism area is 821 people per day for an area of 1.5 ha.

5. Suggestion

Suggestions that can be given are for consideration and management of the area so that the use of tourist attractions can be expected not to reduce the quality and not increase excessive carrying capacity.

6. References

Ajis, R., Hendri, R., & Warningsih, T. (2022). Pengaruh City Branding dan City Image Terhadap Keputusan Berkunjung Wisatawan di Objek Wisata Bahari Kawasan Mandeh Kabupaten Pesisir Selatan Provinsi Sumatera Barat. *Jurnal Sosial Ekonomi Pesisir*, 3: 29–37.

Anonim. (2021). Data Monografi Desa Teluk Rhu Kecamatan Rupat Utara Kabupaten Bengkalis. Riau: Tidak Dipublikasikan.

Bibin, M., & Mecca, A.N. (2021). The Suitability Analysis and Carrying Capacity of Marine Tourism Area (Case Study of Ujung Suso Beach, East Luwu Regency). *Torani Journal of Fisheries and Marine Science*, 4:1–14. https://doi.org/10.35911/torani.v4i1.1224

Bibin, M., Vitner, Y., & Imran, Z. (2017). Analisis Kesesuaian dan Daya Dukung Wisata Kawasan Pantai Labombo Kota Palopo. *Jurnal Pariwisata*, 4(2): 94–102.

Damardjati, R.S. (2001). *Istilah-istilah Dunia Pariwisata*. Jakarta: Pradnya Paramita

Domo, A. M., Zulkarnaini, Z., & Yoswaty, D. (2017). Analisis Kesesuaian dan Daya Dukung Kawasan Wisata Pantai (Studi Pantai Indah Sergang Laut di Pulau Singkep). *Dinamika Lingkungan Indonesia*, 4(2): 109-116. https://doi.org/10.31258/dli.4.2.p.109-116

Febyanto, F., Pratikto, I., & Koesoemadji. (2014). Analisis Kesesuaian Wisata Pantai di Pantai Krakal Kabupaten Gunungkidul. *Journal of Marine Research*, 3: 429–438.

Habibi, A., Adi, W., & Syari, I. (2017). Kesesuaian Wisata Pantai untuk Rekreasi di Pulau Bangka. *Akuatik Jurnal Sumberdaya Perairan*, 11: 54–60.

Khairuman. (2007). *Budidaya Patin Super.* Agromedia Pustaka, Jakarta.

Kurniawati, F., Pratikto, I., & Widianingsih, W. (2019). Analisis Daya Dukung Kualitas Air untuk Kesesuaian Wisata di Pantai Karang Jahe, Rembang. *Journal of Marine Research,* 8(4): 425–430. https://doi.org/10.14710/jmr.v8i4.24926

Lelloltery, H., Pujiatmoko, S., Fandelli, C., & Baiquni, M. (2016). Ecotourism Development Base Suitability of Land and Carrying Capacity of Coastal Area (Study at Marsegu Island in West Seram Regency). *Jurnal Budidaya Pertanian,* 12(1): 25–33.

Mukthar, P., Rudiyanti, S., & Purwanti, F. (2016). Analisis Kesesuaian Wisata di Pantai Nyalo (Kawasan Mandeh) Kabupaten Pesisir Selatan, Sumatera Barat. *Diponegoro Journal of Maquares*, 5, 420–426.

Muqsit, A., Johan, Y., Hartono, D., Oktaviani, A. (2020). Analisis Kesesuaian Kawasan Ekowisata Pantai di Pantai Panjang Provinsi Bengkulu. *Jurnal Enggano,* 5(3): 566–586.

Nugraha, H. P., Indarjo, A., & Helmi, M. (2013). Studi Keseuaian dan Daya Dukung Kawasan untuk Rekreasi Pantai di Pantai Panjang Kota Bengkulu. *Journal of Marine Research*, 2(2): 130–139.

Putri, I.D.A.R.R.E., Karang, I.W.G.A., & Puspitha, N.L.P.R. (2020). Daya Dukung Kawasan (DDK) Wisata Pantai di Pantai Pandawa, Kecamatan Kuta Selatan, Kabupaten Badung, Bali. *Journal of Marine Research and Technology*, 3(1), 19. https://doi.org/10.24843/jmrt.2020.v03.i01.p04

Sari, L.K. (2019). Potensi Ekowisata Pesisir Cilacap. *Prosiding Semnas LPPM Unsoed*, 8(1): 17–27.

Tambunan, J. M., Anggoro, S., & Purnaweni, H. (2013). Kajian Kualitas Lingkungan dan Kesesuaian Wisata Pantai Tanjung Pesona Kabupaten Bangka. *Prosiding Seminar Nasional Pengelolaan Sumberdaya Alam dan Lingkungan*, 356–362.

Wabang, I.L., Yulianda, F., & Adisusanto, H. (2017). Kajian Karakteristik Tipologi Pantai untuk Pengembangan Wisata Rekreasi Pantai di Suka Alam Perairan Selat Pantar Kabupaten Alor. *Albacore Jurnal Penelitian Perikanan Laut,* I(2), 199–209. https://doi.org/10.29244/core.1.2.199-209

Warningsih, T., Bathara, L., Manalu, M., Syahzanani, Z. (2021). Valuasi Ekonomi Wisata Pulau Rupat Kabupaten Bengkalis, Provinsi Riau dengan Metode Travel Cost Method. *Journal of Fisheries and Marine Research,* 5(3): 1–6.

Warningsih, T., Kusai, K., Bathara, L., Diharmi, A., & Deviasari, D. (2020). Pemanfaatan Bahan Baku Lokal Dalam Pengembangan Wisata Pulau Cinta di Desa Teluk Kenidai Kecamatan Tambang Kabupaten Kampar Provinsi Riau. *Unri Conference Series: Community Engagement*, 2, 38–43. https://doi.org/10.31258/unricsce.2.38-43

Wunani, D., Nursinar, S., & Kasim, F. (2013). Kesesuaian Lahan dan Daya Dukung Kawasan Wisata Pantai Botutonuo, Kabila bone, Kabupaten Bone. *Jurnal Ilmiah Perikanan dan Kelautan*, 1: 89–94.

Yulianda F. (2007). *Ekowisata bahari sebagai alternatif pemanfaatan semberdaya pesisir berbasis konservasi.* Bogor (ID): Institut Pertanian Bogor.

Yulianda, F., Rodiana, L., & Sulistiono. (2019). Kesesuaian dan daya dukung ekowisata berbasis ekologi mangrove di teluk pangpang, banyuwangi. *Journal of Fisheries and Marine Research,* 3:194–205.

Yulianda, Ferdinan., Kismanto, K., Nurlisa, B. (2017). Pengembangan Ekowisata Bahari Berbasis Sumberdaya Pulau Pulau Kecil di Pulau Sayafi dan Liwo, Kabupaten Halmahera Tengah. *Jurnal Teknologi Perikanan dan Kelautan*, 8: 1–17. https://doi.org/10.24319/jtpk.8.1-17

Yulisa, E.N., & Nasal, K. (2016). Analisis Kesesuaian dan Daya Dukung Ekowisata Pantai Kategori Rekreasi Pantai Laguna Desa Merpas Kabupaten Kaur. *Jurnal Enggano,* 1(1), 97–111