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Original Research Article

Study of Mangrove Ecotourism Product Offers in Bali

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Abstract: Bali tourism prioritizes introducing culture and nature throughout the region. Natural tourism offers more of the geographical characteristics of mountains and coastal areas. Among a number of coastal tourism potentials such as the sea and beaches, there are also mangroves which are widely spread in Bali. There are at least 4 mangrove locations in Bali that have been developed as tourist attractions, namely Batu Lumbang, Wanasari, Perancak and Jungutbatu. These four mangrove tourism businesses offer an ecotourism brand in their tourism product offerings. In particular, ecotourism has a number of criteria in its implementation, starting from being carried out by the community, there are elements of education, environmental preservation and economic elements. All of these elements should be included in existing mangrove tourism activity offerings. Not to mention that as a tourism business based on tourist attractions, mangrove ecotourism management and services must prioritize the completeness of tourist attraction elements such as something to see, to buy, to do, to learn. Other complete aspects that a tourist attraction must have are attraction elements, accessibility, amineties and ancillary service. This research will identify and analyze the completeness of attraction elements, tourist attraction elements and their suitability with existing ecotourism elements in mangrove ecotourism in Bali. In a number of locations, utilization activities are often carried out by community groups and not by parties given the authority to manage the area. In a number of locations, the planning and monitoring processes are often carried out by different parties. It is necessary to reaffirm the matters and authority of area management. It is necessary to recapitulate the results of research carried out at the location so that more complete data is obtained regarding the characteristics of the location.

Keywords: Management, Mangroves, Tourist Attractions.

1. INTRODUCTION

The potential for mangroves in Indonesia's coastal areas reaches 2.5 ha (Rahadian, 2019). Mangrove forests are biological natural resources that have potential and benefits for humans. The mangrove forest ecosystem has physical, economic, socio-cultural and ecological functions, in terms of its ecological function as detritus income, spawning for certain marine biota while from its physical function as a dampener for sea waves, storm winds and coastal protection. and mud retaining, its economic function has the potential to be a place for recreation and livelihood for the community, while from a socio-cultural perspective it is a conservation area for development, education and research on marine culture. Professional management of mangroves in coastal areas will make coastal areas a new strategy in coastal area development. Mangroves with their distinctive characteristics in the form of mud are the main ecosystem resource in coastal areas (Dahuri. R, 2003). Mangrove ecotourism has potential and tourist attractions such as learning activities, water tourism, beaches and local culture, all of which aim at economic development in coastal areas (Edy Saputra & Setiawan, 2014)

Mangrove ecotourism products in Bali have begun to develop since a number of international events were held in mangroves. There are at least 4 locations that manage mangroves with an ecotourism brand. A number of places that are developing mangrove ecotourism services in Bali are: Batu Lumbang, Wanasari, Perancak and Jungutbatu. These four locations manage and provide tourism services by offering mangrove ecotourism activities. As a tourism business, a number of mangrove ecotourism businesses in Bali have provided tourism services, but have not provided important results and contributions from economic, social and environmental aspects. This condition is not supported by a reflection of how mangrove ecotourism product offerings have been carried out so far. With clear reflection, the process of evaluating tourism activity services will become clearer and more focused. In the process of its journey as a tourism business as well as an ecotourism brand introduced at a tourist attraction, a number of basic criteria must be met. Apart from ecotourism criteria in mangrove areas, the application of

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tourist attraction and tourist attraction criteria must be met. The fulfillment of these elements is not only an effort to provide services in accordance with those guaranteed to visitors/tourists who come, but also as an effort to develop sustainable tourism activities (economic, social, environmental).

In essence, ecotourism that preserves and utilizes nature and community culture is much more complex than just sustainability. Environmentally sound ecotourism development is much safer in terms of nature conservation than sustainable development. Because ecotourism does not exploit nature, but only uses the services of nature and society to meet the knowledge, physical/psychological needs of tourists. In fact, in various aspects, ecotourism is a form of tourism that leads to metatourism. Ecotourism does not sell destinations but sells philosophy. From this aspect, ecotourism will not recognize market saturation. With this conception, it is necessary to study the mangrove ecotourism product offering in Bali. The tourism potential in Bali, which is known in coastal and mountainous areas, has been proven to develop very rapidly and contribute to the community and region. The development of mangrove areas which are part of coastal areas is an alternative and offers different tourism products to tourists.

2. METHODS

Tourism has become an important social and economic activity in many parts of the world in recent decades. Studies on tourism show that tourism activities have been able to contribute to the country's economy (Firdaus & Tutri, 2018). Tourism is currently considered a form of motivation that underlies someone to travel to a location other than their usual place of residence, as well as the desire to rest and do complementary activities to fill their free time (Mondino & Beery, 2019). Tourism development is now experiencing a shift from the concept of "mass tourism" to special interest tourism "ecotourism" (Agarwal *et al.,* 2018). Ecotourism is known as a form of environmentally friendly tourism that is oriented towards educating various focuses and meanings which are referred to as green tourism. Ecotourism also has a very important role in increasing people's income, preserving culture, and environmental conservation efforts (Henri *et al.,* 2017).

Mangroves are muddy coastal wetlands found in tropical and subtropical regions of the biosphere, which play a major role in environmental services, economics, and social benefits. Mangroves contribute to a variety of environmental services, including trapping and recycling organic materials, providing shelter and surfaces for terrestrial and aquatic organisms, and contributing to the overall health of coastal environments. Mangroves are rich in natural resources that have long been exploited by humans. Most of the diversity of mangrove ecosystems is spread across developing countries which have recently faced various problems that have the potential to cause the extinction of mangrove ecosystems.

Mangrove areas have high tourism development potential, this is based on the unique characteristics of their flora and fauna (Fahrian *et al.,* 2015). Mangrove ecotourism can be developed as a form of educational tourism that focuses on human behavior in protecting the environment in a sustainable manner. Based on Shephard *et al.,* (2015), sustainability aspects can be explained through knowledge, skills and competencies and supported by effective aspects such as values, attitudes and dispositions. Behavior that conserves natural resources can certainly increase the economic value of life without destroying it (Jurigová & Tucková, 2016).

An industry is characterized by generic products and production processes. For tourism to be considered an industry, it is necessary to demonstrate that such generic products and processes exist. This paper argues that they do exist, and presents a model that describes products as consisting of five elements: physical plant, service, provision, freedom of choice, and involvement. Generic production begins with raw inputs, continues through intermediate inputs and outputs, to the final output, or tourist experience. The model is a potentially important contribution to achieving tourism as an industry; it also formalizes the intuitive notion of many authors that tourism products are essentially experiences.

The dimensions of tourism products as tools are tourist attractions, facilities and amenities, and accessibility. This research uses the following dimensions. (1) Tourist attractions are potential that can attract tourists to visit. (2) Facilities and amenities, namely various facilities that can support each other and provide comfort and satisfaction for tourists during their tour. (3) Accessibility, namely the ease with which a tourist can reach a tourist destination via transportation media.

The factor that is the basis for decision making to visit is the tourism product, therefore one of the functions of the tourism product is as a reference for tourists when every visit to a tourist attraction. Elmas (2019) stated that there is a positive and significant relationship between tourism products and the decision to visit.

Research related to mangrove ecotourism in Bali Province targets a number of locations that offer ecotourism in mangrove areas. Based on the results of a preliminary survey, there are at least 4 mangrove ecotourism locations in Bali, namely:

1. Batu Lumbang mangrove ecotourism in Pemogan, Denpasar City
2. Wanasari Ecotourism in Tuban, Badung Regency

3. Perancak Mangrove Ecotourism in Perancak, Jembrana Regency
4. Jungutbatu Mangrove Ecotourism, in Jungutbatu, Klungkung Regency

3. RESULT

The Ngurah Rai Grand Forest Park (Tahura) was established based on the Decree of the Minister of Forestry (Kepmenhut) Number 544/Kpts-II/1993 dated 25 September 1993 with an area of 1,373.50 ha. The Tahura Ngurah Rai area includes six villages in Denpasar, namely Sanur Kauh, Sidakarya, Sesetan, Serangan, Pedungan and Pemogan; and covers six villages in Badung Regency, namely Kuta, Kedongan, Tuban, Jimbaran, Benoa and Tanjung Benoa (UPT Tahura Ngurah Rai, 2012). The Bali Mangrove Forest Tourist Attraction in Denpasar Bali is one of the tourist attractions on JL. By Pass Ngurah Rai, Km. 21, Suwung Kauh, Pemogan Village, South Denpasar District, Denpasar City, Bali, Indonesia. The mangrove forest on the island of Bali has an area of 1,373 hectares with a length of 1.5 kilometers, this is the government's success in preserving nature, in collaboration with JICA (Japan International Cooperation Agency), then the idea emerged to form the Mangrove Boardwalk trekking recreation concept.

The management built a 2 km long wooden bridge for visitors who want to explore the mangrove forest. Along the bridge there is a special place for visitors who want to enjoy the atmosphere of the mangrove forest. The very beautiful view of the toll road and the blue sea of Benoa Bay can be seen very clearly if visitors are willing to walk to the end of the bridge. Tourists are invited to tour the mangrove forest for 25-30 minutes, even crossing under the Bali Mandara Toll Road. The people of Batu Lumbang consider that the existence of mangrove forests guarantees the availability of fish because 60 percent of them make their living as fishermen.

Segara Guna Batu Lumbang Group also has a mangrove plant nursery area. They will replant dead or damaged mangrove plants. Mangrove planting is carried out in remote areas of the forest using boats or canoes. There are at least 16 types of mangrove vegetation in the Bali Mangrove Forest, dominated by Rhizophora, Bruguiera and Xylocarpus. Its presence provides shade for the surrounding aquatic and land animals. The Ngurah Rai Grand Forest Park Technical Implementation Unit recorded around 61 types of birds, four reptiles, 30 types of crustaceans and eight types of fish living in it. The types of crabs that occupy this area are Portunid Crabs, Xanthid Crabs, Ocypodid Crabs, Grabsid Crabs. For animals, there are 66 types of birds that are known to live around this mangrove forest area. The birds that live are mostly water bird species such as the oriental darte, gray heron, little pid cormorant, Javan pond heron, intermediate agreat, great agreat, lesser whistling duck and many others. The Bali Mangrove Forest is in the golden triangle, the tourism center of the Island of the Gods. The location is close to Sanur Beach, Kuta Beach and the Jimbaran area.

Also known as Tuban Bali Ecotourism, it is located on Jalan Ngurah Rai, Kuta District, Badung Regency. There is a path for walking and a gazebo for resting. However, tourists can also get around by traditional boat. You can also find restaurants and crab farms, so here tourists can also try out culinary tourism with mud crab dishes. Tourists can also take part in planting mangroves. Before leaving, there are various souvenirs you can take home because mangrove trees are processed into food and products. Among other things, it is transformed into syrup, chocolate, chips and cookies. The products are processed into body scrubs and laundry soap. So not only can you enjoy the tranquility at this location which is often used as a pre-wedding photo shoot, there are many things you can enjoy here. There are three groups of fishermen in the Mangrve area, the fishermen groups are the Batu Lumbang fishermen group, the Deluang Sari turtle breeder group and the Wanasari fishermen group.

Initially, this mangrove area was managed by the community as a traditional pond. However, the management then leased the mangrove area to a third party (private) who used it as an intensive pond. As mangrove areas are used to become intensive ponds (a change in the pattern of use from traditional ponds to intensive ponds), there is a drastic decline in people's income. This phenomenon shapes the perception of Batu Lumbang fishermen who consider the existence of mangrove forests to be more beneficial than if the mangrove area is converted into ponds. The existence of mangroves is believed to guarantee the availability of fish, especially since almost 60% of members of fishing groups have their main livelihood as fishermen. The existence of mangroves for Batu Lumbang fishermen cannot be valued in money considering their very important function and role as a source of income for fishermen. Most Batu Lumbang fishermen who embrace Hinduism adhere to the Tri Hita Karana concept which contains the meaning of three causes of harmony, consisting of parahyangan, pawongan and palemahan. Parahyangan means a harmonious relationship between humans and Ida Sang Hyang Widi Wasa, God Almighty; pawongan is a harmonious relationship between humans and each other, including family, friends and society; and palemahan is a harmonious relationship between humanity and its environment. These three concepts are used as benchmarks in assessing the success of development. Batu Lumbang fishermen do not want drastic changes as a result of development activities. The impact of development activities is not only considered in the short term but also in the long term. The Benoa Bay reclamation plan, which is currently being debated by many parties, is strongly opposed by the Batu Lumbang Fishermen group. They are worried that the reclamation plan will limit their livelihoods, disrupt

religious activities and disrupt the balance of the mangrove ecosystem. To balance the use of mangrove areas, members of fishing groups carry out planting activities in deforested mangrove areas.

Mangrove planting in remote areas is carried out using canoes. To increase awareness of the younger generation regarding the importance of mangrove rehabilitation, elementary school students and Scouts were involved. The Batu Lumbang Fishermen's Group has a mangrove nursery to replace dead mangrove plants. Skills on how to seed and plant mangroves were obtained from coaching carried out by the Region I Mangrove Forest Management Center (with the Minister of Environment and Forestry Regulation Number P.13/MenLHK/Setjen/OTL.0/1/2016 changed to the Climate Change and Fire Control Center Forest and Land). The Deluang Sari fishing group consists of turtle breeders around Tanjung Benoa, Bali. The background to the formation of this group was the development of water tourism on the beaches around Tanjung Benoa. Water tourism activities are considered to reduce people's income. In the 1990s, from sea fishing, people could catch 10-15 kg of fresh fish per day. However, the disruption caused by water tourism activities resulted in the catch of fish only reaching 3 kg/day. In 1993, 12 fishermen formed a fishing group with the aim of looking for alternative activities that could increase income through developing joint activities.

The concerns of members of the fishermen's group, which was later named the Deluang Sari Fishermen's Group, regarding the increasing extinction of sea turtles in the surrounding mangrove area, gave inspiration to develop tourism based on turtle breeding as an attraction. The Deluang Sari Fishermen's Group built a turtle hatchery in Tahura Ngurah Rai by clearing the surrounding bushes. This activity was initially opposed by the Bali Provincial Forestry Service. It turns out that turtle breeding activities have a positive impact both in terms of conservation and the economy. From a conservation perspective, with captive breeding activities, turtle wildlife can be preserved. There are three types of turtles that are bred at Deluang Sari Turtle Farm, namely Green Turtles (Chelonia mydas), Hawksbill Turtles (Eretmochelys imbricata) and Olive Ridley Turtles (Lepidochelys olivachea). These three types of turtles are protected by applicable laws and regulations based on Government Regulation Number 7 of 1999 concerning Preservation of Plant and Animal Species. As time goes by, the behavior of the Deluang Sari fishermen group who are trying to breed turtles, has received attention from the Badung Regency Government, NGOs, and BKSDA Bali. Deluang Sari members received training in hatchling cultivation techniques from BKSDA Bali.

The mangrove forest area of Nusa Lembongan is not very large, but it is still fun, enjoying the coolness on a tall boat. Look at the mangroves one by one with their names attached. So tourists can differentiate one type of mangrove from another. This short trip in the mangrove forest ends at sea, and continues with snorkeling or diving around Nusa Lembongan and Nusa Penida. The location of this mangrove forest is in Jungut Batu Village, close to Jungut Batu port. Tour for 20 - 30 minutes using a small boat without an engine so you can enjoy super calming natural views without the noise of the engine from the boat.

The natural scenery presented in the Nusa Lembongan mangrove forest is slightly different from the mangroves in the Suwung area, Denpasar, in Denpasar Bali, access to the middle of the mangrove forest is provided by a wooden bridge, you can walk (trekking) freely to the middle tower building. forest. The mangrove forest in the coastal area of Lembongan Island, which covers an area of 202 Ha (Setiawan *et al.,* 2012), has been used by the community for mangrove tour activities. Several tourism organizations that have developed mangrove tour programs in Lembongan village include the Bali Tours Club, the Jungut Batu village ecotourism group, Travelfish.org, the Tangjung Sanghyang tourism group. In this activity, tourists travel around the mangrove forest using rowing canoes, motorized canoes, and some also use trails. Mangrove tour activities in the Lembongan mangrove area are generally a traveling activity to explore mangrove forests, but have not been directed at introducing plant types with unique characteristics, habitat specificities, diversity of fauna associated with mangrove forests, how mangrove plants are zoned from sea to land. This is because there is no detailed data on Lembongan's mangrove diversity in the form of a handbook which can be used as a reference for guides to guide tourists on mangrove tour activities.

The mangrove forest tourist destination on the island of Nusa Lembongan is one of the interesting natural adventure recreation areas in Klungkung Regency, Bali. Holiday activities will not be complete before visiting this mangrove forest. Offers creative recreation, using traditional boats without engines, along canals in the middle of mangrove forests. The tour route in the middle of the forest is cool even in the middle of the day, because it travels through the middle of the forest under the shade of mangrove trees. The boat, which is around 6 meters long, can accommodate up to 6 passengers, only moved by a bamboo stick by the boat driver. This will be an exciting tour and natural adventure for you. For this reason, your holiday while in Nusa Lembongan will be even more perfect if you can enjoy a traditional tour in the Mangrove forest, it only takes 30 minutes to explore this forest, the price for renting this traditional boat to take visitors to enjoy the tour is only around IDR 100,000/boat, can be filled up to 6 people.

The Mangrove tour tourism program on the island of Nusa Lembongan Klungkung was formed in 2003, with this creative tour program adding to the allure

of this island, providing different and interesting tour offers. So apart from being a popular diving tourist spot, it is also quite attractive for mangrove forest recreation. Tourism on Nusa Lembongan itself has developed quite well over time compared to the island of Nusa Penida or the island of Nusa Ceningan. The existence of mangrove forests is certainly an important part of maintaining the ecosystem and preserving nature. The function of the forest area as a tourist spot, such as a tour, will ensure that this mangrove forest area is well maintained, residents will volunteer to look after this mangrove forest so that it is maintained sustainably and is not damaged, because this place is the people's livelihood. In the past, residents used mangrove forest logs more often by cutting them down and using them as firewood and land for the salt industry, resulting in abrasion. By using them as a recreation area and tourist destination, residents planted the empty land with mangrove seeds and made regulations prohibiting cutting down trees. mangroves.

The Nusa Lembongan mangrove forest has a forest area of 202 Ha, 85 Ha of which is the result of planting in empty areas in the Jungutbatu area and 117 Ha of which is natural forest. Based on the results of information from the Bali Provincial Forestry Service, which is supported by the local Forestry Service, that in the Nusa Lembongan mangrove forest area, mangrove seedlings have been planted, however regarding the types that grow and dominate in the area, the relevant technical agencies have not been able to provide clear information, added Also, with information about developments in the world of tourism in Nusa Lembongan, it tends to influence the mangrove ecosystem in the area. There is no data on the structure and diversity of mangroves in the Nusa Lembongan mangrove forest area, so it is necessary to carry out vegetation analysis. This research aims to determine the composition, structure and diversity of mangrove types in the Nusa Lembongan Forest area, as well as the environmental factors that influence them.

The mangrove zoning on Lembongan Island is still natural vegetation, because it still follows the natural zoning pattern of mangrove forests. The natural zoning of mangrove forests is; in the front zone (near the sea) is generally dominated by Sonneratia, Avicennia, the middle zone is generally dominated by Rhizopora, Bruguiera and the back zone (closest to land) is generally dominated by Bruguiera, Lumnitzera and other types of mangrove-associated plants. Introduction to plant types, growth zones, unique types of mangroves and the characteristics of their habitat support attractions for mangrove tour activities. Some of the uniqueness of mangroves as tourist attractions include the types of mangrove plant fruit (ball shape, cinder, like chili), the root system (support roots, breath roots, knee roots), mud habitat and sea tides, and the role of the mangrove ecosystem. for environmental conservation.

Meanwhile, other types which are quite dominant in their presence are Lumnitzera racemosa Willd., Avicennia marina (Forssk.) Vierh. and A. lanata Ridley. namely each with DR and NP respectively of 8.732% and 24.494%; 6.445% and 23.828%; and 3.950% and 18.056%. L. racemosa Willd. The level of distribution and density is relatively low, namely with FR and KR values of 7.031% and 8.731% found clustered in the back to middle zones on all lines at the three observation stations. This is because this type is less resistant to the onslaught of waves or currents from high tides, so it tends to occupy the zone behind or after R.stylosaGriff. andR. apiculataBlume. or sometimes associated because this type likes solid muddy and sandy substrates and little inundation from sea tides.

Based on government administrative divisions, the Perancak Estuary area is located in two sub-districts, namely Negara Sub-district and Jembrana Sub-district, Jembrana Regency, Bali Province. Negara District consists of 4 Subdistricts and 8 Villages while Jembrana District consists of 4 Subdistricts and 6 Villages. The boundaries of this research area are only limited to two villages, namely Budeng Village and Perancak Village. The total area of Jembrana District is 9,397 ha (BPS Jembrana, 2007). The Perancak Estuary area has a fairly large area, namely 2,512.69 ha, with land use in the form of ponds and mangrove forests. The mangrove forest in this estuary is a natural forest that grows various types of mangroves spread randomly over an area of 177.09 ha (Center for Marine Research and Observation, 2004).

Jembrana Regency, Bali, has quite extensive mangrove forests in several villages, one of which is the mangrove forest in Perancak Village, Jembrana District. This potential is a tourist attraction for the Perancak Bali Mangrove Ecotourism, especially for local tourists. Mangrove Ecotourism, tourism activities that utilize the surrounding natural environment, which are managed with a conservation and educational approach. Empowering coastal mangrove forest areas for ecotourism has the potential to become a new normal tourism activity, tourists who come can carry out activities in the mangrove area. Mangrove ecotourism attractions have their own diversity, natural resources are one of the charms of ecotourism attractions here. Activities that are one of the attractions of mangrove ecotourism include photography, selfies, trekking, education and many others.

4. DISCUSSION

The grand forest park (Tahura) has limitations in terms of use by the community and managers. The boundaries for the management of the Tahura area are in the form of statutory regulations governing the management of nature reserve areas and nature conservation areas, including Tahura Ngurah Rai. According to Law Number 5 of 1990 concerning Conservation of Biological Natural Resources and Ecosystems, a grand forest park is a natural conservation

area for the purpose of collecting natural or artificial plants and/or animals, native and non-native species, which are used for research and scientific purposes, education, supporting cultivation, culture, tourism and recreation. A nature conservation area is an area with certain characteristics, both on land and in water, which has the function of protecting life support systems, preserving the diversity of plant and animal species and sustainably utilizing biological natural resources and their ecosystems. The management of natural reserve areas and nature conservation areas is regulated in the Government Regulation (PP) of the Republic of Indonesia Number 28 of 2011 concerning Natural Reserve Areas and Nature Conservation Areas. In this regulation, Tahura management is limited to research activities, development of science and technology; education; biodiversity collections; carbon storage/sequestration, utilization of water/water, heat and wind energy as well as natural tourism; utilization of wild plants and animals for cultivation; traditional use by local communities; and animal breeding/plant propagation. The traditional uses referred to in the PP are the collection of non-timber forest products, traditional cultivation, and limited traditional hunting for non-protected species.

The existence of Tahura Ngurah Rai is very important for people's lives both now and in the future. Considering that the majority of Balinese people have Hindu beliefs, apart from considering ecological aspects and the mangrove ecosystem, the community wants the management of Tahura Ngurah Rai to be in accordance with the social and cultural conditions of the Hindu community. The high dependence of local communities on the existence of mangroves requires the management of Tahura Ngurah Rai to involve the community. The community realizes that they play a role in preserving mangroves in Tahura Ngurah Rai. The community is trying to apply the principles of sustainability in mangrove utilization activities in Tahura Ngurah Rai. Although based on applicable regulations, Tahura management is limited to research, science, education, supporting cultivation, culture, tourism and recreation activities; In reality there are community/community group activities located within Tahura Ngurah Rai outside of the permitted activities.

Based on the Diversity Index (ID) value of the total vegetation of the Nusa Lembongan mangrove forest area, which is 2.461, it can be seen that the level of diversity of types in the Nusa Lembongan Forest area is stable. This is supported by the opinion of Hardjosuwarno (1989) in Ardhana (2015) who said that a community is said to be quite stable if it has a diversity index (H') value ranging between 2 – 3. Overall the Nusa Lembongan forest area has a high level of water salinity, that is, the average for the front zone; middle zone; and back zone respectively 35.00 0/00; 34.00 0/00 and 32.50 0/00. When related to the climatic conditions, this forest area is included in climate type F (dry) according to Schmidth and Ferguson, namely with fairly low rainfall which results in very high salinity levels in the Nusa Lembongan forest area. This is because it rarely rains in a year with an average rainfall of 1,215 mm/year and the absence of river estuaries in this forest area is also thought to be the cause of this high level of salinity. This is supported by the opinion of Anwar *et al.*, (1984) who said that the salinity of water around the coast will decrease during the rainy season due to the increase in the volume of fresh water flowing from land and the highest salinity occurs in the dry season.

Nusa Lembongan's mangrove forests are well supported by environmental factors, namely climate type F (dry) according to Schmidth and Ferguson with high water salinity and soil conditions with a dusty clay and sandy clay texture with organic matter content generally ranging from medium to high as well as the condition of coastal waters. be calm.

5. CONCLUSION

In order to ensure the preservation of mangrove forests, implement educational tourism for the community, provide business opportunities for local communities and increase state income and local revenue, the management of the Nusa Lembongan Mangrove Forest Area must start making efforts to develop natural tourism with underwater flora and fauna objects. mangrove forests in accordance with applicable laws and regulations.

Government Regulation No. 73, 2012 concerning the national strategy for mangrove ecosystem management expressly states that mangrove ecosystem management is an effort to protect, preserve/preserve and utilize mangroves for the welfare of the community.

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