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Marine Biodiversity as an Attraction to Tourist in Seribu Islands in DKI Jakarta Province Indonesia

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Abstrak

Pramuka Island is one of the islands in the Thousand Islands group. This island is included in Panggang Island Village and is the administrative and government center of the Seribu Islands Administrative Regency. The aim of this research is to identify the potential for diving tourism around Pramuka Island. The research method used is a qualitative approach with a survey research design, direct observation method, and interviews with dive guides who have had a career as dive guides on Pramuka Island for more than 20 years. Data obtained from respondents' responses in this research will be analyzed using a spatial approach with a Geographic Information System (GIS) using ArcGIS software to determine the potential for diving tourism on Pramuka Island. The results of this research found that there were 30 natural attractions. Spots with marine biodiversity are an attraction for diving tourism. We studied this potential in 5 favorite spots, namely APP Dive Spot, Shipwreck Tabularasa, Ship Wreck Poso, Monas, and House Reef. The coral found at a depth of 2-18 meters is dominated by Acropora sp coral, Massive sp coral, Foliose, Fan coral (Gorgonian sea fan), and there are coral transplants at a depth of 2 meters). The types of fish found were Baraccudasp, yellow tail fish (casionida), Anemone fish (nemo), Damselfish, and Schooling anchovies), and Hawksbill turtles. At a depth of 25 meters, fish shelters, grouper fish, snapper fish and transparent shrimp were found. Marine diversity on Pramuka Island has great potential for marine tourism, but sustainable and scientifically based management must be implemented to preserve marine resources and tourist attractions.

Keyword: Marine, Biodiversity, Dive Tourism

INTRODUCTION

Indonesia is the largest archipelagic country in the world, located on the equator and in the coral triangle area, has a group of islands spread throughout its territory with a total of 17,504 islands and the area of coral reefs in Indonesia reaches 75,000 km2 or 14% of the area of coral reefs in the world (Dahuri, 2003). This condition causes a rich diversity of marine biota which can provide important value in improving the economic, social, cultural, political, regional, and environmental which can be used as tourist attractions, namely marine tourism (Dariusman, 2016). Thanks to the abundant wealth of marine life, Indonesia has won an award as the World's Best Scuba Dive Destination for 4 consecutive years (2017-2020) (Dadan, 2020).

Pramuka Island is part of the Thousand Islands administrative district, located north of Jakarta Bay. It is located between 06°00'40" and 05°54'40" South latitude and 106°40'45" and 109°01'19" East longitude. The total area of the Thousand Islands Administrative District's land area reaches 897.71 Ha and the Thousand Islands water area reaches 6,997.50 Km2. The topography of the Thousand Islands is generally sloping. Based on Government Regulation Number 55 of 2001 concerning the formation of the Thousand Islands administrative district, the Seribu Islands officially became the Thousand Islands administrative district government, separate from the city part of Jakarta with the regency center being on Pramuka Island. The area of Pramuka Island is +/- 16 Ha, with a designation as the district capital & settlement. Global warming causes seawater to heat up, by 2-3°C seawater temperature in Indonesia will increase by around 0.2 to 5°C. As a result, algae as a food source for coral reefs will die because they are unable to adapt to increasing seawater temperatures. This has an impact on depleting the availability of food for coral reefs and will result in turning white and dying (coral

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bleaching). In the Thousand Islands, the phenomenon of mass coral bleaching has only occurred twice in the last three decades, namely in 1983 and 1998. Although relatively small, the impact of this phenomenon is quite significant where coral mortality has become dominant throughout the reefs of the Thousand Islands (Terangi in Rahardjo, 2013).

Today's tourists tend to prioritize value awareness (value-conscious), which creates a challenge for tourism service providers to continue to be able to provide and fulfill tourism services following the value needs and experiences desired by tourists (Perceived tourism value). Perceived tourism value can be seen from the value of the experience that will be received by tourists and can be defined from various perspectives, such as price, quality, benefits, and social aspects (Schoeman et al., 2016). Diving tourism is one part of marine tourism which has risks regarding the safety and comfort of tourists. Diving tourism is also a type of natural tourism that is much favored by tourists today, which together with ecotourism and adventure tourism is a tourist destination that continues to experience an increase in demand.

The Thousand Islands National Park (TNKpS) area has great potential for the development of marine tourism, considering its location close to the national capital (DKI Jakarta), so this area has good development opportunities. In line with the development of big cities, more and more people want to return to nature. The Thousand Islands have three types of tourism which are the main attraction in response to the motivation of tourists to come. These three types of tourism are beach tourism (public tourist island) totaling 45 islands, nature reserve tourism totaling two islands, and historical tourism totaling four islands (Razak and Rimadewi, 2013).

One of them is Pramuka Island, this island is a marine tourism area that has the potential to be developed to become an attractive tourist spot and provide satisfaction for tourists.

LITERATURE REVIEW

Sustainable Tourism Destinations

A tourist destination is a geographical area that is in one or more administrative areas in which there are tourist attractions, public facilities, accessible tourism facilities, and communities that are interrelated and complement the realization of tourism (Republic of Indonesia Law No. 10 of 2009 concerning Tourism, Article 1). According to Cooper et al., in Setiawan (2015) a tourist object or tourist destination must have at least 5 (five) important elements to make tourists feel satisfied in enjoying their tour, namely as follows; (1) Attractions; (2) Amenities; (3) Activitie; (4) Accessibility; (5) Ancilliary.

Roger and Slinn (1998) states that the attraction or attraction is everything contained in the object tourism which is an attraction so people visit the place. Suwantoro (2000) emphasizesthat the attractions are divided into two groups, namely natural attractions and attractions man-made. Natural attractions are power a tourist attraction that is attached to the natural beauty and uniqueness of its creator consisting of natural beauty.

Facilities (Amenities) are all forms of facilities and infrastructure needed by tourists while in tourist destinations, such as lodging, restaurants, transportation, and travel agents. Tourism facilities such as hotels, tourist attractions, marinas, theaters, and so on. As for infrastructure such as roads, water supply, electricity, landfills, airports, ports, telephones, and others.

Activities are all forms of activities carried out by the community that can be used as tourist attractions. Accessibility is the most important thing in tourism activities. Such as all kinds of transportation or transportation services. In addition, this access is identified with transferability, namely the ease of moving from one area to another. If an area does not have good accessibility such as airports, ports, and roads, then there will be no tourists visiting the area. For this reason, an area that has tourism potential needs to be provided with adequate accessibility so that it can be visited.

Sustainable Marine Tourism

According to Orams in Khrisnamurti et al., (2016), maritime tourism is a journey made from a place of origin to a destination in which there are recreational activities focused on the marine or marine environment. Such as scuba diving, snorkeling, windsurfing, jet skiing, fishing, kayaking, visits to fishing villages, marine parks, aquariums, sailing, participating in maritime festivals, and others (Khrisnamurti et al., 2016).

Gunawan et al., in Yustinaningrum (2008) stated that the development of a sustainable tourism industry must integrate

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economic, socio-cultural, and environmental considerations into the decision-making process for the management of all components of the tourism industry. For that it is necessary to do the following programs; (1) Development of a sustainable tourism management system; (2) Management and conservation of natural resources; (3) Waste minimization and management; (4) Land use planning and management; (5) Preservation of natural resources and cultural heritage; (6) Development of security and safety systems and mechanisms.

Dive Tourism

Diving tourism is part of water tourism because it is directly related to water or is carried out in coastal waters, lakes, and so on (Regulation of the Ministry of Tourism and Creative Economy, 2014). The world of diving was originally a series of sporting activities, so it has not been used as a medium to enjoy the beauty of the sea. Along with its development, diving activities began to change their function into activities to enjoy the underwater beauty which was then called diving tourism. Diving tourism is a tourism activity in the waters to observe underwater beauty using diving equipment or other supporting equipment (Kepmenaker RI no 36 of 2017).

According to Mustofa (2018), diving or diving is divided into two categories, namely skin diving and scuba diving. Scuba diving is diving under the surface of the water using complete equipment such as SCUBA, Buoyancy Compensator Device (BCD), Masks, Snorkels, Fins (frogs), Booties, and others so that we can enjoy the beauty of the underwater more closely (Mustofa, 2018). Diving tourists are individuals who already have a recognized divingcertificate (according to ISO, EN, and WRSTC standards) and a log book according to qualifications and diving activities with recreational diving restrictions. Recreational technical diving tourists are required to have additional specific certifications in addition to recreational diving certificates (Kepmenaker RI no 36 of 2017). In this case, there are 3 categories of diving activities carried out: (1) Recreational Diving; (2) Dive Certification; (3) Scientific Diving.

RESEARCH METHOD

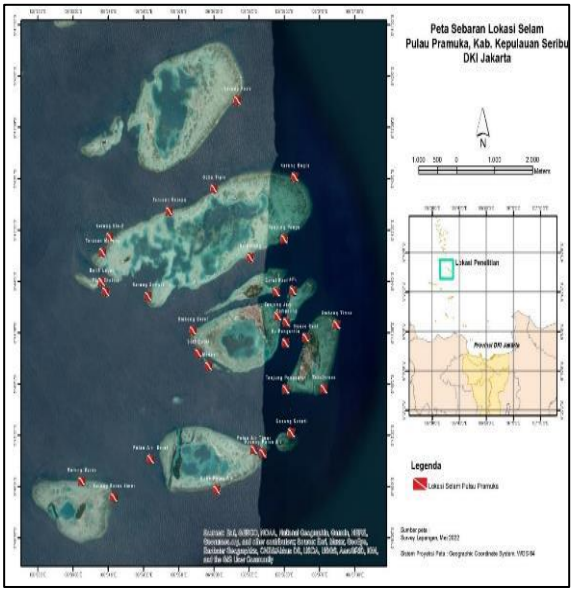
The research method used is a qualitative approach with a survey research design, direct observation methods, and interviews with dive guides who have had a career as dive guides on Pramuka Island for more than 20 years. Data obtained from respondents' responses in this study will be analyzed using a spatial approach with a Geographic Information System (GIS) using ArcGIS software to determine the potential for diving tourism on Pramuka Island.

RESULT AND DISCUSSION

Pramuka Island is one of the islands in the Thousand Islands cluster. This island is included in the Panggang Island Village and is the administrative and government center of the Thousand Islands Administrative District. The location of Pramuka Island itself is part of the Thousand Islands Marine National Park area which is in the settlement zone.

Access to Pramuka Island can be through 3 accesses, namely Rawa Syaban, Kali Adem and Marina Ancol. Generally for tourism activities through the Kali Adem and Marina Ancol gates and the Rawa Syaban port it is generally used to carry logistics and local people.

Based on the results of research on Pramuka Island and its surroundings using direct observation methods and interviews with dive guides who have had a career as dive guides on Pramuka Island (Mr. Sihabudin - Lupus), the result is that there are 30 dive sites (Dive Spots) (Figure 1).



Map source: Field Survey Results, 2022

Figure 1. Map of Distribution of Dive Sites on Pramuka Island

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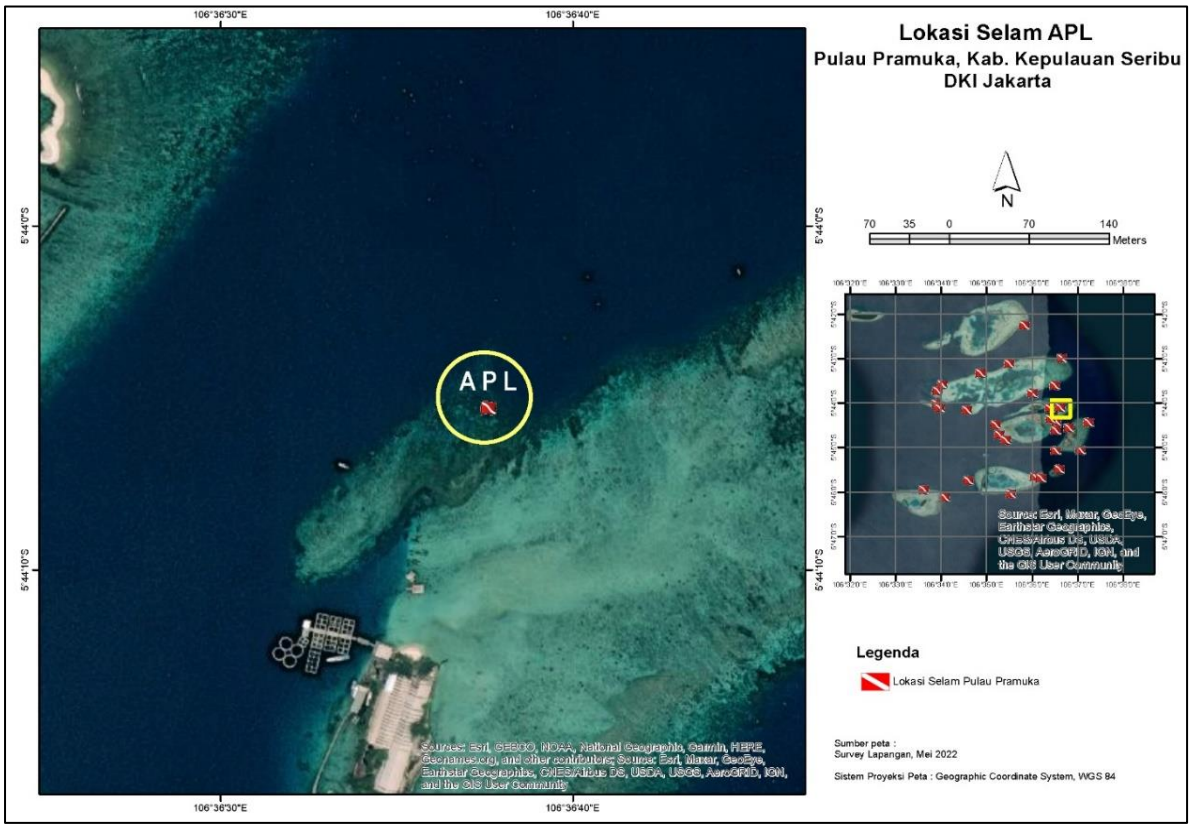
From the results of identifying 30 diving spots, 5 spots were identified as favorites, namely:

1. APP Dive Spot

It is one of the best locations for diving with a depth range from 2-30 meters) (Figure 2). Special interest in Spot Diving at this location are Natural Coral Reefs which are so dense at a depth of 2 meters - 18 meters (Many are dominated by Acropora sp, Massive and Foliose corals, and there are coral transplants at a depth of 2 m), various types of fish (such as you can find Schooling Baraccudasp, Yellow tail fish (Caesionidae), Anemone fish (Nemo), Damselfish and Schooling Anchovies), and Hawksbill Turtles (Eretmochelys Imbricata). Also around this location, there is a Fish Shelter (fish house apartment) at a depth of 25 meters and the Km Praja Ship Wreck at a depth of 28 meters with the basic contour is the slope.

This location is often used by divers to increase their diving experience from beginners to advanced levels (Advanced). This Dive Spot has dimensions 70 meters wide and 600 meters long. Certain seasons sometimes have moderate currents, usually when they change from high tide to low tide or vice versa. Average Visibility 3-8 meters (Fairly Good). It is close to Pramuka Island (15-20 minutes boat ride).



Map source: Field survey results, 2022

Figure 2. Map of APL dive sites

2. Shipwreck Tabularasa

This dive site is located in the eastern part of Pramuka Island (Picture 3), which has a special interest in seeing shipwrecks (Ship Wreck). History This ship was a fishing training ship and sank due to large waves crashing into a reef while the ship was off in 1979 at a depth of 25-33 meters. This ship is 30 meters long, 10 meters wide, and 9 meters high. On this ship, we can find Schooling Baraccudaspfish, Grouper Fish, Snapper Fish, Transparent Shrimp, and Transparent Fish -Schooling. Apart from that, to get to the location of the shipwreck we can find massive coral reefs and Acropora sp ranging from 2 meters to 18 meters deep. Also found fan coral (Gorgonian sea fan). Slope and sand bottom contours. The current at the location is sometimes (Moderate). This location is suitable for divers who have diving experience of more than 15 dives or are certified Advanced. Beginner level can only dive to a maximum depth limit of 18

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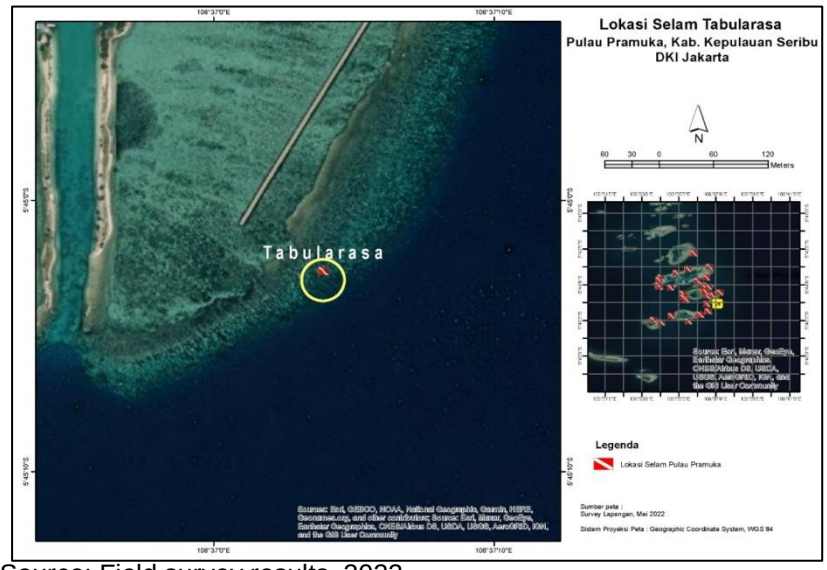
meters. The location of this dive site is close to Pramuka Island, it takes 15-20 minutes to reach the location by boat.



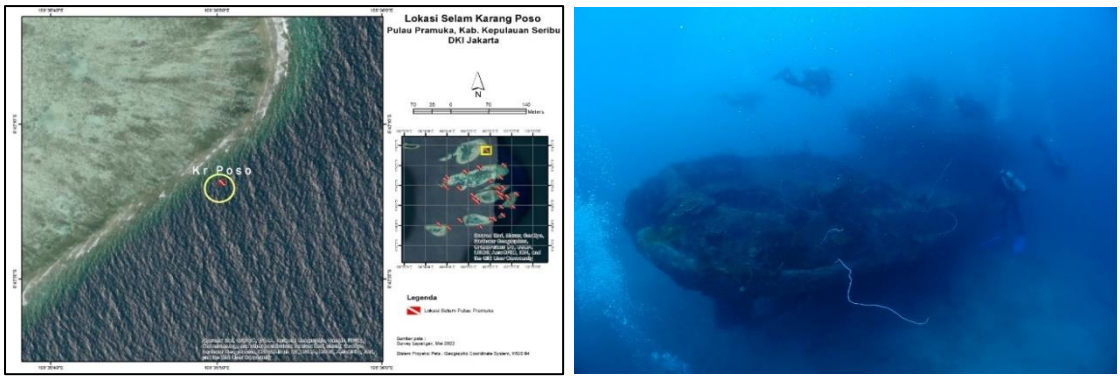
Source: Field survey results, 2022

Figure 3. Map of Tabularasa dive sites

3. Ship Wreck Poso

This dive site is located in the South-East (Southeast) Congkak Reef cluster (Figure 5), which has a Special Interest to see a Ship Wreck. Historically, this ship was a tag boat. This ship sank when a big wave hit the reef in the 1960s at a depth of 25-32 meters.

The ship is 10 meters long, 5 meters wide and 8 meters high.On this ship we can find Baraccuda Schooling Fish, Grouper Fish, Snapper Fish, and Transparent Shrimp. In addition, to get to the location of the wreck we can find massive coral reefs and Acropora sp starting from a depth of 2 meters-16 meters, also found fan corals (Gorgonian sea fan)in Figure 6. Slope and sandy bottom contours. The current at the location is sometimes moderate. This location is suitable for divers who have more than 25 dives experience or certified Advanced. Beginners can only dive to a maximum depth limit of 18 meters. To get to this dive site location takes 45 minutes - 1 hour by boat.



Source: Field survey results, 2022

Figure 4. Map of POSO Reef diving locations

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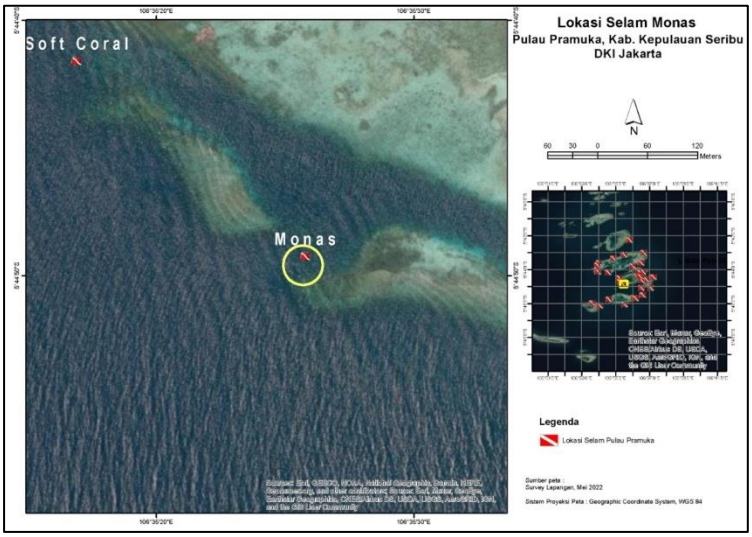
Source: Field survey results, 2022

Figure 5. Fan Coral-Gorgonian Sea Fan

4. Monas

This dive site is on Panggang Island which has a special interest in seeing the Miniature Monas and Fish Shelters at a depth of 12-13 meters (Figure 7). The area of this dive site is 300 meters long and 20 meters wide.In this location, we can find Marine Biota such as the Giant Moray in the Fish Shelter, Grouper Fish, Snapper Fish, Yellowtail Fish, and Macro Biota such as Nudibranchs, Crabs, and Pygmy Seahorses. The bottom contour of the Slope is sandy. In addition, around the location, you can find hard coral (Massive coral and Acopora) and soft coral (Sarcophythonsp and Seroja (Neptheasp) at a depth of 3-20 meters. Fan coral (Gorgonian sea fan) is also found. Currents in the location are sometimes Low-medium This location is suitable for beginners to advanced divers. To get to this dive site it takes 25-30 minutes by boat.



Source: Field survey results, 2022

Figure 6. MONAS dive location map

5. House Reef

This dive site on Pramuka Island is a favorite location for novice divers to take the diving certification. Special Interest location, there are several platforms (as many as 3 units with a size of 4 x 2 meters, 7 x 3 meters, and 4 x 8 meters) that are used for practicing diving skills in open water (to reduce damage to coral reefs from the touch of divers) and you can also find ships. Wreck Praja at a depth of 12 meters with dimensions of 7 meters in length, 3 meters in height, and 3 meters in width. The depth of this location ranges from 2-30 meters and has a sand-substrate slope.

In this location, we can find marine biota such as the hawksbill turtle (Eretmochelys imbricata), small anchovies, betook fish, lionfish, and current grouper in locations that are sometimes low-medium. This location is suitable for beginners to advanced divers. The location of the dive site is Closer to the pier and easy to reach (takes 2-5 minutes from the nearest resort on foot) (Shore Dive). Also, not far from the cruise lines.

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In general, divers who visit Pramuka Island are beginner divers who practice diving certification in open water (Figure 8).

Source: Field Survey Results, 2022

Figure 8. Diagram of perceptions of interest in visits

The results of this study are in line with research conducted by Agustin et al. (2022) that the tourism potential of Pramuka Island is very diverse, including natural and man-made tourist attractions in the form of diving, snorkeling, fishing, mangrove tracking, turtle breeding, culinary and regional specialties, has relatively easy accessibility and transportation, complete facilities. as well as the role of government and society in tourism development.

Meanwhile, Setyawati and Safitri (2020) researched community empowerment programs through maritime cultural values based on local wisdom and found important factors in increasing community capacity through the formation of public awareness by forming patterns of behavior in implementing sustainable maritime culture, which can prosper the people. Rizqiani et al., (2020) the results of his research on Pramuka Island found the tourism potential of Pramuka Island including natural and man-made tourist attractions, culinary specialties and souvenirs, easy accessibility and transportation, complete facilities, and the role of the government and the community in tourism development. There is a discrepancy between tourism demand and tourism potential due to the lack of additional animals in captivity, the addition of water tourism attractions and play areas for tourists, unavailability of tours at night, increased convenience of transportation, wifi corners, photo spots, cleanliness and the number of tourist facilities and public awareness in maintaining the environment of the Pramuka Island tourist area.

Even though Pramuka Island has marine biodiversity which can be an attraction for diving tourism visitors, it is necessary to pay attention to the carrying capacity of marine tourism, as is done at other tourist sites in non-sea tourism objects in Tana Toraja conducted by Sinay et al., (2022). For interest in returning to diving tourism on Pramuka Island, it is necessary to pay attention to the driving and attracting factors of tourists, this was also done on Pahawang Island, Lampung by Marmaiyatno et al., (2023).

Overall, these studies show that Pramuka Island has great potential for marine tourism and can provide significant economic benefits for the local community. However, sustainable and scientifically based management of marine tourism must be implemented to maintain the sustainability of marine resources and minimize the negative impacts of increasing marine tourism.

CONCLUSION

Marine diversity on Pramuka Island is a great potential for marine tourism, but sustainable and scientifically based management must be implemented to maintain the preservation of marine resources and tourist attractions. The important role of the government, local communities and tourists in maintaining a healthy and sustainable marine environment on Pramuka Island is indispensable for the success of marine tourism in the long term. This location is very close to the State Capital of Indonesia, namely the City of Jakarta, this location should be a favourite for lovers of water tourism and diving.

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