

The Role of Local Communities in Development Mangrove Ecotourism at Paluh Getah Beach

¹Meilinda Suriani Harefa, ²Alvin Pratama, ³Erlina Teresia Sihombing, ⁴Iqbal Ilvaldo,
⁵Nindy Asyifa Putri, ⁶Yolanda Pratiwi Sembiring, ⁷Yunda Fitri Ramadani
^{1,2,3,4,5,6,7}Faculty of Social Sciences, Universitas Negeri Medan, Indonesia
Corresponding Author: alvnprtm21@gmail.com

ABSTRACT

Mangrove ecosystems have important economic and social value for local communities. Communities depend on mangroves as a source of building materials, fuel, traditional medicines and food resources. Paluh Getah Mangrove Beach in Tanjung Rejo Village, Deli Serdang, North Sumatra, offers various interesting activities for visitors to enjoy the natural beauty of the mangrove forest, and learn about the importance of environmental sustainability. However, ecotourism development is hampered by conflicts over mangrove ownership and management between local communities and forestry groups. Local communities have great urgency in maintaining mangrove ecosystems because of their dependence on the resources provided by mangrove forests. This research aims to understand the role of local communities in developing mangrove ecotourism on Paluh Getah Beach. The research method used is a case study with a qualitative approach. Data was collected through observation, interviews and literature study. The research results show that local community participation in ecotourism management is still hampered by conflicts with forestry groups. Local communities have the initiative to manage mangroves, but they do not have access to utilize these resources. Even though there are several creative economic efforts from local communities, they have not experienced significant economic benefits from the existence of mangrove ecotourism. Efforts to resolve conflicts over ownership and management of mangroves are the main key to opening up space for full participation of local communities in ecotourism management. Apart from that, economic empowerment of local communities through the development of mangrove-based tourism businesses needs to be carried out comprehensively.

Keywords : ecotourism, mangroves, local communities, conservation, coastal

INTRODUCTION

Marine and coastal resources are essential for human life, one of which is the mangrove ecosystem. In coastal areas, mangrove ecosystems are critical in many ways, especially where communities depend on the abundant water resources provided by these habitats. Mangrove ecosystems are estimated to cover 17 million hectares worldwide today. Indonesia has the largest and most extensive mangrove ecosystem in the world, covering an area of 4.2 million hectares (Mahardana et al., 2020). But today, the remaining mangrove forest area consists of 3.2 million hectares of mangrove forests. This significant reduction underscores the urgent need for effective conservation strategies (Friess et al., 2019).

Ecotourism is a great strategy to develop sustainable utilization of mangrove ecosystems, especially for rural communities facing dwindling natural resources and living in coastal areas. (Hartati et al., 2021). By promoting sustainable tourism, ecotourism can create economic incentives for conservation (Salman et al., 2020). Ecotourism can be used as a

livelihood for local communities. Mangrove ecosystems tend to be unique and important in tropical and subtropical regions, especially in coastal areas. Mangroves form in intertidal areas, which are areas that are inundated at high tide and submerged at low tide, where seawater and freshwater conditions intersect. These ecosystems are known for their high biodiversity and important role in maintaining environmental balance. (Singgalen, 2023b).

Mangroves consist of a variety of plant species that are able to live in environments with high salt content, such as *Rhizophora*, *Avicennia*, and *Sonneratia* trees (Anwar et al., 2023). These species have unique adaptations that allow them to thrive in harsh conditions. The strong, filamentous roots of mangroves form a complex network below the water surface, providing stability to mud soils and shelter for a variety of marine organisms. This root system also supports a diverse array of marine life, from fish to invertebrates. In addition, mangrove ecosystems also act as effective coastal buffers, protecting the land from coastal abrasion, storms and high waves (Singgalen, 2023a). Their dense roots reduce wave energy, thereby preventing soil erosion (Sánchez-Núñez et al., 2019). The dense roots of mangroves reduce the rate of coastal erosion and slow down the flow of water, thus helping in the filtration of sedimentation and pollution from seawater. These functions are crucial for maintaining water quality and coastal resilience (Koh et al., 2018).

Mangroves also support the productivity of the wider marine ecosystem. Mangrove forest areas provide food sources and breeding grounds for various types of fish and marine animals, thus supporting the sustainability of the fisheries and coastal sectors. (Irawan & Handayani, 2020). In addition to their ecological benefits, mangrove ecosystems also have important economic and social values for local communities. Communities depend on mangroves as a source of building materials, fuel, traditional medicines, and food resources, such as crabs and shrimps (Khambali et al., 2020). (Khambali et al., 2020).. Local communities have great urgency in maintaining mangrove ecosystems because of their dependence on the resources provided by mangrove forests (Mawardi et al., 2022).. In many coastal areas, communities depend on mangroves as a source of building materials, fuel, traditional medicines, and food. In addition, mangrove ecosystems also have important cultural and spiritual values for local communities, being an integral part of their identity and life (Farid et al., 2022). (Farid et al., 2022). Therefore, mangrove conservation efforts not only impact environmental sustainability, but also affect the welfare and survival of coastal communities as a whole.

Tanjung Rejo Village in Deli Serdang Regency, North Sumatra, is located in a coastal area and is known for a number of mangrove ecotourism sites, including Paluh Getah Beach (Paulina et al., 2023). (Paulina et al., 2023).. The beach is considered a promising coastal tourism destination with abundant mangrove ecological potential. By combining aspects of mangrove conservation with tourism development, this destination has a unique appeal for visitors who want to learn about and appreciate the biodiversity and natural beauty of the coast. For a structured development, the presence of local communities in contributing and managing mangrove ecotourism is important. Mangrove ecotourism developed by actively involving local communities has more potential to be sustainable in the long term.

Local communities have in-depth knowledge of the mangrove ecosystem, its culture and history. Their traditional knowledge can enhance the tourism experience. They can also be excellent tour guides and provide authentic information to tourists about mangroves, local culture and traditions (Qurniati et al., 2022). This authenticity can attract more tourists seeking genuine experiences. The active involvement of local communities in the planning, management and decision-making processes related to mangrove ecotourism is very important for the sustainability of its management. Empowering local communities can lead

to better conservation outcomes. Their engagement not only enhances the visitor experience but also ensures that conservation measures are effectively implemented. Based on the description above, this study aims to identify the important role of local communities in the development of mangrove ecotourism at Paluh Getah Beach, Deli Serdang Regency. The insights gained can inform strategies for sustainable tourism and conservation in similar regions.

LITERATURE REVIEW

Ecotourism Concept

Tourism is a term given when a traveler travels itself, or in other words, activities and events that occur when a visitor travels. (Rachman et al., 2023). Tourism can be formulated as an activity in society related to tourists. (Afifa & Nugroho, 2022). Meanwhile, according to Nashar et al. (2023) According to Nashar et al. (2023), tourism is a travel activity carried out by a person temporarily from the original place of residence to the destination area for reasons not to settle or make a living, but only to fulfill curiosity, spend leisure time or holidays and other purposes.

Chapter I Article 1 paragraph (3) of Law Number 10 of 2009 concerning Tourism defines tourism as a variety of tourist activities and supported by various facilities and services provided by the community, entrepreneurs, government and local governments. Tourism is an inseparable part of human life, especially regarding social and economic activities. Starting from activities that were originally only enjoyed by a handful of relatively wealthy people in the early 20th century, it has now become part of human rights. (Simangunsong, 2023).

This is happening not only in developed countries but also in developing countries. Indonesia as a developing country in its development stage, is trying to build a tourism industry as one way to achieve a balanced foreign trade balance. Through this industry, it is expected that foreign exchange earnings can increase. (Chaerunissa & Yuniningsih, 2020). As is known, the tourism sector in Indonesia still plays a very important role in supporting national development, as well as being one of the most strategic factors in increasing public income and foreign exchange.

Ecotourism is a form of tourism that focuses on environmental sustainability, nature conservation, and empowerment of local communities. (Nazwin & Hidayat, 2022). Amid concerns about environmental damage due to conventional tourism activities, ecotourism is a promising alternative to preserve nature while providing economic and social benefits to local communities. In practice, ecotourism seeks to minimize negative impacts on the environment, involve and empower local communities, and increase understanding and awareness of the importance of nature conservation.

One of the main characteristics of ecotourism is the preservation of nature and biodiversity. Ecotourism destinations are often located in areas with unique and vulnerable natural ecosystems, such as tropical rainforests, coral reefs and mangroves. Through a sustainable approach, ecotourism aims to preserve biodiversity and natural ecosystems, thus ensuring ecological sustainability for future generations. (Rijal et al., 2020). In addition to environmental sustainability, ecotourism also has a positive impact on the social and economic welfare of local communities.

The urgency of ecotourism cannot be underestimated. With the accelerating pace of climate change, loss of biodiversity, and other negative impacts of human activities on the environment, the existence of ecotourism is becoming increasingly important. Ecotourism offers a sustainable approach to managing natural resources and the environment, while promoting understanding, appreciation and conservation of nature and local culture.

(Musadad et al., 2020). Ecotourism not only helps maintain natural beauty and biodiversity, but also provides economic and social benefits to local communities. In addition, ecotourism also has great potential in educating and empowering communities about the importance of protecting their environment and culture.

Mangrove Conservation

In Indonesia, the best mangrove forests are found on the southwest coast of Papua around Bintuni Bay, covering an area of 1.3 million ha, which is one-third of Indonesia's mangrove forests, while on the north coast of Java, these mangrove forests have long been eroded by the population's need for land and the rest are found on the east coast of Sumatra, and the west and south coasts of Kalimantan. The ecological balance of the coastal water environment will be maintained if the existence of mangroves is maintained because mangroves can function as biofilters, binding agents and pollution traps. Mangroves are also home to various types of gastropods, detritus-eating crabs, and plankton-eating bivalves that will strengthen the function of mangroves as a natural biofilter. (Handy et al., 2022)..

In the ecosystem, the existence of mangrove forests is very important because it has a dual role in addition to having ecological potential and also provides economic benefits for the welfare of the surrounding community. The existence of mangrove forests is currently quite worrying because of human actions for the benefit of land conversion as ponds, settlements, hotels, or tourist attractions. (Fitria et al., 2020). This is due to the rapid rate of population growth and development. Therefore, along the north coast of Java, mangrove forests are cut down legally and illegally. This activity can reduce mangrove populations by more than 50% within 30 years (Haruna et al., 2020). (Haruna et al., 2022)..

Mangrove ecosystems are ecotone areas that connect coastal ecosystems with land and are dynamic. In addition, mangrove ecosystems have important functions and roles for supporting life support systems. Given the importance of the function and role of mangrove forests, it is urgent to immediately manage mangrove forests in accordance with the function and land use through rehabilitation efforts for mangrove forests that have decreased environmental quality or have been damaged (Rohmawati et al., 2022). (Rohmawati et al., 2022).

Mangroves provide a vital habitat for many species of fauna and flora, including a wide variety of fish, birds and marine mammals. In addition, the complex root system of mangroves also plays a role in reducing tidal waves and protecting the coast from abrasion and natural disasters such as tsunamis. (Sudrajat et al., 2022).. In addition, mangroves also play an important role in the global carbon cycle by sequestering carbon from the atmosphere and storing it in the form of biomass and soil, helping to reduce greenhouse gas emissions and slow climate change. However, mangroves are currently facing serious threats due to human activities such as logging, land use change, pollution, and increased intensity of coastal activities. (Handayani et al., 2023).

METHODS

a. Location and Time of Research

In the process of collecting data, this research took place at Paluh Getah Mangrove Beach, Jl. Paluh Getah, Dusun XIV, Tj. Rejo, Deli Serdang Regency, North Sumatra. The reason for choosing Paluh Getah Beach as the location of this research is because of its existence which is already popular as one of the mangrove ecotourism in North Sumatra Province. Based on initial observations, this beach has also received a number of

appreciations, including from CIMB Niaga so that it can provide positive benefits for the surrounding local communities. Meanwhile, this research was carried out for a month, from March to April 2024.

b. Research Approach

This type of research is field research with a qualitative descriptive method, which is research intended to describe a problem. According to Manurung (2021) the selection of a qualitative research approach is based on the characteristics of the research subject and the need to gain an in-depth understanding and cover social reality. The use of qualitative methods is suitable for providing an overview of existing social phenomena, whether natural or human-made, such as research to examine the role of local communities in the development of mangrove ecotourism. Qualitative research produces descriptive data in the form of written or spoken words, and involves observation of behavior. The aim is to provide an objective description or depiction of the situation or condition under study, so that the subjectivity of researchers in making interpretations can be avoided.

c. Data Source

Data sources in this study are divided into primary sources and secondary sources. Primary sources are the main data sources that are directly collected by researchers from the object of research, namely the results of observations and interviews with local communities regarding the condition of the Paluh Getah Beach mangrove ecosystem located on Jl. Paluh Getah, Dusun XIV, Tj. Rejo, Deli Serdang Regency, North Sumatra.

Meanwhile, secondary sources are additional data sources that researchers think support the main data and are literature or come from various literatures. The selection of secondary data is adjusted to the research study in the form of journals published in 2020 to 2024. The journals that are secondary data sources discuss the development of mangrove ecotourism and the participation of the surrounding community in its management.

d. Data Collection Methods

The data collection procedures used in this research are observation and documentation. Observation or observation is a data collection tool that is carried out by observing and recording systematically the symptoms being investigated. This method is carried out by making direct observations of the conditions of the research site then the results of these observations are written in a note.

In addition, this research also uses a literature review method (library research) which functions to build concepts or theories that form the basis of study in research. Literature review or literature study is a required activity in research, especially academic research whose purpose is to develop theoretical aspects and practical aspects so that by using this research method the author can easily solve the problem to be studied.

e. Data Processing and Analysis Techniques

Data analysis techniques refer to the activity of processing data that has been collected from the field into a set of results. The data analysis technique used in this research refers to the procedure formulated by Miles and Huberman, which is as follows.

1. Data collection is the overall data taken to break the data into parts, then sort out the data to be taken.

2. Data reduction (data condensation) is a form of analysis to sharpen and organize data.
3. Presentation of data (display data) is the preparation of data to produce conclusions
4. Conclusion/verification data is an integral part of the analysis. It is presented in the form of narrative data and conclusions are drawn from the data.

RESULTS AND DISCUSSION

Overview of Mangrove Ecotourism at Paluh Getah Beach

Paluh Getah Beach is located in Tanjung Rejo Village, Percut Sei Tuan District, Deli Serdang Regency, North Sumatra. This ecotourism offers various interesting activities for visitors to enjoy the natural beauty of the mangrove forest while learning about the importance of environmental sustainability. Paluh Getah Mangrove Beach is about 40 kilometers from Medan City with a travel time of about 1 hour. Access to the location is quite easy, can be passed by private vehicles or public transportation.

Paluh Getah Beach ecotourism has many attractions. Visitors can explore the mangrove forest by walking on the wooden bridge that has been provided. Along the way, visitors can see various types of mangrove plants, such as mangroves, firi-api, and nipah. Visitors can also learn about the functions and benefits of mangrove forests for the environment. Visitors can go boating along the river that cuts through the mangrove forest. This activity gives visitors the opportunity to get a closer look at the flora and fauna that live in mangrove forests, such as birds, fish and crabs.



Figure 1. Interaction with Local Communities

The participation of local communities in Paluh Getah Mangrove Beach in mangrove ecosystem management and conservation is affected by conflicts with forestry groups. Although local communities have the initiative to manage mangroves, the presence of a devotional group visibly hinders their access to utilize the resource. Conflicts over mangrove ownership and management between the community and the forestry group led to disagreements and constraints in management practices. Collaboration between local communities and external parties, such as government and non-governmental organizations, is hampered by disputes and disagreements. These conditions make mangrove ecotourism development efforts unfeasible.

According to one of the interviewees, CS (48 years old), until now no solution has been found regarding the conflict, causing the collaboration to still be in an unclear stage.

"The community around here is fighting with the farmer forest group, I think it's been around for a year, so let alone play a role in management, they are not allowed to take wood from the beach."

Although there are creative economic initiatives from local communities related to mangrove ecotourism, such as growing timber, there are obstacles due to the ban on timber use imposed by forestry groups. This conflict causes uncertainty in efforts to capitalize on the economic potential of mangroves. Local communities have not yet felt significant economic

benefits from the presence of mangrove ecotourism in their area. Ecotourism is still not well managed and led by the Village-Owned Enterprise (BUMDes), while the majority of the community makes a living by catching crabs around the mangroves. As stated by informant AY (36 years old), as follows.

"Ecotourism is managed by BUMDes, but most of its members are from outside the village. So, the benefits of this tourism are not fully felt by the surrounding community. Especially with the conflict, it's like they are isolated from utilizing mangrove ecotourism."

Contributions and Benefits Received by Local Communities around Paluh Getah Beach

Through the results of observations and interviews, some important points related to local community participation in coastal tourism management and mangrove conservation at Paluh Getah Mangrove Beach are as follows.

Table 1. Local Community Perspectives on Mangrove Ecotourism Development at Paluh Getah Beach

No.	Key Points	Description
1.	Mangrove management perceptions and conflicts	There are conflicts between local communities and forestry groups (real devotion groups) over mangrove ownership and management. The forestry group considers the mangrove forest as their property, while the local community has lived in the area for a long time and feels they have rights over the mangroves. This conflict hampers mangrove management efforts because the community feels restricted by the forestry group's policies, which prohibit them from utilizing the wood, despite the need to protect the settlement from saltwater. So the conflict is based on a misunderstanding over the ownership of the mangrove land.
2.	Collaboration with external parties	Collaboration between local communities and external parties such as government and non-government organizations is still hampered due to disputes and differences of opinion. There is still no solid process in overcoming these differences to achieve sustainable mangrove ecotourism development.
3.	Creative economy initiatives	Although there are initiatives from local communities related to the creative economy related to mangrove ecotourism, such as planting wood, there are obstacles due to the ban on the use of wood. Conflicts with forestry groups mean a solution has yet to be found.
4.	Lack of economic exposure	Currently, the local community has not felt the direct economic benefits of mangrove ecotourism because its management is still under the Village-Owned Enterprise (BUMDes). Most of them make a living by catching crab fish around the mangrove area. This is due to the conflict that occurred, namely disputes over land ownership between the forestry authorities and the local community.

5.	Expectations and aspirations of local communities	Local communities hope that mangrove ecotourism management can provide benefits for the whole community, not just a few people or certain parties. They want tangible results from mangrove ecotourism development as well as fairer opportunities for participation and economic benefits. And there is great hope that the sustainability of the management of Paluh Getah Mangrove Beach is not just a false hope.
----	---	---

Strategies to Increase the Role of Local Communities in Preserving Mangrove Ecotourism at Paluh Getah Beach

Increasing the role of local communities in the management and conservation of mangrove ecotourism at Paluh Getah Beach is a crucial step to ensure the long-term sustainability of the mangrove ecosystem and at the same time improve the welfare of local communities. This strategy can be done in various ways, including the following.

a) Dispute Resolution

Local communities around Paluh Getah Beach initially played a massive role in mangrove ecotourism conservation. However, in the past year, a land dispute with the Bakti Nyata Forest Farmers Group (KTHBN) has reduced their contribution. That is why, before other strategic efforts can be applied, dispute resolution is a key point so that local communities can again play an active role in preserving mangrove ecotourism at Paluh Getah Beach.

b) Economic Empowerment through Mangrove-Based Tourism Business Development

Fundamental to this economic empowerment is an in-depth understanding of the tourism potential possessed by Paluh Getah Beach. This involves identifying the existing mangrove ecosystem, natural attractions, and potential tourist activities that can attract visitors. Next, a tourism development plan is created that involves the active participation of the local community as well as other related parties. Economic empowerment through the development of mangrove-based tourism businesses at Paluh Getah Beach is not only about job creation and additional income for the local community, but also about environmental conservation and sustainable economic development for the region.

Community-based ecotourism development can optimize ecotourism potential and provide economic benefits to local communities. It focuses on the active involvement of the community in ecotourism management, from planning, implementation, to the utilization of its benefits. This finding is in line with the results of the study Syuldairi & Febrina (2021) Local communities can take over the management of ecotourism in their area, so that they gain greater control and access to natural resources and economic opportunities. This can improve the welfare of local communities and encourage their sense of responsibility to preserve the environment.

c) Community Involvement in Decision Making related to Ecotourism Management

Community involvement in decision-making related to ecotourism management is one of the important strategies to ensure the preservation and sustainability of ecotourism. This is because local communities have in-depth knowledge and experience of the local environment and culture, and have a direct interest in the success of ecotourism. When

communities are involved in decision-making, they will feel more ownership and responsibility for ecotourism. This can encourage them to be more active in maintaining the sustainability and cleanliness of ecotourism.

Community involvement in decision-making can increase accountability and transparency in ecotourism management. This finding is in line with the research results Leniwati & Aisyah (2021)(2021), that the community can monitor and supervise how ecotourism is managed and ensure that their interests are accommodated. In addition, local communities also have in-depth knowledge and experience about the local environment and culture. This information and knowledge can be very useful in making decisions related to ecotourism management.

d) Revitalization of Mangrove Ecotourism Facilities and Infrastructure

Revitalizing mangrove ecotourism facilities and infrastructure is an important step to improve the quality and attractiveness of ecotourism, so that it can attract more visitors and improve the welfare of local communities. Improving infrastructure such as wooden bridges, waste disposal facilities, and roads will improve accessibility and comfort for visiting tourists. Local communities can be involved in the planning, construction and maintenance of these infrastructures, thereby strengthening their sense of ownership and responsibility for their destination.

Revitalizing mangrove ecotourism facilities and infrastructure will not only increase the tourism potential and economic income of local communities, but will also strengthen their involvement in environmental conservation efforts and the sustainability of mangrove ecosystems. This helps the effectiveness of the sustainability goals promoted in the SDGs. According to Anggraini & Marheni (2023) there is a strong relationship between biodiversity conservation and ecotourism which has also been recognized by the UN and placed under the technical note "Biodiversity and the 2030 Agenda for Sustainable Development". All aspects, especially facilities and infrastructure must be managed together to create sustainable tourism development.

The success of several strategies to increase the role of local communities at Paluh Getah Beach above can be seen through separate indicators. Local communities have easier access to the capital and resources they need to develop ecotourism businesses and fulfill their daily needs. They have not obtained this so far because of the protracted dispute. Meanwhile, another indicator is that local communities are not only dependent on traditional natural resources, but also have new sources of income from ecotourism.

CONCLUSION

Based on the results of the research and discussion that has been described, it can be concluded that local community participation is still hampered by conflicts over ownership and management of mangroves with forestry groups. This causes local communities to not have full access to utilize mangrove resources and develop mangrove-based tourism businesses. Although there are creative economic initiatives from local communities, they have not yet felt significant economic benefits from the existence of mangrove ecotourism. This is due to various factors, such as the lack of access to capital, limited knowledge and skills in managing tourism businesses, and not optimal promotion and marketing of ecotourism. These findings indicate that the development of mangrove ecotourism at Paluh

Getah Beach needs to be carried out by actively involving local communities. Efforts to resolve conflicts over mangrove ownership and management are the main keys to opening space for the full participation of local communities in ecotourism management. In addition, economic empowerment of local communities through the development of mangrove-based tourism businesses needs to be carried out comprehensively. This includes increasing access to capital, developing knowledge and skills in managing tourism businesses, as well as optimizing ecotourism promotion and marketing.

REFERENCES

- Afifa, P. N. A., & Nugroho, M. S. (2022). Peran Masyarakat dalam Menarik Minat Kunjungan Wisatawan: Studi di Kampung Adat Prailiu Kabupaten Sumba Timur. *Jurnal Pariwisata Nusantara (JUWITA)*, 1(1), 1–12.
- Anggraini, R., & Marheni, D. K. (2023). Strategi Pengembangan Potensi Wisata sebagai Upaya Peningkatan Eksistensi Ekowisata dan Meningkatkan Ekonomi Masyarakat pada Desa Wisata Kampung Terih. *Jurnal Ekonomi Bisnis, Manajemen Dan Akuntansi (JEBMA)*, 3(3), 1040–1051. <https://doi.org/10.47709/jebma.v3i3.3277>
- Anwar, H., Aji, I. M. L., Sari, D. P., & ... (2023). Analisis Kesesuaian Lahan Ekowisata Mangrove Tanjung Batu, Desa Sekotong Tengah. *Journal of Forest Science ...*, 06(01), 65–77. <https://doi.org/10.22219/avicennia.v6i1>.
- Chaerunissa, S. F., & Yuniningsih, T. (2020). Analisis Komponen Pengembangan Pariwisata Desa Wisata Wonopolo Kota Semarang. *Journal Of Public Policy And Management Review*, 9(4), 159–175.
- Farid, A., Fathur Rosi, M., & Arisandi, A. (2022). Struktur Komunitas Mangrove di Ekowisata Mangrove Lembung, Kecamatan Galis, Kabupaten Pamekasan. *Jurnal Kelautan Nasional*, 17(3), 231. <https://doi.org/10.15578/jkn.v17i3.11210>
- Fitria, L., Fitriainingsih, Y., & Jumiati, J. (2020). Penerapan Teknologi Penanaman Mangrove Di Kabupaten Mempawah Provinsi Kalimantan Barat, Indonesia. *Panrita Abdi - Jurnal Pengabdian Pada Masyarakat*, 4(2), 126. <https://doi.org/10.20956/pa.v4i2.7613>
- Friess, D. A., Rogers, K., Lovelock, C. E., Krauss, K. W., Hamilton, S. E., Lee, S. Y., ... & Shi, S. (2019). The state of the world's mangrove forests: past, present, and future. *Annual Review of Environment and Resources*, 44, 89-115.
- Handayani, E. A., Sugiarti, A., & Burhani, S. (2023). Partisipasi Masyarakat dalam Mendukung Konservasi Ekosistem Mangrove di Kawasan Ekowisata Luppung, Kabupaten Bulukumba. *Jurnal Sosial Ekonomi Kelautan Dan Perikanan*, 18(1), 15–23. <http://ejournal-balitbang.kkp.go.id/index.php/sosek>
- Handy, M. R. N., Abbas, E. W., Mutiani, M., Putra, M. A. H., Azhari, R. P., & Firyal, R. A. (2022). Konservasi Bekantan Melalui Penanaman Mangrove Rambai (*Sonneratia Caseolaris*) Di Pulau Curiak Kabupaten Barito Kuala. *Jurnal Pengabdian Al-Ikhlās*, 8(2), 237–245. <https://doi.org/10.31602/jpaiuniska.v8i2.6677>
- Hartati, F., Qurniati, R., Febryano, I. G., & Duryat, D. (2021). Nilai Ekonomi Ekowisata Mangrove Di Desa Margasari, Kecamatan Labuhan Maringgai, Kabupaten Lampung Timur. *Jurnal Belantara*, 4(1), 1–10. <https://doi.org/10.29303/jbl.v4i1.449>
- Haruna, M. F., Karim, W. A., Rajulani, R., & Lige, F. N. (2022). Struktur Komunitas Kepiting Bakau Di Kawasan Konservasi Mangrove Desa Polo Kecamatan Bunta Kabupaten Banggai. *Bio-Lectura : Jurnal Pendidikan Biologi*, 9(2), 150–159. <https://doi.org/10.31849/bl.v9i2.10659>
- Irawan, D., & Handayani, L. (2020). Studi kesesuaian kualitas perairan tambak ikan bandeng

- (Chanos chanos) di Kawasan Ekowisata Mangrove Sungai Tatah. *E-Journal BUDIDAYA PERAIRAN*, 9(1), 10–18. <https://doi.org/10.35800/bdp.9.1.2021.30319>
- Khambali, Rachmaniyah, & Rokhmalia, F. (2020). Pendampingan Program Pengembangan Ekowisata Mangrove dengan Kegiatan Konservasi Lingkungan. *Jurnal Penelitian Kesehatan Suara Forikes*, 11(4), 442–445.
- Koh, H. L., Teh, S. Y., Kh'Ng, X. Y., & Raja Barizan, R. S. (2018). Mangrove forests: Protection against and resilience to coastal disturbances. *Journal of Tropical Forest Science*, 30(5), 446-460.
- Leniwati, D., & Aisyah, A. N. (2021). Pengelolaan Ekowisata Boonpring oleh Badan Usaha Milik Desa (BUMDes) Dalam Meningkatkan Pendapatan Asli Desa. *Jati: Jurnal Akuntansi Terapan Indonesia*, 4(2), 127–139. <https://doi.org/10.18196/jati.v4i2.12414>
- Mahardana, D. G., Zulkifli, D., & Sabariyah, N. (2020). Strategi Pengembangan Ekowisata Mangrove Di Provinsi Bali. *Buletin JSJ*, 2(2), 93–100.
- Manurung, K. (2021). Mencermati Penggunaan Metode Kualitatif di Lingkungan Sekolah Tinggi Teologi. *Filadelfia: Jurnal Teologi Dan Pendidikan Kristen*, 3(1), 285–300.
- Mawardi, I., Imran, A. N., & Djafar, M. (2022). Strategi Pengembangan Ekowisata Mangrove di Desa Borimasunggu Kecamatan Maros Baru Kabupaten Maros. *Jurnal Eboni*, 4(2), 57–63. <https://doi.org/10.46918/eboni.v4i2.1552>
- Musadad, Nurlena, & Saeroji, A. (2020). Penggunaan Istilah 'Wisata Alam'dan 'Ekowisata': Sebuah Telaah Singkat. *Journal of Tourism Destination and Attraction*, 8(2), 147–154.
- Nashar, A., Jawiah, S., Brata, J. T., Lebang, N. S., & Artikel, I. (2023). Modal Sosial Pengelolaan Pariwisata Kota Kendari. *Arus Jurnal Sosial Dan Humaniora (AJSH)*, 3(3), 2023.
<http://jurnal.ardenjaya.com/index.php/ajsh>
<http://jurnal.ardenjaya.com/index.php/ajsh>
- Nazwin, A. H., & Hidayat, R. (2022). Evaluasi Pengelolaan Ekowisata: A Systematic Literature Review. *Kolaborasi : Jurnal Administrasi Publik*, 8(3), 304–315. <https://doi.org/10.26618/kjap.v8i3.9252>
- Paulina, G., Sinabang, I., Dwijayanti, K., Rahayu, W., & Harefa, M. S. (2023). Analisis Pemanfaatan Keanekaragaman Ekosistem Mangrove oleh Masyarakat Pesisir Pantai Paluh Getah. *Social Science*, 11(1), 9–16.
- Qurniati, R., Heryandi, Duryat, Tsani, M. K., & Hartati, F. (2022). Pengembangan Ekowisata Mangrove Berbasis Masyarakat Lokal. *J-ABDIPAMAS (Jurnal Pengabdian Kepada Masyarakat)*, 6(2), 217–224.
- Rachman, F., Yunita, S., Manik, M. M., Girsang, O. B., Safitri, E., Sabri, T. M., Halizah, N., Yasmin, P., & Juliandi, J. (2023). Pembangunan Ekosistem Laut Berkelanjutan Melalui Keterlibatan Warga Dalam Pengelolaan Hutan Mangrove di Desa Tanjung Rejo. *Jurnal Kewarganegaraan*, 20(1), 40. <https://doi.org/10.24114/jk.v20i1.43782>
- Rijal, S., Nasri, N., Ardiansyah, T., & A, C. (2020). Potensi Pengembangan Ekowisata Rumbia Kabupaten Jenepono. *Jurnal Hutan Dan Masyarakat*, 12(1), 1. <https://doi.org/10.24259/jhm.v12i1.6031>
- Rohmawati, Q., Wulandari, N. E., Soleh, A., Widarti, R., Musyafiatun, M., Putri, G. V., & Fauzan, F. (2022). Program Konservasi Mangrove di Pantai Glagah Wangi Demak Ditinjau dari Upaya Mencapai Sustainable Development Goals (SDGs). *Jurnal Kualita Pendidikan*, 3(3), 168–175. <https://doi.org/10.51651/jkp.v3i3.168>
- Salman, A., Jaafar, M., & Mohamad, D. (2020). A comprehensive review of the role of Ecotourism in sustainable tourism development. *E-Review of Tourism Research*, 18(2), 215-233.
- Sánchez-Núñez, D. A., Bernal, G., & Mancera Pineda, J. E. (2019). The relative role of

- mangroves on wave erosion mitigation and sediment properties. *Estuaries and Coasts*, 42, 2124-2138.
- Simangunsong, K. T. (2023). Analisis Aktivitas Wisatawan Saat Berkunjung Ke Pantai Di Daerah Istimewa Yogyakarta. *Kepariwisata: Jurnal Ilmiah*, 1(2), 220–229. <http://ejournal.stipram.ac.id/index.php/kepariwisataan/article/view/224>
- Singgalen, Y. A. (2023a). Analisis Indeks Vegetasi dan Perancangan Sistem Monitoring Kawasan Ekowisata Mangrove Berbasis Hyper Spectral of Remote Sensing dan Design Thinking Framework. *Journal of Information System Research (JOSH)*, 5(1), 1–13. <https://doi.org/10.47065/josh.v5i1.4005>
- Singgalen, Y. A. (2023b). Implementasi Hyper Spectral of Remote Sensing untuk Analisis Kawasan Ekowisata Mangrove Potensial di Kecamatan Tobelo Timur Menggunakan NDVI, SAVI, dan EVI. *Journal of Information System Research (JOSH)*, 4(3), 928–935. <https://doi.org/10.47065/josh.v4i3.3378>
- Sudrajat, J., Jamaludin, Anshari, G. Z., Gusmayanti, E., Sawerah, S., & Jabbar, A. (2022). Analisis Keberhasilan Pengelolaan Hutan Mangrove: Kasus Rehabilitasi dan Konservasi oleh Komunitas Peduli Pesisir. *Buletin Ilmiah Marina Sosial Ekonomi Kelautan Dan Perikanan*, 8(1), 1–11. <https://doi.org/10.26555/ijain.v8i1.800>
- Syuldairi, R., & Febrina, R. (2021). Kemitraan Berbasis Pemberdayaan Masyarakat dalam Pengembangan Wisata Mangrove di Desa Bokor, Kecamatan Rangsang Barat, Kabupaten Kepulauan Meranti. *Journal of Governance Innovation*, 3(2), 130–153. <https://doi.org/10.36636/jogiv.v3i2.744>