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COMMUNITY PARTICIPATION, COMMUNITY READINESS, AND PREFERENCES TO PROMOTE EDU-TOURISM IN MANGROVE AREAS OF TELUK AWUR VILLAGE, JEPARA, INDONESIA

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Abstract

Community readiness is a crucial element in tourism development, essential for the sustainability of mangrove edu-tourism. The development of mangrove edu-tourism can also provide co-benefits to the community. This study analyzes community readiness and preferences for involvement in edu-tourism development in Teluk Awur, Jepara, Indonesia. Quantitative methods with scoring techniques were used to assess community readiness based on sustainability indicators and criteria such as capacity building, participation, awareness of sustainability, and local resource utilization. The results indicate that community readiness scores are low, showing unpreparedness for edu-tourism development. This lack of readiness is attributed to insufficient capacity building and community participation. The study recommends educating the community about the co-benefits of mangrove edu-tourism to enhance their participation and capacity.

Keywords: edu-tourism, mangrove, community readiness, co-benefit

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INTRODUCTION

Edu-tourism has become a notable trend in recent years. Although its popularity has declined somewhat, many tourists still choose this form of tourism (Badan Otorita Borobudur, 2022). Ritchie (2003), as cited in Alipour et al. (2020), described edu-tourism as encompassing educational activities, learning, and knowledge acquisition. Edu-tourism can be categorized into various types based on the potential of specific objects or places, such as ecological tourism, heritage tourism, village tourism, and community tourism (Smith, 2013). In developing edu-tourism, both natural and human resources play crucial roles and can be integrated to form a strong foundation for tourism (Ilham, 2018).

Mangrove forests play a crucial role in life on earth, particularly for coastal communities (UNDP, 2021). Mangrove conservation offers co-benefits, especially in the economic sector, food security, tourism, and culture, as noted by Setiadi and Nadhiroh (2021) in Handayani (2021). Co-benefits are defined as indirect or secondary benefits resulting from a program (Handayani et al., 2021). The World Bank, as cited by Floater et al. (2016), provides a slightly different definition, describing co-benefits as benefits received by the local environment from mitigation and adaptation actions aimed at addressing global climate change. These co-benefits include increasing the area available for agriculture and creating public spaces around infrastructure development sites. Given the significant benefits of mangrove forests, edu-tourism was selected because education is key to understanding and implementing the sustainability pillars (economic, social, and environmental) (Jones et al., 2016).

Teluk Awur has potential for mangrove forest edu-tourism due to the presence of mangroves in the area. This mangrove forest also serves as an erosion barrier around the Marine Science Techno Park (MSTP) in Teluk Awur and has potential as an edu-tourism site. MSTP Teluk Awur can generate co-benefits in the economic, tourism, and cultural sectors. Using approaches such as Small Urban Parks can offer socio-economic benefits that mitigate the adverse impacts of climate change, including improved physical and mental health, social cohesion, and economic development (Sabri & Ponrahono, 2024).

An example of mangrove forest development as a tourist attraction is Wonorejo Mangrove Forest Tourism in Surabaya. According to Mochammad and Umilia (2021), this tourism site has provided significant benefits to the community. These benefits, as stated by Umam et al. (2015), include social comfort, job creation (economic), and numerous business opportunities in agribusiness, such as the mangrove syrup and mangrove chips industries derived from mangrove fruit. Another example is the mangrove ecotourism in Sei Nagalawan Village, Perbaungan District, Serdang Bedagai Regency. Harahap and Absah (2020) noted that this ecotourism offers knowledge about mangroves. Local communities actively manage mangrove ecotourism by utilizing coastal

natural resources to support economic situations, either individually or in groups. While ecotourism is often linked to nature conservation, effective natural resource management still emphasizes conservation and allows tourism policymakers and communities to oversee nature-based tourism (Junaid et al., 2023).

Both studies highlight activities in mangrove forest tourism and strategies for edu-tourism development in these areas. However, few studies address community readiness and preferences, as discussed by Alipour et al., (2020) and Wijaya et al. (2020). This study differs from the previous ones by incorporating additional criteria. It not only uses the sustainability dimensions from Alipour et al. (2020), but also includes criteria such as community capacity building, community participation, awareness of sustainability aspects, and local resource utilization as noted by Wijaya et al. (2020). Interest in mangrove co-benefits has increased due to their role in climate change mitigation through blue carbon storage in coastal areas. With high carbon storage capacity and biodiversity, mangroves offer co-benefits for both climate change mitigation and biodiversity conservation.

The purpose of this study was to assess the readiness and preferences of the people of Teluk Awur Village for developing mangrove-based edu-tourism at the Marine Science Techno Park (MSTP) Teluk Awur. The assessment focused on evaluating community readiness for the development and enhancement of mangrove edu-tourism. The variables and indicators were derived from previous studies and adapted to the study location. A scoring method was used to assess community readiness, and a Likert scale was employed to gauge community involvement preferences. The results from identifying the level of readiness and community preferences were used to formulate recommendations for increasing public awareness and participation in mangrove forest co-benefits.

RESEARCH METHODOLOGY

Research Area

Teluk Awur Village is located in Tahunan Sub-district, Jepara Regency, Indonesia. The village spans an area of 1.45 km² and is adjacent to the Java Sea coast to the north. It houses the Marine Science Techno Park (MSTP) Teluk Awur, a key location for tourism development (Figure 1).

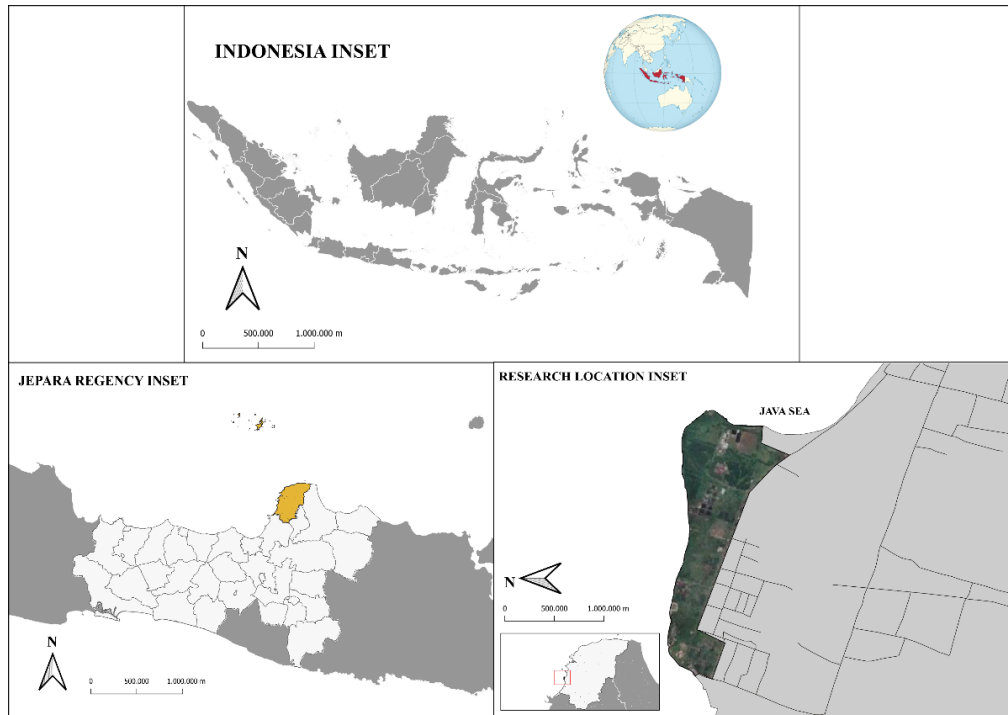


Figure 1: Location of Primary Survey Data Collection
Source: Orthomosaic drone file taken by SDGs Center of Universitas Diponegoro, 2023

MSTP Teluk Awur has the potential to develop mangrove forests into edu-tourism attractions. It is located along Jalan Teluk Awur, a district road that provides external accessibility and serves as the main route to the campus, connecting it to Jepara city center.

Analysis Technique

This research employed a qualitative approach with quantitative methods for data analysis. A primary survey was conducted, involving interviews and questionnaires administered to the community. Scoring analysis was used to determine community readiness, while the Likert scale measured preferences for edu-tourism. The research included the following stages:

- (1) Delineation of the research area, covering about 500 meters from MSTP Teluk Awur.
- (2) Preparation of 32 questionnaires corresponding to the number of houses in the delineation area.
- (3) Measurement of community readiness using scoring analysis.
- (4) Measurement of community preferences using the Likert scale.

Table 1: Variables and Criteria in the Community Readiness Assessment

Variables	Criteria	Indicator	Score
Social	Community capacity building	The provision of knowledge and skills to community groups regarding mangrove edu-tourism	Yes = "1" No = "0"
		The community has received training in mangrove tourism development	Yes = "1" No = "0"
		Information dissemination activities to increase public awareness on natural resource conservation	Yes = "1" No = "0"
		Establishment of a mangrove tourism management monitoring unit at the community level	Yes = "1" No = "0"
	Community Participation	There is already community group involvement in the development of mangrove edu-tourism	Yes = "1" No = "0"
Environment	Awareness of sustainability aspects	Awareness of the importance of mangrove maintenance in mitigating climate change	Yes = "1" No = "0"
		Awareness of the importance of mangroves as a habitat and food source for marine biota	Yes = "1" No = "0"
Economy	Local Resources Utilization	Community creativity is growing in terms of mangrove utilization	Yes = "1" No = "0"
		The existence of community economic development in the tourism sector	Yes = "1" No = "0"

(5) Source: Wijaya et al., 2020

Scoring Analysis

This research uses a scoring model to assess community readiness. According to Drobne and Lisec (2009), a scoring model (system) or Weighted Linear Combination (WLC) is intended to show the level of proximity, relationship, or weight of certain impacts of a phenomenon spatially. The formula used for the scoring analysis is taken from Sihotang (2016) and is explained as follows:

Calculating the lowest and highest scores:

$$X_{min} = \sum_{i=1}^n X_{min_i} \text{ and } X_{max} = \sum_{i=1}^n X_{max_i} [1]$$

Calculating the score range:

$$(X_{max} - X_{min})/m$$

Description:

Xmin = lowest score

Xmax = highest score

Xmin_i = the lowest score of the-i entered parameter

Xmax_i = the highest score of the-i entered parameter

n = number of parameters entered

m = number of classes required

Likert Scale

In this study, the Likert Scale was used to determine the preferences of the community in Teluk Awur Village regarding the development of edu-tourism at MSTP Teluk Awur. A Likert Scale is a psychometric scale commonly used in survey research (Taluke et al., 2019). The statements are weighted as follows: statements with the highest value of 3 are all positive, those with a weight of 2 include one positive and one neutral statement, and those with a weight of 1 are neutral or tend to be negative. The statement weights are: Agree and Want to Participate = 3, Agree but Do Not Want to Participate = 2, and Disagree/No Preference = 1.

RESULT AND ANALYSIS

The Condition of Teluk Awur Village Community in Welcoming the Development of Edu-tourism

Community attitudes towards tourism development are fundamental to sustainable tourism planning and management. This study analyzed the readiness of the community in Teluk Awur Village to respond to the development of mangrove edu-tourism from three aspects: environmental, economic, and social. Before conducting a scoring assessment, this research examined the current condition of the Teluk Awur community's perspective using a three-aspect approach.

In the environmental aspect, this research evaluates the extent to which people understand the importance of mangrove edu-tourism in maintaining coastal sustainability. From the economic aspect, it examines the community's response to developing businesses in the tourism sector to support mangrove tourism. In the social aspect, it assesses the level of community involvement in joint actions to preserve mangroves and information dissemination programs related to mangrove edu-tourism development. The study of existing conditions was carried out using questionnaires and direct interviews.

On the environmental aspect, there is still limited knowledge about mangrove ecosystems, which can absorb and store blue carbon from the atmosphere, helping to mitigate climate change (Sondak, 2015). Previous studies indicate that mangrove forests have a greater carbon storage capacity than almost

any other forest on earth. Carbon sequestration can be estimated by multiplying the mangrove area by the carbon stock value (Sejati et al., 2020). It is crucial to disseminate knowledge about the benefits of mangroves in mitigating climate change to the surrounding community to encourage participation in mangrove conservation. This can support efforts to achieve SDG 13, which focuses on Climate Action.

The physical benefits of mangrove conservation not only support SDG 13 but also contribute to SDG 11, which is related to Sustainable Cities and Communities. Community awareness of the benefits of mangroves in preventing abrasion, sea level rise, and erosion (Tresiana et al., 2022) is vital to fostering community involvement in mangrove conservation. This knowledge aims to raise public awareness and can serve as capital for developing mangrove edu-tourism. Surveys and interviews with the Teluk Awur community show that 65.6% of the community recognize the benefits of mangroves in preventing abrasion, 50% in preventing erosion, and 78.1% in reducing sea level rise. However, this awareness has not sufficiently increased public participation in mangrove conservation, and some people remain unaware of these functions.



Figure 2: Distribution of community business around mangrove edu-tourism development.

Source: Analysis Result, 2023

Second, the condition of the community is seen from the economic aspect. The data shows that 59% of coastal communities in Teluk Awur have opened businesses such as stalls, boat rentals, and lodging around the location of mangrove edu-tourism development. **Figure 2** shows the distribution of

community businesses around mangrove edu-tourism development. However, access to places to open businesses is still limited to a few people, causing some to open stalls in their homes.

Utilization of mangroves from an economic perspective can be seen in how people can process mangroves into various products with selling value. Several studies have mentioned that mangroves can be processed into crafts, food, medicines, and cosmetics (Tresiana et al., 2022; Putri et al., 2020; Santoso et al., 2019; Abubakar et al., 2019). The results showed a lack of activities to develop mangroves into various tourism products due to insufficient training.

Third, community conditions related to edu-tourism development are also viewed from the social aspect. Field conditions indicate a lack of information dissemination activities related to building readiness for edu-tourism development. While mangrove conservation activities involving the community have existed since 2009, currently, there are no more planting or preservation activities that involve the community directly.

Community Readiness in Mangrove Edu-tourism Development

The assessment is based on community readiness criteria reviewed from several previous studies. In this study, four criteria are used to assess community readiness in mangrove edu-tourism development: community capacity building, community participation, awareness of sustainability aspects, and the use of local resources. The scores were obtained from questions asked to 32 communities living around the edu-tourism development location.

Based on the assessment in **Figure 3**, the highest score is on the indicator of awareness of the importance of mangroves as a habitat and food source for marine biota, with a score of 0.75, followed by the indicator of community economic development in the tourism sector, with a score of 0.59. The lowest score is on the training indicator in terms of mangrove tourism development and the formation of mangrove tourism management monitoring units at the community level, with a score of 0. Information dissemination activities to increase public awareness of natural resource conservation also have a relatively low score, with a score of 0.03, followed by the indicator of community group involvement in mangrove edu-tourism development, with a score of 0.19. The indicators with very low scores are included in the community capacity building and community participation criteria.

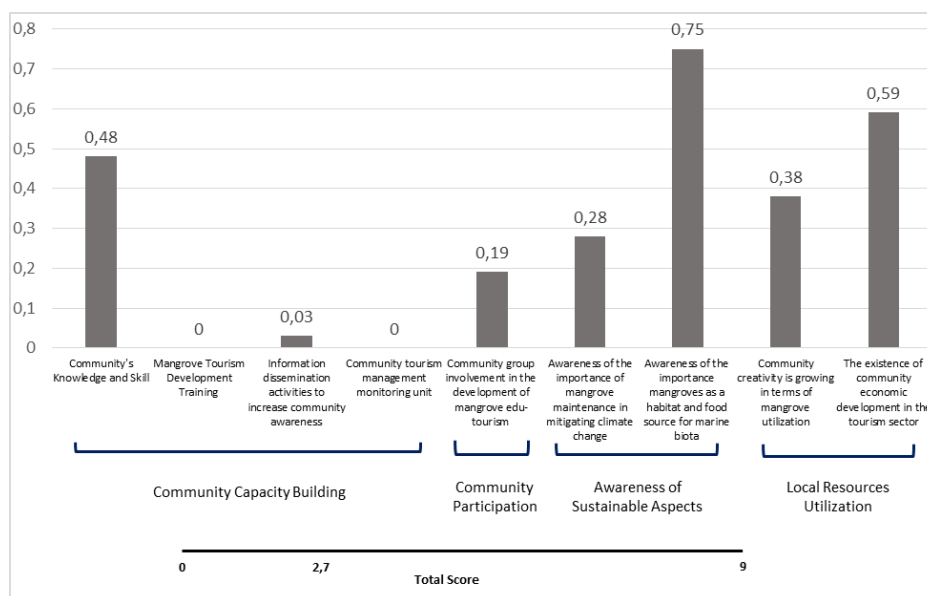


Figure 3: Graph of Community Readiness Score.
 Source: Analysis Result, 2023

Based on the assessment of all criteria, the results showed (see Figure 3) that community readiness was at a score of 2.7 out of 9. This score indicates that the readiness of the Teluk Awur community for the development of mangrove education is far from the maximum score. The low score in the criteria for increasing community capacity is due to a lack of information dissemination and training activities regarding mangrove-based tourism management and the absence of mangrove tourism management units at the community level. Meanwhile, the low score in community participation criteria is due to the lack of community invitations to be directly involved in the preservation and development of mangrove edu-tourism.

This assessment shows that community involvement in mangrove edu-tourism development is oriented towards environmental, economic, or social aspects. Previous research has shown that mangrove rehabilitation through community involvement provides many environmental benefits while economically helping local communities by providing income from ecosystem services (Ranjan, 2019). Based on the results in Figure 4, the primary orientation is on environmental aspects, followed by economic and social aspects. The highest score is in the environment because the community realizes the importance of maintaining the sustainability of their coastal area. The second orientation is on the economy, where the community is willing to open businesses around mangrove edu-tourism development if there are suitable locations. From

a social perspective, the community agrees on the need for collaborations in mangrove conservation.

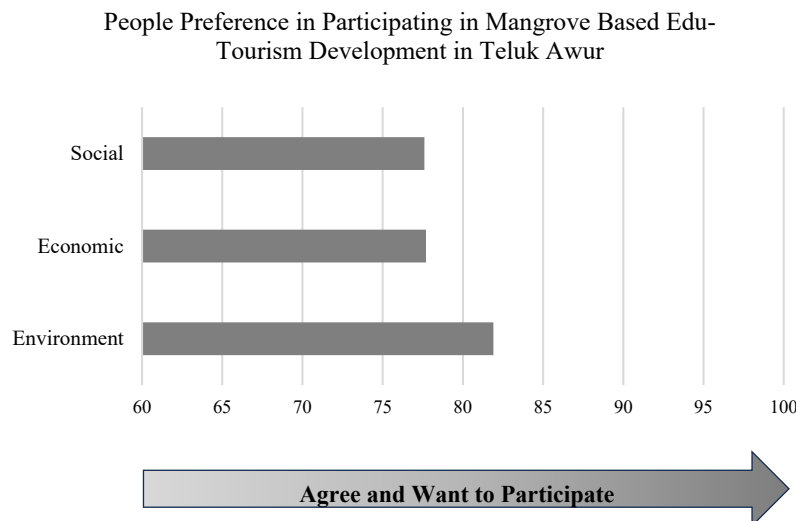


Figure 4: Score of People Preference in Participating in Mangrove Based Edu-Tourism Development in Teluk Awur.

Source: Analysis Result, 2023. Description: 0-33=Disagree, 34-66=Agree but do not want to participate, 67-100=Agree and want to participate.

Based on these results, it can be concluded that the community is willing to participate in mangrove conservation and edu-tourism development. However, the community needs the involvement of the village government or external parties, such as academics, to provide direction.

DISCUSSION: INCREASING COMMUNITY PARTICIPATION WITH MANGROVE'S CO-BENEFITS

Based on the research results, the low score of readiness is influenced by a lack of community participation, which is impacted by the absence of invitations for the community, lack of information dissemination, insufficient training programs, and the absence of a mangrove tourism management monitoring unit at the community level. Several previous studies have proven that the success of mangrove rehabilitation and conservation is determined by the participation of local communities, as they have a direct interest in the mangrove ecosystem.

Interviews with the Teluk Awur community revealed varying levels of awareness: some already knew; some had informal information; some had limited information; and some were unaware of the mangrove tourism development in their environment. This disparity in awareness has impacted the low score of

community participation in the analysis results. Community-based mangrove tourism development can provide opportunities for income distribution, thereby enhancing community welfare through economic independence at the village level (Snyder & Sulle, 2015; Sakata & Prideaux, 2013).

The development of sustainable mangrove eco-tourism requires a balanced role among stakeholders, including the government, private sector, and community (Putri et al., 2020). Promotional activities should be organized by all stakeholders, including relevant agencies and local operators (Mohamad et al., 2023). The analysis results show that the low score on community participation is also influenced by the absence of invitations or programs that involve the community in mangrove edu-tourism development. Village governments and initiators of mangrove edu-tourism development need to facilitate the community in accessing various needs, both material and knowledge. Infrastructure projects involve many key participants with different roles and responsibilities in project implementation (Ismail et al., 2024). While the government provides access, the community needs to increase its willingness and capacity to protect and utilize mangrove resources sustainably (Datta et al., 2012).

As stated by Floater et al. (2016), people are more likely to take action and support a program when there are additional benefits that impact their daily lives. Based on the analysis, the lowest scores are on the criteria for increasing community capacity and participation. To address this, the concept of co-benefits needs to be emphasized and communicated to the community. Co-benefits are generally indirect or secondary benefits resulting from a program (Handayani et al., 2021). Co-benefits can open opportunities for various parties by generating additional advantages. It is about how the community develops these co-benefits and how these benefits impact the community.

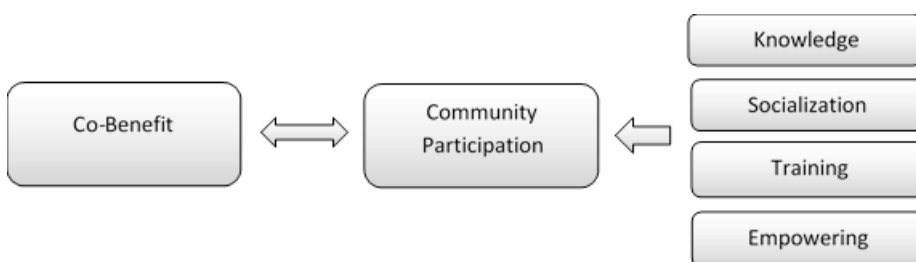


Figure 5: Concept of co-benefit linkages with community participation.
Source: Analysis Result, 2023

As shown in Figure 5, the existence of co-benefits and the level of community participation influence each other. Community participation is needed to determine the extent of co-benefits that can be generated, and co-benefits provide a reason for the community to be involved. Factors that can

support optimizing community participation include knowledge, information dissemination, training, and empowerment. Additional benefits arising from the development of edu-tourism need to be communicated to the community to increase participation and willingness to enhance their capacity.

Communities need to be facilitated in accessing funding, facilities, the latest market information, and tourism services to accelerate tourism economic development. This approach aims to help the community develop micro, small, and medium enterprises (MSMEs) independently and improve their economic standards (Putri et al., 2020; Singgalen, 2020). The achievement of mangrove co-benefits cannot be realized if tourism activities are not operational. Therefore, all parties, including the community, government, and managers, need to collaborate to ensure optimal development.

CONCLUSION

The results of the analysis of the Teluk Awur community showed that the score of the community readiness in mangrove edu-tourism development efforts is still low (2.7 out of 9). This study concluded that the low readiness score of the Teluk Awur community in the development of mangrove edu-tourism is strongly influenced by a lack of community participation, which is affected by the absence of invitations for the community, lack of information dissemination, insufficient training programs, and the absence of a mangrove tourism management monitoring unit at the community level. The low values of community participation and capacity indicate the need for efforts to improve these two criteria. The concept of co-benefits resulting from the mangrove edu-tourism development program needs to be emphasized to provide advantages for all parties. These benefits can synergize the roles of the government, tourism developers, and the community in developing edu-tourism together.

The government and mangrove tourism developers need the role of community involvement to develop tourism activities and realize this superior tourism. Meanwhile, the people of Teluk Awur Village need economic co-benefits arising from edu-tourism activities, such as new business opportunities in the tourism sector. To realize these co-benefits, the community needs assistance or facilitation from the local government or academics in accessing funding, facilities, the latest market information, and tourism services. By increasing the capacity and participation of the community, it is hoped that it will also increase the awareness and ability of the community to utilize local resources. Thus, the people of Teluk Awur can open new economic opportunities and contribute to maintaining the sustainability of the coastal area where they live.

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DISCLOSURE STATEMENT

The authors declare no competing interests that relate to the research described in this paper.

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