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THE MEDIATING ROLE OF ENVIRONMENTAL AWARENESS TOWARDS PERCEIVED BENEFITS AND SUPPORT FOR COASTAL ECOTOURISM WITHIN FISHING COMMUNITIES

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Abstract: The main objective of this research is concerning the mediating effect of environmental awareness in influencing the relationship between perceived benefits of coastal ecotourism and support for coastal ecotourism within fishing communities, using the Stimulus-Organism-Response (SOR) model. Environmental awareness usually provides tourists with knowledge about the potential impacts of their actions on the environment and local communities. Often, higher environmental awareness will result in responsible tourism that could sustain the well-being of the local people. Accordingly, 200 responses were gathered through a questionnaire survey among tourists visiting Pangkor Island. This small island with a sensitive environment depends mainly on the fishing and tourism industry, making it essential to preserve nature and local cultures as well as to retain the number of tourist arrivals. Regression-based bootstrapping analyses using PROCESS v4.1 were employed in this research to analyse the data. Results revealed that environmental awareness partially mediates the relationship between the perceived impact of coastal ecotourism and support for coastal ecotourism within fishing communities. Hence, increasing environmental awareness and understanding the environmental issues pertinent to the island may increase responsible visitations among Pangkor tourists. This study establishes the role and possibility of environmental awareness in supporting coastal ecotourism within fishing communities. This may serve as a significant tool for the future sustainability of fishing communities and, at the same time, preserve the area from audacious development.

Keywords: Coastal ecotourism, environment awareness, fishing communities.

Introduction

This study was conducted on Pangkor Island, a small island located in Perak on the west coast of Peninsular Malaysia. Pangkor Island is blessed with many different types of aquatic and terrestrial animals. In particular, there are 14 species of fish (Aqmal-Naser *et al.*, 2019), three species of sea cucumbers (Kamarudin & Rehan, 2015), 72 species of coral reef species (Yusuf *et al.*, 2009), 62 species of birds (Mohd-Taib *et al*., 2019), 105 species of beetles (Riza Hazmi *et al*., 2019), and five species of rodents (Jayaraj *et al*., 2019) that can be found on the island. Great hornbill (*Buceros bicornis*) and Oriental pied hornbill (*Anthracoceros albirostris*) are commonly and easily spotted on Pangkor Island, making hornbill feeding activities one of the famous tourist activities on Pangkor Island (Mohd-Taib *et al*., 2019). Meanwhile, the remaining intact dipterocarp forest of endemic species such as *Shorea lumutensis* serves as a good probable breeding ground for hornbills on the island, encouraging them to remain on the island, seldom venturing to the mainland (Yeap & Perumal, 2017).

The island is also famous for producing salted fish, anchovies, shrimp paste, dried shrimp, and other seafood products (Selamat *et al.*, 2016). Apart from the fishing industry, another economic activity for the local communities in Pangkor Island is coastal tourism (Md Arof *et al*., 2019). Notably, the island's combination of fishing villages and resorts allows tourists to

observe the fishermen's lifestyle while relaxing on the beautiful sandy beaches (Mohamad *et al*., 2015). In 2020, the tourism industry was boosted when the island was declared one of Malaysia's duty-free islands (Bernama, 2020). The high influx of tourists arriving more than one million yearly (Manjung Municipal Council, 2022) undoubtedly brings economic growth to this small island. Nevertheless, mass tourism is indubitable and may increase urbanisation, leading to the loss of natural areas (Jurgens, 2024) and environmental and cultural degradations (Martínez Garcia *et al*., 2017). It also adversely affects the quality of life for local residents (Capocchi *et al*., 2019).

Fishing communities and the coastal environment are highly dependent on each other (Taylor *et al*., 2019). In order to preserve the nature and local cultures as well as to retain the number of tourist arrivals to the island, this research was conducted to investigate the mediating effect of environmental awareness towards the support for coastal ecotourism within fishing communities using Stimulus-Organism-Response (SOR) model. The application of the SOR model is to fill the existing gap in the tourism literature on the importance of environmental awareness in securing support for coastal ecotourism within fishing communities. Therefore, understanding environmental awareness among tourists is crucial as it indicates the level of interest and care for environmental issues (Jalani, 2012). It will also reflect their understanding and behaviour to preserve or harm the environment (Kousar *et al.*, 2022). Previous studies have suggested that perceived benefit significantly predicts ecotourism support (Castellanos-Verdugo *et al*., 2016).

This article suggests that environmental awareness acts as a mediator, bridging the gap between perceived benefit and ecotourism support. That is, tourists who perceive greater benefits from ecotourism such as environmental conservation, cultural preservation, and economic development are more likely to support it (Castellanos-Verdugo *et al*., 2016; Oviedo-García *et al*., 2017). At the same time, environmental awareness plays a key role in shaping attitudes and behaviours towards conservation and sustainable tourism. Furthermore, tourists with higher environmental awareness are more likely to engage in responsible behaviours, including supporting ecotourism initiatives (Chiu *et al*., 2014). Thus, by fostering environmental awareness, local communities, with the help of tourism planners can strike a harmonious balance between economic prosperity, social equity, and ecological sustainability, securing a brighter future for generations to come (Wang, 2010; Nugraha & Maryono, 2018). Therefore, environmental awareness plausibly mediates the relationship between perceived benefits and support for ecotourism. Hence, this article aims to examine the mediate effects of environmental awareness in influencing the relationship between perceived benefits of coastal ecotourism and support for coastal ecotourism within fishing communities.

Literature Review

Stimulus-Organism-Response (SOR) Model

The SOR model was developed by Mehrabian to explain human behaviour and has its roots in psychology (Mehrabian & Russell, 1974). The SOR model entails three components: A stimulus (S), a set of mediating variables (O = Organism), and behavioural responses (R = Response) (Turley & Milliman, 2000; Vieira, 2013). Accordingly, stimuli are triggers that can influence a user's inner or perceptual state (O), influencing their behaviour reaction (R). Usually, the stimulus is generally used as the independent variable, the organism as the mediating variable, and the response as the dependent variable. In tourism, the SOR model is one of the most widely employed frameworks that is widely recognised for explaining tourist behaviour (Chang *et al*., 2014). Previous studies have used the SOR model in the tourism industry to explore tourism marketing (Moreno-Lobato *et al.*, 2023), health tourism intentions (Liao *et al*., 2023), and tourism experience (Chen *et al*., 2023). In addition, the SOR model has also been utilised

in other various aspects of tourism, including in explaining factors that influence loyalty toward smart tourist destinations (Nieves-Pav'on *et al*., 2023), heritage tourism management (Liu *et al*., 2024), world heritage site conservation (Nian *et al*., 2023), and predicting ecotourist behaviour (Tsung *et al*., 2021).

Due to the great variety of research conducted in the tourism sector using the SOR model, this framework has yet to be applied in supporting coastal ecotourism, scoping on environmental awareness as a mediator. Lee *et al*. (2020) discovered that perceived benefits are one of the precedents to support ecotourism development at a tourism destination. In relevance to this, Wang *et al*. (2024) have developed a theoretical model based on the SOR framework and discovered that using relational embeddedness (S) will enhance resident support for rural tourism (R) by increasing perceived benefits (O). Perceived benefits usually influence tourists' perceptions and serve as a starting point for a decision-making process (Koo & Ju, 2010). Moreover, the growth of ecotourism is further advanced by tourists' desire to spend their money wisely and ensure that it benefits the local community (*Üzülmez*, 2023), in resources to make a living (Andrews *et al*., 2021). Hence, many fishermen nowadays are venturing into coastal ecotourism (Stacey *et al*., 2021) to support their livelihood for many reasons, including marine pollution (Abdullah & Hoe, 2023).

Tourists with heightened environmental awareness tend to adopt more sustainable practices during their travels (Dolničar *et al*., 2017). Similarly, those with higher perceived value tend to support and recommend their use (Ganji *et al*., 2020). Based on this notion, this study opines to utilise the SOR model to explore the links between the perceived benefits of coastal ecotourism and support for coastal ecotourism within fishing communities. The perceived benefits of coastal ecotourism are environmental acts as external stimuli, environmental awareness as the organismic perception, and support for coastal ecotourism within fishing communities as the behavioural response.

Perceived Benefits of Coastal Ecotourism

Tourism is often considered one of the major economic sectors and the most effective income generator for many countries (Debicka & Oniszczuk-Jastrzabek, 2014; Petrovici, 2014). Tourism benefits have three basic dimensions: Economic, socio-cultural, and environmental (Gursoy *et al.*, 2002; Brida *et al.*, 2011). The economic benefits tourism brings to a country may be in the form of employment, foreign exchange earnings, direct revenue, increased public and private investment, and additional personal income (Liu & Var, 1986; Balaguer & Cantavella-Jorda, 2002; Mason, 2008; Uysal *et al.*, 2012).

Meanwhile, the development of tourism would also bring socio-cultural benefits such as improvement or additional community services, strengthening local cultural identity, and improving residents' overall well-being (Liu & Var, 1986; Brunt & Courtney, 1999; Sirakaya *et al.*, 2002; Gursoy & Rutherford, 2004; Ambrož, 2008). At the same time, for the environmental benefits of tourism development, tourism revenue may help to improve existing natural attractions or contribute to new investment opportunities in destinations (Liu & Var, 1986; Perdue *et al*., 1987; Mason, 2008; Hall & Lew, 2009). There is sufficient evidence of strong resident support for ecotourism development and positive perceptions of its impacts (Angessa, 2022).

Under the tourism umbrella, ecotourism serves a niche segment in natural areas, trying to preserve the natural environment and sustain local communities (The International Ecotourism Society, n.d.). Ecotourism can also positively affect people's well-being by promoting biological conservation and community development (Jacobs *et al.*, 2014). It is believed that coastal ecotourism would benefit the fishing communities economically. Furthermore, ecotourism development will lead to a better quality of life, which is responsible for tourism activities (Hanafiah *et al.*, 2015). There is evidence reported that potential tourism benefits contributed to household

living conditions such as fishermen being able to pay school fees for their children, increase in food supply, and improve their fisheries and small businesses (Safari *et al.*, 2015). However, Karimi and Astane (2021) argued that tourism development brings more negative impacts instead of positive impacts to the residents, especially on the environmental dimensions. Nevertheless, Chiu *et al.* (2014) and Oviedo-García *et al.* (2017) stated that the ecotourism concept emphasises the natural conservation of a tourist site, raising tourists' environmental awareness. In this case, it is predicted that coastal ecotourism will bring economic benefits to fishing communities and contribute to the natural ecosystems by raising environmental awareness and supporting ecotourism among coastal tourists.

The relationship between the perceived benefits of coastal ecotourism and environmental awareness is an emerging study area. Some researchers suggest that experiencing coastal ecotourism first-hand could lead to increased environmental awareness. For example, Ramdas and Mohamed (2014) highlighted the educational value of ecotourism, suggesting that well-designed experiences can provide tourists with knowledge about coastal ecosystems and the importance of conservation. Furthermore, Latjuba and Sari (2022) posited that witnessing the beauty and fragility of coastal environments can shift individuals' values and attitudes towards a greater appreciation for nature and support for conservation. However, additional research is required to understand the nuances of this relationship fully.

H_1: Perceived benefits of coastal ecotourism positively influence environmental awareness.

Environmental Awareness

As the environment is deteriorating due to human overexploitation of nature, environmental awareness has been widely studied and experimented with, particularly in tourism (Zeng & Zhong, 2017). They further explained that environmental awareness usually develops when people are in their regular surroundings, whereas the circumstances at tourist destinations heavily influence tourists' perceived value. Environmental awareness is a broad phenomenon that has been demonstrated to influence an individual's knowledge, attitudes, behaviour, intentions, attempts, tendencies, information, and actions (Wan *et al.*, 2017). Consequently, Lee (2010) has highlighted that an individual's awareness of environmental problems may be a starting point for various forms of environmentally sensitive behaviour. Similarly, Yeung (1998) also supported the idea that environmental awareness measures an individual's ability to understand the nature of environmental processes and problems. It is defined as the individual's level of concern towards environmental quality and the extent of an individual's contribution to environmental behaviour in everyday life. This includes recognising environmental problems (Grob, 1995; Lee, 2010) and the consequences of the problems (Lee, 2010).

Conversely, knowledge and awareness have been noted as one construct. Several studies have supported how knowledge and awareness can be used interchangeably (Strong, 1998; Bush *et al.*, 2008; Sinha *et al.*, 2008; Kwatra *et al.*, 2014). As argued by Madsen and Ulhøi (2001) and Afsar *et al.* (2016), environmental awareness often refers to the concern and knowledge of the consequences of an individual's behaviour towards the environment. Notably, environmental awareness is crucial for the success and sustainability of ecotourism and fishing communities. This enables them to balance the delicate interplay between economic development, social well-being, and ecological preservation. Therefore, it can be observed that environmental awareness may trigger one's environmental concern and knowledge to solve environmental problems and eventually increase an individual's ecological behaviour while visiting natural areas.

Environmental awareness plays a crucial role in fostering support for coastal ecotourism. Research has consistently demonstrated that individuals with higher levels of environmental knowledge and concern are more likely to

engage in and support sustainable coastal tourism practices. Lee and Jan (2018) observed that people with stronger environmental values strongly supported sustainable coastal tourism initiatives. This relationship extends beyond tourists to local communities. Mustika *et al*. (2020) noted that environmentally aware residents supported coastal ecotourism projects in Indonesia more. Furthermore, Han *et al.* (2019) revealed that environmentally conscious travellers were willing to pay premium prices for coastal ecotourism experiences that prioritised sustainability. These findings collectively underscore the significant impact of environmental awareness on promoting and sustaining coastal ecotourism efforts.

H_2: Environmental awareness positively influences support for coastal ecotourism within fishing communities.

Support for Coastal Ecotourism within Fishing Communities

The development of coastal ecotourism within fishing communities will not be successful without the support from tourists. A large and growing body of literature has confirmed that tourists are one of the critical destination stakeholders in the development of tourism (Chiu *et al.*, 2014; Cheng & Wu, 2015; Su & Swanson, 2017; Joo *et al.*, 2019). According to White and White (2008), tourism development should be considered from the residents' perspective and from tourists' perspectives through their interactions with the physical environment, residents, and other tourists.

In the tourism context, the emotional interaction of tourists and residents positively impacts their perception of tourism impacts (Joo *et al.*, 2019). Lee *et al.* (2020) emphasised that tourists are the ones who visit destinations, cherish the destination's resources and assets, and engage in tourism products and services. With the positive experiences, tourists have been observed to minimise their negative impacts while maximising positive outcomes (Cheng & Wu, 2014; Chiu *et al.*, 2014). Meanwhile, Su *et al.* (2017) revealed that by experiencing the lifestyle of fishing communities and their hospitality, tourists tend to appreciate the culture and exhibit a positive stand towards coastal ecotourism within fishing communities. They also believed that fishing communities that engage in tourism activities may sustain long-term tourism benefits for the fishing community.

A growing body of literature supports the role of environmental awareness as a mediator between the perceived benefits of coastal ecotourism and support for ecotourism within fishing communities. Moreover, studies indicate that higher levels of environmental awareness enhance individuals' understanding of the long-term sustainability benefits of ecotourism, particularly in coastal regions. For example, Lee and Jan (2015) reported that individuals with greater environmental awareness were more likely to recognise ecotourism's ecological and socioeconomic benefits such as habitat preservation and economic diversification. This awareness fosters stronger support for ecotourism initiatives within fishing communities, as it helps residents understand how these practices can enhance both environmental conservation and their livelihoods (Khan & Suan, 2020).

Additionally, research by García *et al*. (2019) suggested that without environmental awareness, communities may not fully appreciate the connection between sustainable tourism practices and the preservation of their natural resources, limiting their support for such initiatives. Therefore, environmental awareness mediates the link between perceived benefits and support by heightening the community's understanding of coastal ecotourism's broader ecological and economic impacts.

H_3: Perceived benefits of coastal ecotourism positively influence support for coastal ecotourism within fishing communities.

H_4: Environment awareness mediates the perceived benefits of coastal ecotourism and support for coastal ecotourism within fishing communities.

All the hypotheses are integrated and displayed in Figure 1.

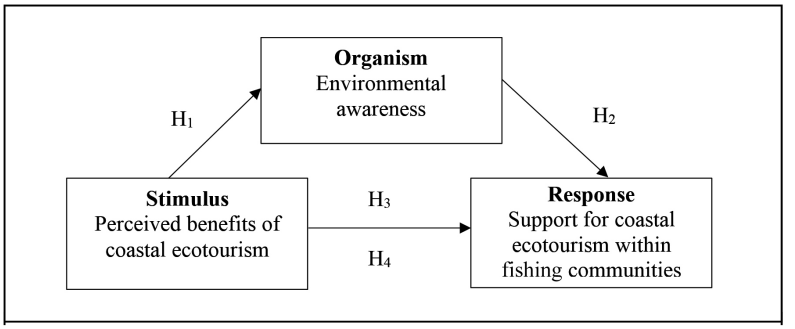

Figure 1: Research framework

Materials and Methods

This study distributed 220 face-to-face questionnaires at five tourist coastal spots on Pangkor Island using convenience and purposive sampling. The tourist spots include Pasir Bogak Beach, Teluk Nipah Beach, Teluk Dalam Beach, Pangkor Fishing Village, and Pangkor Ferry Jetty. The selection of the participants is based on the condition that they must be Malaysian, above 18 years old, and have either visited at least one of the fishing villages on the island or have been involved in tourism services provided by the fishing community on the island. Although Pangkor is a duty-free island receiving more than 1 million tourist arrivals annually (Manjung Municipal Council, 2022), finding specific tourists that meet the criteria is quite challenging. That is, most tourists mainly visit beaches and buy souvenirs from duty-free shops, which results in less engagement with the local fishing communities. After data screening through identifying missing values and outliers, around 200 samples were able to be used for further analysis.

The survey questionnaire consists of four sections. The questions in Section A collected information about the participants' backgrounds such as nationality, gender, age, ethnicity, income status, education level, and current employment status. Meanwhile, Section B focused on the perceived benefits of coastal ecotourism, Section C focused on supporting coastal ecotourism within fishing communities, and Section D covered environmental awareness. There are seven items in Section B and adapted from Bennett and Dearden (2014), Oviedo-García *et al.* (2017), Kim *et al.* (2020), and Karimi and Astane (2021). Seven items for section C are derived from Neuts *et al.* (2021) while another seven items for the last section were adapted from Lee (2011), Safari *et al.* (2018), Yucedag *et al.* (2018), and Ivana *et al.* (2019). The questions from Section B to Section D were measured using a five-point Likert scale. Respondents were required to choose from a scale ranging from 1 to 5, with 1 denoting "Strongly Disagree" and 5 denoting "Strongly Agree". Note that respondents could express their neutral or biased opinion using a five-point Likert scale (Chyung *et al.*, 2017).

For data analysis, regression-based bootstrapping analyses using PROCESS v4.1 by Hayes (2022) in IBM Statistical Package for Social Science version 25 (SPSS v25.0) were used to analyse the data generated from this study. When researchers decide on sample sizes for their mediation models, they typically consult sample sizes from prior studies or follow widely accepted guidelines. Those proposed by Bentler and Chou (1987) and Bollen (1989) advocate for five or 10 observations per estimated parameter or suggestions by Boomsma (1985) recommending a minimum sample size of 200.

Results

The survey results revealed a gender imbalance among tourists, with females outnumbering males (accounting for 56% of the total tourists). Regarding the age range of tourists, the majority of respondents were between 18 and 30 years old, making up 40.50%, followed by 31 to 40 years old at 35.50%, 41 to 50 years old at 16.50%, 51 to 60 years old at 4%, and 61 years old and above at 3.50%. Malays dominate the sample at 54.50%, followed by Chinese at 31%, Indian at 14%, and Eurasian at 0.50%. The majority of the respondents had a monthly income of RM3,001.00 to RM4,500.00 (35.5%), followed by 31.50% of respondents earning RM1,501.00 to RM3,000.00 monthly. In the past five years, 45% of the respondents had travelled two to three times to coastal destinations, 27.5% had travelled four to five times, 13.5% had travelled seven times or more, 8% had travelled six to seven times, and 6% had travelled once in the past five years. In terms of environmental attitudes, 94.50% of the respondents believed the preservation of the marine ecosystem is important, 3.5% thought it is not important, and 2% were unsure. Additionally, 86.5% of the respondents believed that a well-managed fishing industry, fishing villages, and their heritage, if maintained in their natural state are essential for attracting tourists. This was followed by 9%, who were unsure and 4.5%, who did not believe in the significance of these factors in attracting tourists. The details of the survey sample characteristics are summarised in Table 1.

Table 1: Characteristics profiles of respondents

	Characteristics	Frequency (n = 200)	Percentage (100%)
Gender	Male	88	44.00
	Female	112	56.00
Age	18-30 years old	81	40.50
	31-40 years old	71	35.50
	41-50 years old	33	16.50
	51-60 years old	8	4.00
	61 years old and above	7	3.50
Ethnicity	Chinese	62	31.00
	Malay	109	54.50
	Indian	28	14.00
	Others: Eurasian	1	0.50
Income status	RM1,500.00 and below	50	25.00
	RM1,501.00 to RM3,000.00	63	31.50
	RM3,001.00 to RM4,500.00	71	35.50
	RM4,501.00 to RM6,000.00	12	6.00
	RM6,000.00 to RM7,500.00	3	1.50
	RM7,501.00 to RM10,000.00	1	0.50
How many times have you travelled to a coastal destination in the past five years?	1 time	12	6.00
	2-3 times	90	45.00
	4-5 times	55	27.50
	6-7 times	16	8.00
	7 times and above	27	13.50

Do you think that the preservation of marine ecosystems is important?	Yes	189	94.50
	No	7	3.50
	Not sure	4	2.00
Do you believe that a well-managed fishing industry, fishing villages, and its heritage, if maintained in their natural state are important to attracting tourists?	Yes	173	86.50
	No	9	4.50
	Not sure	18	9.00

Table 2 indicates the mean and standard deviation of survey items for three variables in this research. The mean and standard deviation of the construct "Perceived Benefits of Coastal Ecotourism" is 4.22 ± 0.670. For "Support for Coastal Ecotourism within Fishing Communities", the mean and standard deviation is 4.25 ± 0.695. The mean and standard deviation of the construct "Environmental Awareness" is 2.33 ± 0.288.

Table 2: Mean and standard deviation of the survey items

	Mean	**Std. Deviation**
Perceived Benefits of Coastal Ecotourism	4.22	0.670
Coastal ecotourism brings economic benefits (income) to fishing communities.	4.22	0.778
Coastal ecotourism increases employment opportunities for fishing communities.	4.33	0.687
Coastal ecotourism promotes local economic development for fishing communities.	4.24	0.743
Coastal ecotourism promotes the protection of fishing communities' cultural heritage.	4.20	0.849
Coastal ecotourism improves the local infrastructure of fishing communities.	4.18	0.825
Coastal ecotourism improves the quality of life among fishing communities.	4.20	0.802
Coastal ecotourism contributes to the conservation of natural ecosystems.	4.18	0.849
Support for Coastal Ecotourism within Fishing Communities	4.25	0.695
I believe coastal ecotourism is compatible with fishing communities.	4.19	0.908
I believe there are demands for coastal ecotourism in fishing communities.	4.19	0.811
I believe that coastal ecotourism should be actively encouraged in fishing communities.	4.26	0.785
I support coastal ecotourism and want to see it as important to fishing communities.	4.33	0.795
I support the promotion of coastal ecotourism in fishing communities.	4.26	0.810
I support new coastal ecotourism facilities in fishing communities.	4.31	0.771
I look forward to experiencing coastal ecotourism within fishing communities.	4.25	0.695
Environment Awareness	2.33	0.288
I am aware that environmental problems are worsening after reclamation the implementation of reclamation projects.	1.53	0.708

I am aware that there is an urgent need to tackle environmental problems.	1.54	0.769
I am aware of the importance of protecting the environment from pollution.	1.42	0.637
I am aware that environmental problems are affecting our health.	1.41	0.586
I am aware that environmental problems are affecting the reputation of the country.	1.50	0.672
I am aware that high biodiversity (e.g., plants, flowers, insects, mammals) improves the quality of the environment in which I live.	4.51	0.672
I am aware of media related to environmental topics.	4.40	0.808

Regression-based bootstrapping analyses using PROCESS v4.1 by Hayes (2022) in SPSS are used to examine the relationship between perceived benefits of coastal ecotourism, environmental awareness, and support for coastal ecotourism within fishing communities and to determine the mediation effect of environmental awareness in this process. First, there must be a significant direct effect on the perceived benefits of coastal ecotourism and the support for coastal ecotourism within fishing communities. The findings shown in Figure 2 revealed that perceived benefits of coastal ecotourism are a significant predictor of environmental awareness (H_1) ($\beta = 0.323$, $p = 0.000 < 0.05$) and that environmental awareness was a significant predictor of support for coastal ecotourism within fishing communities (H_2) ($\beta = 0.103$, $p = 0.000 < 0.05$). These results support the environmental awareness mediational hypothesis. Furthermore, the results indicated that the indirect effect for perceived benefits of coastal ecotourism was a significant predictor of the support for coastal ecotourism within fishing communities after controlling by the mediator (H_4) ($\beta = 0.583$, SE = 0.045, 95% CI [0.032 to 0.206], $p = 0.000 < 0.05$). The result also revealed that the total effect for perceived benefits of coastal ecotourism was a significant predictor of the support for coastal ecotourism within fishing communities after controlling by the mediator (H_3) ($\beta = 0.689$, SE = 0.06, 95% CI [0.5806 to 0.7976], $p = 0.000 < 0.05$). In addition, the result indicated that the direct effect for perceived benefits of coastal ecotourism was a significant predictor of the support for coastal ecotourism within fishing communities after controlling by the environmental awareness (H_4) ($\beta = 0.583$, SE = 0.056, 95% CI [0.472 to 0.693], $p = 0.000 < 0.05$).

The total effect of perceived benefits of coastal ecotourism on support for coastal ecotourism within fishing communities are presented in brackets, with values representing the direct effect of perceived benefits of

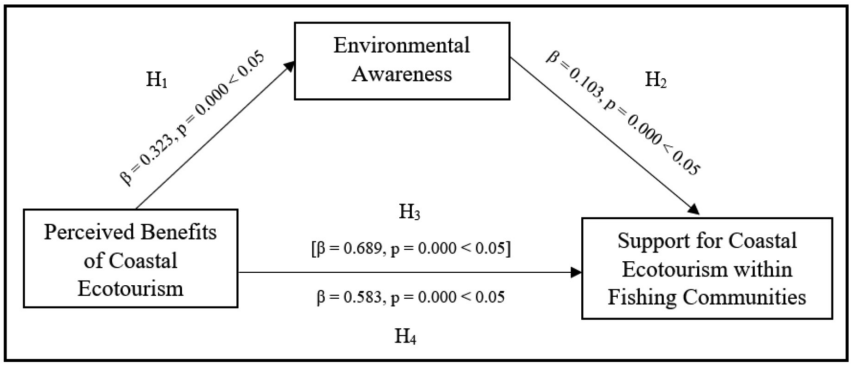

Figure 2: Mediation model of perceived benefits of coastal ecotourism, environmental awareness, and support for coastal ecotourism within fishing communities

coastal ecotourism on support for coastal ecotourism within fishing communities through environmental awareness below the arrow (H_4). The indirect effect is shown above the arrow (H_2).

Discussion

Based on the aim of this study, four hypotheses were assessed and the results revealed that all hypotheses were supported. The result revealed that the perceived benefits of coastal ecotourism positively and directly affect environmental awareness. In other words, it is believed that the perceived benefits of coastal ecotourism would raise environmental awareness among tourists. Ecotourism, which differs from mass tourism is a form of responsible tourism focusing on fostering environmental conservation and creating environmental awareness through education (Zacarias & Loyola, 2017; Üzülmez, 2023). According to Kim *et al.* (2017), a good relationship between coastal and fisheries managers and the tourism and aquaculture industries increases the capacity for positive outreach about the benefits of sustainable aquaculture in the coastal zone. They further argued that the relationship between fisheries and coastal ecotourism would educate tourists and promote aquaculture seafood and culinary aquaculture experiences as distinct tourism resources for coastal destinations. A reflective response in demanding high-quality fisheries products may prompt tourists to pay attention to environmental issues, thus, improving their ecotourism behaviour (Lee *et al.*, 2018). By consuming fresh fish and seafood products, tourists will be more conscious of the conservation of the environment and minimise coastal pollution.

Nowadays, coastal seafood restaurants are becoming one of the main attractions for tourists and residents in Malaysia (Wahab *et al.*, 2018). They reported that 75% of Malaysians visit coastal seafood restaurants more than once a month. These seafood restaurants, popular among tourists are conveniently located along the coasts, particularly near or on the beaches (Olivier, 2020). Similarly, coastal seafood restaurant operators are viewed as key players in coastal ecotourism development on Pangkor Island and they are able to raise their customers' environmental awareness. Accordingly, these restaurants serve fresh seafood with beautiful sea views while presenting unique atmospheres associated with the marine environment and the beach, where the desire to eat seafood is born. This allows tourists to enjoy the beautiful sea view, fresh fish, and seafood products.

A significant effect has been confirmed in the direct relation between the perceived benefit of coastal ecotourism and support for coastal ecotourism within fishing communities. This result indicated that tourists are likely to acknowledge the benefits of coastal ecotourism that would bring to the fishing communities. Tourists acknowledged that tourism creates local demand for fishermen such as being the local guide, renting out fishermen's houses for accommodation services, and promoting the local fresh seafood products (González & de los Ángeles Piñeiro Antelo, 2020). Tourists may also perceive that the average monthly salary for employees in Malaysia's fishing, agriculture, and forestry industries was RM1,600.00, the lowest average monthly salary in Malaysia (Hirschmann, 2022). Hence, it is reported that the local communities in coastal villages or fishing villages integrated marine ecotourism into fishing activities to improve the livelihood, increase the revenue of the fishermen (Sunarlan & Kusnadi, 2018), and employment opportunities for fishermen (González & de los Ángeles Piñeiro Antelo, 2020).

Likewise, environmental awareness positively and significantly impacts the support of coastal ecotourism within fishing communities. The result suggests that tourists with high environmental awareness would support the coastal ecotourism within fishing communities. Nevertheless, it is reported that tourists with a high level of environmental awareness prefer to experience the natural environment and ecology (Zeng & Zhong, 2017). The level of tourists' environmental awareness

is perceived as an antecedent to influence the support for coastal ecotourism within fishing communities and previous researcher's results support it. Environmental awareness partially mediates this relationship with the significant direct and indirect effects of the perceived benefit of coastal ecotourism and support for coastal ecotourism within fishing communities. The result is supported by Chen and Tsai (2015), who stated that environmental awareness is crucial to environmental sustainability.

The authors also stated that the coastal environment is essential to the global life support system and represents a sustainable development opportunity. Tourism within fishing communities will enhance these experiences by promoting local fisheries communities and tourists' environmental awareness (La Luz, 2021). Recently, hornbill feeding activities have become famous tourism activities on Pangkor Island (Sadatiseyedmahalleh *et al*., 2016), supporting green tourism promotion (Halim *et al*., 2021). However, the research discovered that some tourists and boat operators frequently feed inappropriate foods to the hornbills (Sadatiseyedmahalleh *et al*., 2016). In an article by Sadatiseyedmahalleh *et al.* (2016), tourists with high environmental awareness also advised the public to be responsible tourists. This allows further support for coastal tourism development in Pangkor Island as tourists with a higher level of awareness emphasise a natural and ecological experience (Zeng & Zhong, 2017).

Conclusions

From small fishing villages to duty-free islands, the fishing industry and coastal ecotourism may be compatible with sustainable tourism development in Pangkor Island. This study discovered that environmental awareness acts as a partial mediator for support for coastal ecotourism within fishing communities. Furthermore, this study extends the knowledge by emphasising that tourists should be aware of and understand environmental issues pertinent to the island, leading to the sustainability of the tourism industry on this island. More specifically, this study may act as a reference for the fishing communities by transforming the fishing communities to better livelihoods and alluring tourists with positive, responsible environmental behaviour that will spare the sensitive ecosystem of the island from appalling environmental degradation and promote the conversation of natural resources.

Study Limitations and Recommendations

First, as a non-probability purposeful sampling technique was used in this study, generalisation should be practiced with caution. According to Andrade (2021), the findings of this study can only be "generalised to the (sub) population from which the sample is drawn and not to the entire population". To overcome this shortcoming, future studies could consider a probability sampling technique to increase the sample's representativeness. Second, comparisons based on sociodemographic factors were lacking. Sociodemographic factors such as age group and income status can be considered to understand the effects of environmental awareness. Third, considering the simplicity of the SOR framework with only a single stimulus adopted in this study, the findings might not reflect the actual ecotourism support among tourists.

Therefore, further studies should incorporate different types of stimuli such as environmental, social, and physical stimuli to increase the robustness of the study (Asyraff *et al*., 2023). This study is also restricted to one mediator. Hence, future studies should include mediators such as environmental knowledge and environmental concern (Qomariah & Prabawani, 2020) into the current research model to develop a more precise and accurate between the perceived benefits of coastal ecotourism and support for coastal ecotourism within fishing communities.

Theoretical Implication

The theoretical implication of applying the SOR framework to coastal ecotourism support, with environmental awareness as a

mediator emphasises how external stimuli like eco-friendly initiatives and conservation efforts influence tourists' behaviour. Notably, environmental awareness mediates this relationship as the internal state (organism) by shaping how tourists perceive and process the stimuli. When more environmentally aware, tourists are more likely to support coastal ecotourism initiatives, as their cognitive and emotional engagement with environmental issues is heightened. This suggests that increasing environmental awareness is key to fostering stronger support for sustainable tourism. Nevertheless, ecotourism providers can effectively drive tourists' engagement and advocacy for environmental conservation in coastal regions by targeting and enhancing awareness.

Practical Implications

Tourism stakeholders can leverage the findings of this study to enhance tourism management strategies, ensuring that tourism activities contribute positively to the blue economy by preserving coastal ecosystems and respecting local cultures. This promotes sustainable tourism and enhances the long-term viability of tourism destinations.

The study underscores the importance of environmental conservation efforts by raising awareness of the environmental consequences of certain activities like land reclamation and sand mining. This informs policy advocacy by environmental organisations and conservationists, aligning with broader sustainable development goals.

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Conflict of Interest Statement

The authors declare that they have no conflict of interest.

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