IOP Conference Series: Earth and Environmental Science

PAPER • **OPEN ACCESS**

The examination of conservation awareness, future sustainability, and conservation readiness on tourists' attitude towards marine conservation behavior in Malaysia's Marine Parks

To cite this article: S A Abdul Latif *et al* 2024 *IOP Conf. Ser.: Earth Environ. Sci.* **1366** 012035

IOP Conf. Series: Earth and Environmental Science **1366** (2024) 012035 doi:10.1088/1755-1315/1366/1/012035

The examination of conservation awareness, future sustainability, and conservation readiness on tourists' attitude towards marine conservation behavior in Malaysia's Marine Parks

S A Abdul Latif[1*], F N Yazid[2], B Z M Farudz[3]

[1,2] Department of Tourism, Kulliyyah of Languages, International Islamic University Malaysia, Pagoh, Muar, Johor, Malaysia.
[3] International Institute for Halal Research and Training, International Islamic University Malaysia, Jalan Gombak, Selangor, Malaysia.

*Email: iium_samshul@iium.edu.my

Abstract. This study examines the relationship between tourists' conservation awareness, future sustainability, and conservation readiness towards attitude toward marine conservation behavior in Malaysia's marine parks. This study adopted the quantitative convenience sampling approach, with 202 samples obtained via an online questionnaire. IBM-SPSS version 26 was used to process and analyze the data. Multiple Regression Analysis was used to test the relationships between variables. The findings suggest that future sustainability and conservation readiness are significant factors in predicting tourists' attitudes towards marine conservation behavior. In contrast, conservation awareness was found to be insignificant. This study found that respondents have a positive attitude towards marine conservation behaviors, but awareness does not always translate into action. This study found that respondents support marine conservation and marine park sustainability. Awareness of conservation efforts does not necessarily lead to positive attitudes towards conservation behavior. The impact of conservation readiness on attitude emphasizes the need for preparation and education in conservation. The unexpected possible relationship between education and conservation behavior warrants further investigation. These findings highlight the importance of focused conservation education and the necessity to consider many elements when increasing stakeholder marine conservation behavior.

1. Introduction

The marine tourism potential of Malaysia has expanded over the last two decades, in part due to the implementation of the National Ecotourism Plan 2016-2025 [1]. The focus of the plan is on marine parks, islands, beaches, waste disposal, healthcare, and safety measures. Through this plan, Malaysia underscores its unwavering commitment and acknowledges the importance of marine tourism as an economic driving force. However, it is crucial to recognize the significance of tourists as active contributors to conservation endeavors. Their involvement goes beyond mere participation; it involves playing a role in decisions that shape the development of marine parks and actively engage in a range of conservation activities.

The sense of ownership and responsibility among stakeholders toward their marine resources can be established through their involvement in conservation efforts. This approach ensures sustainability and fosters a deeper connection between the tourists, local communities and the natural environment.

Encouraging tourists to participate in marine park conservation decisions could lead to inclusive and well-rounded strategies for preserving Malaysia's marine biodiversity, leading to a sustainable economic and environmental ecosystem. However, previous studies have suggested that stakeholders may have limited awareness and understanding with regards to conservation efforts and environmental impact from tourism-related activities [2,3,4], particularly in marine parks.

This study delves into the interplay between tourists' awareness of conservation, their comprehension of the future sustainability of marine parks, and their readiness to contribute to conservation efforts. The aim is to discern how these factors collectively shape tourists' attitudes towards marine conservation behavior within Malaysia's marine parks.

2. Literature review

2.1. Marine parks in Malaysia

Marine Protected Areas (MPAs) are coastal and sea zones spatially limited by various legislation and regulations to manage, conserve, and preserve marine natural resources and biodiversity. Depending on their location, MPAs are established in Malaysia by several gazettes, including the Federal Act and State Enactment/Ordinance, which fall under different administrative jurisdictions. In Peninsular Malaysia, the Marine Park Department under the Ministry of Natural Resources and Environment manages the 42 marine parks. The Sabah Parks Enactment governs the five marine parks in Sabah, while in Sarawak, the National Park and Reserve Ordinance has designated three marine parks. Among the factors used to identify MPAs are anthropogenic hazards, biodiversity preservation, and species protection. Most MPAs in Malaysia are available to the public to enjoy and appreciate, but with rules and regulations in place to ensure resource conservation.

2.2. Variables

The variables used in this study are conservation awareness, future sustainability, conservation readiness, and attitude towards marine conservation behavior as follows:

2.2.1. Conservation awareness. Tourists can affect the travel industry through their consumption, so it is crucial to understand their engagement in conservation programs. Conservation efforts can be more effective if the human and social components of environmental challenges are better understood by all stakeholders [5]. Conservation programs that involve citizen scientists and local stakeholders are more likely to succeed due to their ability to engage traditional and native understanding, encourage conservation-minded behavior, foster relationships, and increase the legitimacy of the science and data used [6]. Visitors more aware of nature can contribute to its conservation by changing their attitudes and actions, strengthening political support, and contributing financially [7].

Though well-managed MPAs are tools for conservation [8], conversation programs must be aimed at educating stakeholders over extended periods if they will effectively maintain conservation efforts relevant and sustainable [9]. The effects of such initiatives on the public's awareness, as well as actions, should be periodically tracked. This ensures that changed views and behaviors linger with individuals even years after the program has concluded [9].

2.2.2. Future sustainability. The expansion of ecotourism is underpinned by three essential elements: climate change, landform, and environmental norms. Ecotourism can foster environmentally conscious conduct, generate economic benefits for the local economy, and contribute to environmental sustainability. Economic sustainability refers to the ability of an economy to enact strategies that promote enduring economic growth while benefiting the community's social and environmental aspects. Hence, successful sustainable management is contingent upon the continued engagement of stakeholders who comprehensively understand the urgency of conservation [10]. Sustainability requires carefully managing the economy, society, and environment to promote long-term growth and benefit all stakeholders, including tourists [5]. This includes involvement in conservation efforts, particularly in

marine management, to ensure effective and sustainable practices are implemented.

2.2.3. Conservation readiness. For environmental interventions to be effective, readiness is essential regarding core, technological, human resources, and motivational aspects, among others. Tourists and other stakeholders must actively identify problems, understand barriers, and collaborate on appropriate solutions. This approach makes environmental interventions more likely to succeed and benefit the stakeholders and environment [11].

The degree of readiness is of significant relevance as it corresponds to the availability of suitable interventions tailored to each stage of readiness. The levels of awareness of a particular topic have the potential to fluctuate. In cases where a community is less prepared for intervention, interventions at a higher level probably will not succeed [11].

The ability to recognize environmental concerns, their sources and impacts, and the necessary facts and concepts for elucidation indicate one's environmental competence [12]. Four key elements warrant emphasis in assessing the local community's preparedness for a given program. The four aspects identified by [13] include i) core preparedness, ii) technology readiness, iii) human resources, and iv) motivational readiness. Community members' involvement is crucial in problem identification and ownership, as well as in recognizing potential hurdles within their own culture and context. Additionally, collaboration among community members is vital in creating interventions that align with their cultural backgrounds and level of preparedness [11].

2.2.4. Attitude towards marine conservation behavior. Conservation attitudes are psychological measures of program effectiveness. Measuring conservation attitudes has been a commonly employed psychological tool in social science research on conservation [14]. Positive attitudes toward conservation can influence responsible tourists' behavior and environmental education [15]. It can also influence to empower marginalized groups for effective collaboration.

The behaviors and choices of tourists can vary due to the engaging, intangible, and diverse nature of tourism products. The names "ethical travellers", "sustainable travellers", "green travellers", and "ecotourists" are alternate classifications used to describe those who engage in responsible travel practices [12]. The social standing of conscientious travelers may be enhanced when they perceive that their environmentally friendly actions allow them to be associated with specific social groups [12].

2.3. Conceptual framework

The Tripartite Model of Attitudes has been widely used in various research fields, including social psychology, consumer behavior, and health behavior [16,17]. It provides a comprehensive framework for understanding the formation and expression of attitudes, considering the affective, behavioral, and cognitive aspects that contribute to individuals' attitudes and subsequent actions.

Also known as the ABC (Affect-Behavior-Cognition) theory, the Tripartite Model of Attitudes highlights the three components of the theory: affect (emotions), behavior, and cognition (thoughts and beliefs). The theory emphasizes the interconnectedness of these components and their influence on individuals' attitudes and subsequent behavior.

The affective component of this theory focuses on emotions and how they could influence behavior. Individuals may have emotional responses in marine conservation, such as empathy, concern, or a personal connection to marine ecosystems. These emotions can shape their attitude towards marine conservation behavior. For example, individuals with a strong emotional connection to marine life may be more likely to engage in conservation behaviors.

Future sustainability, conservation awareness, and conservation readiness can all evoke emotional responses in individuals. For example, individuals who know the importance of marine conservation and are ready to engage in conservation behavior may experience positive emotions such as enthusiasm, passion, or a sense of responsibility. On the other hand, individuals who lack awareness or readiness may experience indifference or apathy. These affective responses can influence their attitude towards marine conservation behavior.

The cognitive component of this theory focuses on thoughts, beliefs, and attitudes. In this framework, conservation awareness and conservation readiness represent cognitive factors. Conservation awareness refers to individuals' knowledge and understanding of the importance of marine conservation, while conservation readiness relates to their preparedness and willingness to take action for conservation efforts. These cognitive factors shape individuals' attitudes towards marine conservation behavior.

The following is the study's conceptual framework:

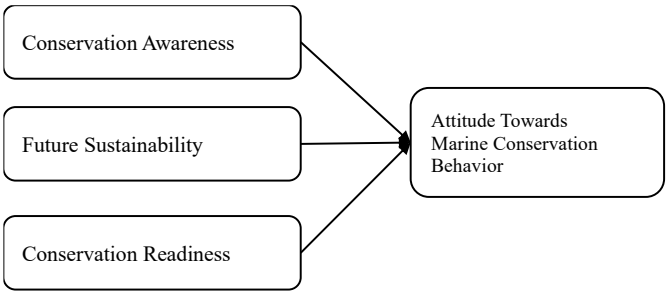

Figure 1. The relationship between conservation awareness, future sustainability, and conservation readiness on attitude towards marine conservation behavior.
Source: [5]

2.4. Research hypotheses

Below are the proposed hypotheses:
H1 Conservation awareness has a positive influence on attitude towards marine conservation behavior.
H2 Future Sustainability has a positive influence on attitude towards marine conservation behavior.
H3 Conservation readiness has a positive influence on attitude towards marine conservation behavior.

3. Methodology

This study adopted a quantitative approach. Following many previous tourism-related studies [18,19], the data was collected using convenience sampling through the online questionnaire (Google Form) distributed to social media platforms such as Facebook, WhatsApp and Instagram. The inclusion criteria set in this study is being a Malaysian who has visited any marine park in Malaysia. The data collection period started on 9th November 2022 and ended on 13th December 2022. The targeted number of respondents was at least 200 [20].

IBM-SPSS version 26 was used to process and analyze the data. Multiple Regression Analysis was used to test the relationships between conservation awareness, future sustainability and conservation readiness on attitude towards marine conservation behavior.

4. Finding and analysis

The total sample obtained was 202 participants. The survey comprised 44 males (21.8%) and 158 females (78.2%), with 91% aged between 20 and 49. The majority of respondents (96%) have tertiary education. A significant portion (55%) of the participants hailed from Kuala Lumpur and Selangor. Students make up 47.5% of the respondents, while 26.2% are employed in the private sector. Those working in the government sector constitute 10.9%, while 8.9% are self-employed. The remaining 5% were unemployed, and the remaining 0.5% were from non-government organizations. Almost half of the respondents (49%) fell into the income group of RM 0 to RM 1,000 (USD 0 – USD 227) per month. Whereas for the RM 1,001 – RM 2,500 (USD 228 – USD 568) and RM 2,501 – RM 5,000 (USD 569 – USD 1,136) groups, 17.8% respectively. Lastly, for the RM 5,001 (USD 1,137) and above group, 15.3%[1].

[1] The average monthly salary in Malaysia varies depending on industry, experience, and location. According to the Department of Statistics Malaysia, the average monthly salary in Malaysia was around RM 2,500 (approximately USD 620) in 2020. However, salaries can range from around RM 1,000 to over RM 5,000 per month, depending on the job and location.

Regarding education, 68.3% of the respondents have a university degree or above, 27.7% have a certificate or higher diploma, 3.5% have secondary education, and 0.5% have primary education. Based on the responses, 73% of the respondents have been to Terengganu Marine Park, 38.4% to Pahang Marine Park, 20.2% to Johor Marine Park, 14.1% to Kedah Marine Park and 5.1% to Labuan Marine Park. Regarding visit frequency, 66.8% visited at least one marine park yearly, 14.4% visited twice yearly, 8.9% visited more than five times yearly, and 9.9% categorized as others. The descriptive statistics are presented in Table 1 as follows:

Table 1. Mean, standard deviation and reliability of independent and dependent variables

Variables	Mean	Std. Deviation	Reliability
ATC	4.1502	.75310	.752
CA	3.8193	.78395	.789
FS	4.6576	.43582	.831
CR	2.8131	.94634	.740

Note: CA - Conservation Awareness, FS - Future Sustainability, CR - Conservation Readiness. Dependent Variable: Attitudes towards Marine Conservation Behavior

4.1 Multiple regression results

The R-square value for the model described 32% of the variance in attitude towards conservation. The tolerance values of independent variables are more than .10, while the VIF values are less than 10, suggesting no multicollinearity issue as presented in Table 2 below.

Table 2. Multiple regression results

Variables	Std. Coef.	T-values	Sig.	Tolerance	VIF	Decision
CA	.047	.738	.461	.828	1.208	H1 Not Supported
FS	.295	4.987	.000	.964	1.038	H2 Supported
CR	.471	7.486	.000	.854	1.171	H3 Supported

Note: CA - Conservation Awareness, FS - Future Sustainability, CR - Conservation Readiness. Dependent Variable: Attitudes towards Marine Conservation Behavior

4.2 Hypotheses testing

The results show a robust positive relationship between future sustainability and attitudes towards marine conservation behavior, with a coefficient of .295 and a p-value of .000. H2 is supported and accepted. The results demonstrate a robust positive relationship between conservation readiness and attitudes towards marine conservation behavior, with a coefficient of .471 and a p-value of .000. H3 is supported and accepted. The results indicate no relationship between conservation awareness and attitudes towards marine conservation behavior, as the coefficient value is .047 with a p-value of.461. H1 is rejected.

Based on the results, the respondents understand and have a positive attitude toward marine conservation behaviors and their linkages with the marine parks' future sustainability from the socio-economic and environmental perspectives. This finding is similar to a previous study [5]. Interestingly, the respondents also appear to be aware of marine conservation efforts in marine parks; however, this does not relate to their attitude toward conservation behavior. Despite the respondents' low level of conservation readiness, it positively influenced their attitude toward conservation behavior. This suggests that the respondents need more preparation to be involved and co-manage marine parks' conservation efforts, supporting previous studies suggesting that conservation education must be given to all stakeholders, including tourists [4,5].

An earlier study established a connection between environmental awareness and higher education, suggesting that individuals with higher education levels are more inclined to contribute to conservation efforts [21]; however, the results here suggest otherwise. On the contrary, the results of this study suggest a different trend. The findings indicate that education level does not necessarily correlate with attitudes towards marine conservation behavior. This highlights the complexity of the relationship between

education, awareness, and conservation behavior, suggesting the need for further exploration and understanding in this area.

The respondents demonstrate awareness of marine conservation efforts in marine parks. However, it is noteworthy that this awareness does not directly relate to their attitude towards conservation behavior. This finding suggests that while awareness is essential, it may not be the sole determinant of individuals' attitudes towards engaging in conservation behavior.

The results indicate that the respondents have a positive attitude towards marine conservation behaviors and recognize their importance for the future sustainability of marine parks. This aligns with a previous study [5], suggesting consistency in the understanding and attitudes towards marine conservation.

Despite the respondents' low level of conservation readiness, it was found to influence their attitude towards conservation behavior. This implies that individuals may have a positive attitude towards conservation behavior, even if they are not fully prepared or equipped to participate actively. This highlights the need for further preparation and education to enhance conservation readiness among stakeholders, including tourists, as suggested by previous studies [4,5].

5. Conclusion

This study examined the connections between future sustainability, conservation readiness, awareness, attitudes towards marine conservation behavior. This study identified positive links between future sustainability and conservation readiness, which both associated with positive attitudes. However, no significant relationship was found between conservation awareness and attitudes. In contrast to previous findings on links between education and conservation attitudes, the study suggests a more complex relationship that warrants further investigation. Notably, respondents displayed a consistent positive attitude towards marine conservation, even with a lower level of readiness, indicating a potential gap between awareness and active participation. The study emphasizes the ongoing need for educational efforts and readiness initiatives targeting stakeholders, particularly tourists, to enhance conservation readiness and foster positive attitudes towards marine conservation behavior.

6. Study limitation

Future research could aim for a balanced sample ratio between gender, age, and income groups. Using qualitative interview sessions would provide more details to support the results of this study. Future studies could also include other related variables such as social norms, political will, environmental education or environmental knowledge. Other theoretical frameworks and statistical approaches could also be considered.

7. Implication

This study reveals that respondents possess a positive attitude towards marine conservation behaviors and their connection to the future sustainability of marine parks. While awareness of conservation efforts exists, it does not directly translate into attitudes towards conservation behavior. The influence of conservation readiness on attitude highlights the importance of preparation and education for effective engagement in conservation efforts. The unexpected possible relationship between education level and attitudes towards conservation behavior calls for further investigation. These findings emphasize the significance of targeted conservation education initiatives and the need to consider multiple factors when promoting marine conservation behavior among stakeholders.

While respondents generally exhibit a positive attitude toward marine conservation behaviors, there is a notable gap between awareness of conservation efforts and the actual attitudes towards conservation behavior. The study underscores the significance of preparation and education in bridging this gap and fostering effective engagement in conservation efforts. Additionally, the unexpected relationship between education level and attitudes towards conservation behavior highlights the need for further investigation and suggests that conservation education strategies should be tailored to consider diverse factors among stakeholders. In summary, the main implication is the crucial role of education in

promoting positive attitudes related to marine conservation.

References

[1] Ministry of Tourism and Culture Malaysia 2016 National Ecotourism Plan 2016-2025 Retrieved 25 January 2024 from https://123dok.com/document/y491xxkz-national-ecotourism-plan-volume.html
[2] Saleh M S and Hasan N N 2014 *Am J Tourism Manag* **3** 7
[3] Siti S I, Mohd Husba I and Grechkin S 2020 *Ecotourism Promotes Conservation Activity At Tourism Destinations*, ed Manohar M et al (Serdang - Universiti Putra Malaysia) p 99
[4] Ahmad-Kamil EI, Zakaria SZ, Othman M, Chen FL and Deraman MY 2024 *J Cleaner Prod* **3** 140554
[5] Abidin R, Mohd Zahari F and Osman N H 2019 *2nd Int Conf Management and Communication ICMC 2019,* 4-5 Sept 2019 Kuching Sarawak Malaysia
[6] Kelly R, Fleming A, Pecl G T, Von Gönner J and Bonn A 2020 *Philos Trans R Soc B Biol Sci* **375** 1814
[7] Clement C A, Henning J B and Osbaldiston R 2014 *J Sustain Dev* **46**
[8] Ward D, Melbourne-Thomas J, Pecl G T, Evans K, Green M, McCormack P C, Novaglio C, Trebilco R, Bax N and Brasier M J 2022 *Rev Fish Biol Fish* **32** 65
[9] Sakurai R and Uehara T 2020 *Conserv Sci Pract* **2** 167
[10] Sakurai R, Ota T and Uehara T 2017 *Biol Conserv* **209** 332
[11] Abdullah N A A and Halim N A 2018 *J Tourism Hosp Environ Manag* **3** 25
[12] Abdullah S I N W, Samdin Z, Ng S I and Ho J A 2019 *J Tourism Sust* **3** 6
[13] Khatun F, Heywood A E, Ray P K, Bhuiya A and Liaw S T 2016 *Int J Med Inform* **93** 49
[14] Nilsson D, Fielding K and Dean A J 2020 *Conserv Biol* **34** 93
[15] Masud M M, Kari F B, Yahaya S R and Al-Amin A Q 2014 *Ocean Coast Manag* **93** 7
[16] Fabrigar L R, MacDonald T K and Wegener D 2005 *Handbook of Attitudes* ed Albarracin D et al (New York - Routledge)
[17] Zhao M, Zhang H, Lin X, You E, Wang H and Lautenschlager N T 2023 *Int Psychogeriatr* **35** 29
[18] Abdul-Latif S A and Abdul Aziz H N 2021 *Handbook of Research on Technology Applications for Effective Customer Engagement* ed Mohd Suki, N (New York - IGI Global) p 76
[19] Abdul-Latif S A and Luqman Imzan H I 2023 *Int Conf of Responsible Tourism and Hospitality Proceeding (ICRTH) 2022* ed Ting H et al (1-3 Sept 2022 Kuching – Sarawak Research Society) pp 4–7
[20] Hair J F, Sarstedt M, Ringle C M and Mena J A 2012 *J Acad Mark Sci* **40** (3) 414
[21] Arin T and Kramer R 2002 *Ocean Coast Manag* **45** 171