

Sustainable Diving Tourism: The Role of Marketing, Environmental Concern, and Dive Master Dedication in Shaping Divers' Attitudes

Andi Hasbi

Politeknik Pariwisata Makassar, Makassar, Indonesia

Quratulain Syahirah Awang Ali

Faculty of Applied Social Sciences, Universiti Sultan Zainal Abidin, Gong Badak Campus, Malaysia

Muhammad Arfin Muhammad Salim

Makassar, Politeknik Pariwisata Makassar, Indonesia

Ahmad Ab

Politeknik Pariwisata Makassar, Makassar, Indonesia

Agus

Politeknik Pariwisata Makassar, Makassar, Indonesia

Nining Silvia Suni

Politeknik Pariwisata Makassar, Makassar, Indonesia

Anis Abdul Razak

Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, Kuala Nerus, Malaysia

Received: 16 October 2025. **Revision received:** 9 February 2026. **Accepted:** 4 May 2026

Abstract

This study investigates how sustainable tourism marketing practices and environmental concern influence divers' marine environmental consciousness and, subsequently, their attitudes toward sustainable diving tourism development. Drawing on the Elaboration Likelihood Model (ELM), the study distinguishes between central-route cues (eco-labels, green purchase behavior, and environmental concern) and peripheral-route cues (user-generated content and influencers) in shaping divers' pro-environmental cognition and attitudes. A quantitative research design was employed, with data collected from 185 certified divers using a structured questionnaire. The data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) to test direct, mediating, and moderating relationships among the study constructs. The results indicate that green purchasing behavior, influencer engagement, and environmental concern significantly enhance marine environmental consciousness, which, in turn, strongly predicts attitudes toward sustainable diving tourism development. Marine environmental consciousness also mediates the relationships among green purchase, user-generated content, environmental concern, and sustainable attitudes, highlighting its role as a cognitive bridge between marketing stimuli and attitudinal outcomes. In contrast, eco-labels and dive master dedication do not show significant effects, suggesting that sustainable attitude formation depends more on personal cognitive elaboration and credible persuasive cues than on formal certification or operational roles. The findings have practical implications for policymakers, marketers, and dive operators, emphasizing the importance of authentic communication strategies that encourage divers to internalize environmental values. This study contributes to the literature by extending the application of the Elaboration Likelihood Model to marine tourism and by providing empirical evidence from an emerging diving-destination context.

Key Words: sustainable, marine environmental consciousness; Elaboration Likelihood Model (ELM); green marketing; environmental concern.

JEL Classification: M3-M31

Reference: Hasbi, A., Awang Ali, Q. S., Muhammad Salim, M. A., Ab, A., Agus, Suni, N. S., & Abdul Razak, A. (2026). Sustainable Diving Tourism: The Role of Marketing, Environmental Concern, and Dive Master Dedication in Shaping Divers' Attitudes. *Journal of Tourism and Services*, 17(32), 170-201. <https://doi.org/10.29036/fpp16339>

1. Introduction

Marine tourism has expanded rapidly worldwide, generating substantial economic benefits while simultaneously exerting increasing pressure on fragile marine ecosystems. Activities such as recreational diving, if not managed responsibly, can contribute to coral reef degradation, biodiversity loss, and long-term sustainability challenges (Fahlevi, 2023). Consequently, understanding how tourism-related communication and environmental concern shape tourists' pro-environmental attitudes has become a critical issue in sustainable tourism research. Although government regulation and conservation policies remain essential mechanisms for mitigating environmental harm, their effectiveness is often constrained by limited enforcement capacity and reliance on tourists' voluntary compliance, particularly in emerging marine destinations (Bergseth et al., 2023; Di Franco et al., 2016; Garcia Rodrigues et al., 2024). In this context, sustainable tourism marketing plays a crucial role by influencing how environmental responsibility is communicated, interpreted, and internalized by tourists, thereby complementing regulatory approaches.

Marine tourism has become one of the fastest-growing sectors in Indonesia, particularly in island regions such as South Sulawesi, where diving destinations like Kapoposan are increasingly attracting both domestic and international visitors. Indonesia recorded approximately 14 million international tourist arrivals in 2024, up from 12 million in the previous year (Indonesia Statistics Central, 2025). At the regional level, the Central Statistics Agency (BPS) of South Sulawesi reported that domestic tourist (wisnus) trips reached 24.659 thousand between January and August 2024, representing a 37.5 percent increase compared to the same period in 2023, with Makassar City identified as the most visited destination (Said, 2024). While the expansion of diving tourism generates important economic opportunities for local communities, it simultaneously raises concerns regarding ecological degradation, including coral reef damage, marine litter, and declining biodiversity (Cohen, 2024). The central challenge, therefore, lies in balancing tourism growth with marine ecosystem preservation. This context underscores the urgent need to examine how sustainable tourism marketing practices and environmental awareness can shape positive attitudes toward sustainable diving tourism development.

Despite growing attention to marine conservation, many tourism destinations in Indonesia continue to exhibit limited adoption of sustainability-oriented marketing practices, including limited use of eco-labeling and insufficient integration of environmental messages into tourism promotion (Ismail, 2024; Yaumidin & Zuas, 2021; Sawir et al., 2024). At the same time, tourists' consumption-related behaviors, such as green purchasing decisions, reliance on user-generated content, and responsiveness to social media influence, remain underexplored in shaping environmentally responsible behavior in diving destinations (Aziz & Niazi, 2023; Kroon Josefsson, 2024). These gaps are particularly critical in marine tourism contexts, where divers' attitudes and behaviors directly affect fragile ecosystems.

Moreover, dive masters often serve as key intermediaries between divers and the marine environment, playing an important role in guiding behavior, reinforcing environmental norms, and promoting responsible diving practices (Mellen, 2021; Thapa et al., 2005). However, existing evidence suggests that dive masters differ substantially in their commitment to sustainability, with some actively promoting environmental protection while others remain less engaged. Despite their potential influence, limited empirical research has examined how dive master expertise and dedication interact with sustainable marketing efforts and tourists' environmental concern to shape divers' environmental consciousness (Allkins et al., 2021; Garcia-Bustos, 2025; Yadav et al., 2024). This lack of integrative

research highlights a critical gap in understanding the mechanisms through which sustainable diving tourism can be effectively developed in Indonesia and comparable marine tourism destinations.

To address this gap, this study introduces marine environmental consciousness as a mediating construct, capturing how social influence, personal norms, and environmental identity shape divers' sustainable attitudes. At the same time, dive master expertise is examined as a moderating factor that strengthens or weakens the pathway between environmental consciousness and sustainable diving tourism development attitudes. This approach provides a fresh perspective on how sustainable tourism marketing and environmental concern can work together to influence divers' perceptions and behavior in fragile marine destinations. Furthermore, this research integrates different elements of sustainable tourism marketing, such as eco-labeling, green purchasing, user-generated content, and influencer engagement, with the broader notion of environmental concern to provide a comprehensive view of divers' attitudes. By focusing on Kapoposan, South Sulawesi, the study not only deepens understanding of sustainable diving tourism in Indonesia but also offers practical insights for policymakers, tourism operators, and dive masters.

Even this study is empirically situated in Kapoposan, South Sulawesi, the context reflects challenges common to many emerging marine tourism destinations worldwide, including balancing conservation with tourism growth, managing diver behavior in fragile reef systems, and implementing sustainability-oriented marketing strategies. Kapoposan represents a typical small-island diving destination in the Global South, where institutional capacity, environmental awareness, and market-driven sustainability practices are still evolving. As such, insights derived from this setting offer relevance for similar marine destinations across Southeast Asia and other developing coastal regions. Moreover, although prior studies have examined sustainable tourism behavior (Li et al., 2024; Wut et al., 2023), limited attention has been given to the cognitive mechanisms through which sustainable tourism marketing and environmental concern influence tourists' attitudes in marine contexts. In particular, empirical research integrating marketing cues, environmental consciousness, and attitudinal outcomes among divers remains scarce, especially in emerging marine tourism destinations. This study adopts a mediation and moderation framework to address this problem. Marine environmental consciousness is conceptualized as a mediating mechanism that explains how sustainability-oriented marketing cues and environmental concern translate into supportive attitudes toward sustainable diving tourism development. Without such cognitive internalization, sustainability messages may remain superficial and fail to generate lasting attitudinal change. In addition, dive master dedication is examined as a moderating condition to assess whether on-site professional guidance strengthens or weakens the influence of environmental consciousness on sustainable attitudes. Together, this approach allows the study to move beyond direct-effect models and to explain how, why, and under what conditions communication leads to meaningful attitudinal outcomes.

Moreover, drawing on the Elaboration Likelihood Model (ELM), this study distinguishes between central-route cues (e.g., eco-labels, green purchase behavior, environmental concern) and peripheral-route cues (e.g., user-generated content and influencers) to explain how divers process sustainability-related information. Accordingly, the aim of this study is to examine how sustainable tourism marketing practices and environmental concern influence marine environmental consciousness and, subsequently, sustainable diving tourism development attitudes. Empirically, the study focuses on Kapoposan, South Sulawesi, an emerging diving destination facing sustainability challenges common to many marine tourism areas. The study contributes theoretically by extending the application of ELM to marine tourism contexts and practically by offering insights for policymakers, marketers, and dive operators on how to design effective communication strategies that foster environmentally responsible diving behavior.

2. Literature review

2.1 Underpinning theory - Elaboration Likelihood Model (ELM)

The Elaboration Likelihood Model (ELM), developed by Petty and Cacioppo in the 1980s, explains how individuals process persuasive messages through two distinct cognitive routes: the central route and the peripheral route (Petty & Cacioppo, 1986). Under the central route cues, individuals engage in effortful and systematic processing of information, carefully evaluating the quality, relevance, and strength of arguments (Wagner & Petty, 2022). This route is typically activated when individuals possess high motivation and ability to process information, resulting in more stable, enduring, and resistant attitude change. In contrast, Tseng and Ou (2025) claimed that the peripheral route cue operates when individuals have lower motivation or limited cognitive resources, leading them to rely on heuristic cues such as source credibility, social influence, emotional appeal, or message attractiveness rather than substantive argument evaluation. Attitudes formed via the peripheral route are generally more temporary and context dependent. ELM has been widely applied across marketing (Srivastava & Saini, 2022), psychology (Jayawardena, 2021), and tourism studies (Cao et al., 2024) to explain how different communication strategies influence decision-making and behavioral intentions.

Grounded in the Elaboration Likelihood Model, this study adopts ELM as the overarching theoretical framework to explain how sustainability-related information is processed by divers in marine tourism contexts. In sustainable marine tourism, ELM provides a particularly relevant lens because divers vary in their level of environmental involvement, motivation, and exposure to sustainability messages. Within this framework, eco-labels, green purchase behavior, and environmental concern are conceptualized as central-route cues, as they require deliberate cognitive evaluation, personal relevance, and reflection on long-term environmental consequences. When divers actively assess eco-certifications, intentionally choose environmentally responsible operators, or possess strong concern for marine issues, they are more likely to engage in central-route processing, leading to deeper internalization of sustainability values.

Conversely, user-generated content and influencers are positioned as peripheral-route cues, as they primarily operate through social proof, emotional resonance, and heuristic processing rather than detailed argument scrutiny (Panopoulos et al., 2022). In the context of diving tourism, visually appealing content, peer endorsements, or influencer narratives may shape perceptions and attitudes even in the absence of extensive cognitive elaboration. However, the persuasive impact of such peripheral cues depends on their credibility and perceived authenticity. In this study, marine environmental consciousness is conceptualized as a cognitive outcome of message elaboration, capturing the extent to which both central and peripheral cues are internalized into social influence, personal norms, and environmental identity. Acting as a mediating mechanism, marine environmental consciousness explains how sustainability-oriented marketing cues and environmental concern are transformed into supportive attitudes toward sustainable diving tourism development. Furthermore, dedicated dive masters are theorized to reinforce central-route processing by providing on-site guidance, environmental education, and normative reinforcement, thereby strengthening the translation of environmental consciousness into pro-sustainability attitudes.

2.2 Sustainable tourism marketing

Sustainable tourism marketing refers to the strategic promotion of tourism products, services, and destinations in ways that integrate environmental protection, social responsibility, and long-term economic sustainability (Al-Jawahry et al., 2022; Baena & Cerviño, 2024; Svitlichna et al., 2024). Unlike conventional tourism marketing, which often prioritizes visitor volume and short-term economic gains, sustainable tourism marketing emphasizes responsible consumption, environmentally conscious decision-making, and the preservation of natural and cultural resources (Abdellatif et al., 2024; Devkota et al., 2023; Gupta et al., 2024). In marine tourism contexts, such marketing plays a critical role in

communicating reef conservation, responsible diving practices, and support for local communities, thereby shaping tourists' environmental awareness and behavioral intentions (Forrest et al., 2023).

Within sustainable tourism marketing, different communication mechanisms are used to influence tourists' perceptions and attitudes. One commonly employed mechanism is eco-labeling, which provides certification or symbolic assurance that tourism products or services meet established environmental standards (Zhu & Song, 2025). In marine tourism, eco-labels applied to diving operators or marine-based services are intended to signal environmentally responsible practices, such as coral protection and waste reduction, thereby enhancing tourists' trust and confidence in sustainable offerings (Dias et al., 2024; Saber & Ali, 2025). However, the effectiveness of eco-labels is not always consistent, as tourists may lack sufficient understanding of certification schemes or question their credibility. When eco-labels are perceived as unclear or inauthentic, they may be dismissed as greenwashing, potentially undermining trust and weakening their influence on environmental consciousness (Pizzichini, 2024; Shabani Shojaei, 2024; Kovač et al., 2025).

Another important dimension of sustainable tourism marketing relates to green purchase behavior, which reflects tourists' preference for environmentally friendly products and services that minimize ecological harm (Majeed et al., 2022; Wijekoon & Sabri, 2021). In tourism settings, green purchasing may involve selecting eco-friendly accommodations, sustainable tour operators, or diving packages that actively support conservation initiatives (Kim et al., 2021). Although tourists often express favorable attitudes toward green consumption, prior research consistently highlights an attitude-behavior gap, whereby stated environmental concern does not always translate into actual purchasing behavior due to factors such as higher costs, limited availability, or perceived inconvenience (Fenitra et al., 2024; Mahmoud, 2024; Xu et al., 2024; Nastase et al., 2025). This gap is particularly salient in marine tourism, where divers may prioritize price or convenience over sustainability, underscoring the need to understand how marketing influences environmentally responsible consumption decisions.

In addition to firm-generated messages, sustainable tourism marketing is increasingly shaped by digital and social media communication, particularly through user-generated content (UGC) and influencers. UGC, including online reviews, photographs, and videos shared by tourists, plays a significant role in shaping destination image and influencing environmental awareness among potential visitors (Huang et al., 2022; Correia et al., 2025). Positive UGC that highlights marine conservation efforts or responsible diving practices can reinforce pro-environmental norms. However, unmanaged or misleading UGC may also normalize environmentally harmful behaviors, such as touching corals or feeding marine life, thereby weakening conservation messages (O'Leary et al., 2024; Sujatmiko et al., 2025; Zhang et al., 2021).

Similarly, influencers act as opinion leaders who can amplify sustainability narratives or, conversely, promote environmentally irresponsible tourism practices (Kilipiri et al., 2023). While sustainability-oriented influencers have the potential to raise awareness of marine protection and responsible diving, prior studies caution that influencer-driven tourism can also lead to destination overexposure and ecological stress when environmental responsibility is secondary to aesthetics or popularity (Tomazos, 2022; Babu et al., 2024). In marine tourism contexts, the dual nature of influencer marketing highlights the importance of examining how different forms of sustainable tourism marketing shape divers' environmental consciousness and attitudes toward sustainable diving tourism development.

Drawing on the Elaboration Likelihood Model (ELM), sustainable tourism marketing can be understood as a persuasive communication process through which tourists process sustainability-related information via different cognitive routes. According to ELM, central-route cues such as environmental concern, eco-label information, and green purchase messages require deeper cognitive elaboration, while peripheral-route cues such as user-generated content and influencers rely on heuristic and social signals (Lou & Yuan, 2021; Srivastava & Mittal, 2025). In marine tourism contexts, these cues shape divers' marine environmental consciousness, which subsequently influences their attitudes toward sustainable diving tourism development.

2.3 Environmental concern

Environmental concern refers to individuals' awareness of environmental problems and their willingness to support actions that mitigate environmental degradation (Zeng et al., 2023). In tourism contexts, environmental concern has been widely recognized as an important psychological antecedent of pro-environmental attitudes and intentions, including preferences for eco-friendly operators, support for conservation initiatives, and responsible behavior in natural settings (Fakfare et al., 2024). In diving tourism, environmentally concerned divers are more likely to recognize the ecological vulnerability of coral reefs and marine biodiversity, making them more attentive to sustainability-related information and messages.

From the perspective of the ELM context, environmental concern functions as a motivational factor that increases individuals' likelihood of engaging in central-route information processing. Tourists who are highly concerned about environmental issues are more inclined to carefully evaluate sustainability-related cues, such as conservation practices, ethical marketing claims, and responsible tourism guidelines, rather than relying solely on superficial or heuristic signals. As a result, environmental concern is expected to facilitate deeper cognitive engagement with sustainability messages, which may strengthen internalized environmental awareness rather than producing short-lived attitudinal responses.

However, prior research consistently highlights that environmental concern alone does not always translate into environmentally responsible behavior (Ghouse et al., 2025; Lopes et al., 2024). Tourists may express strong concern yet fail to act accordingly when faced with situational constraints such as cost, convenience, or the pursuit of leisure and enjoyment. In diving destinations such as Kapoposan, this gap is particularly critical, as divers may be environmentally aware but still engage in harmful practices, including physical contact with corals or improper waste disposal. This inconsistency suggests that environmental concern must interact with other influences, such as sustainable tourism marketing and situational cues, to transform general awareness into more stable and context-specific environmental consciousness.

2.4 Marine environmental consciousness as a cognitive mechanism

Marine environmental consciousness represents a more context-specific and internalized form of environmental awareness that encompasses individuals' values, norms, and sense of responsibility toward marine ecosystems (Zhang et al., 2023). Unlike general environmental concern, marine environmental consciousness focuses explicitly on ocean-related issues, including coral reef protection, marine biodiversity conservation, and responsible underwater behavior. In diving tourism, this construct is particularly salient, as divers directly interact with fragile marine environments, and their cognitive orientation can determine whether tourism activities promote sustainability or lead to ecological degradation.

Within the ELM framework, marine environmental consciousness can be understood as a cognitive outcome of information processing, emerging when sustainability-related messages are elaborated through the central route. When divers are motivated and able to process information deeply through exposure to credible marketing messages, personal concern, or meaningful experiential cues environmental awareness becomes internalized as a stable mental framework. This internalization strengthens attitudes toward sustainable diving tourism development, making them more resistant to counter-persuasion and more likely to guide consistent behavior.

Nevertheless, empirical studies suggest that even divers with relatively high awareness do not always behave sustainably (Hodeck et al., 2021). Factors such as peer influence (Nguyen et al., 2025), inadequate supervision, or the desire for memorable underwater experiences may override environmental considerations (Giglio et al., 2022). Moreover, marine environmental consciousness is shaped by multiple external and internal influences, including social norms, personal values, and environmental identity,

which vary across individuals and cultural contexts. For destinations like Kapoposan, where tourism growth must be balanced with reef protection, understanding how marine environmental consciousness is formed and activated is essential for designing effective interventions that translate awareness into sustainable diving tourism development attitudes.

2.5 Sustainable diving tourism development attitude

Sustainable diving tourism development attitude refers to divers' overall evaluation and support for the integration of environmental, social, and economic sustainability within diving activities and destinations. A positive attitude reflects acceptance of eco-friendly practices, appreciation of conservation efforts, and willingness to contribute to sustainability through responsible behavior and purchasing choices (Batool et al., 2025; Rusyani et al., 2021). Such attitudes are critical in shaping the long-term success of diving destinations, as they influence not only divers' behavior but also the demand for sustainable services and operators. In marine settings, divers with supportive attitudes toward sustainability are more likely to respect conservation guidelines and advocate for the protection of reefs.

However, forming strong, sustainable attitudes among divers is not straightforward. Studies indicate that while divers may express appreciation for environmental sustainability, their actions can contradict these values when faced with practical barriers such as higher costs, convenience, or limited availability of sustainable options (Mellen, 2021). In some cases, divers may view sustainability efforts as restrictive, limiting their freedom to enjoy the marine environment as they wish (Dong, 2025). This attitude-behavior gap highlights a challenge for destinations like Kapoposan, where operators must find effective ways to align divers' enjoyment with conservation needs. Additionally, there is a risk of conflicting interests between economic development goals and environmental preservation, which can influence how both operators and tourists perceive sustainable practices (Baloch et al., 2023; Khan et al., 2021). Addressing this gap is essential for developing strategies that strengthen divers' attitudes toward sustainability, ensuring that destinations like Kapoposan can thrive without compromising marine resources.

2.6 Conceptual framework and hypothesis development

Drawing on the Elaboration Likelihood Model (ELM), this study proposes that divers' attitudes toward sustainable diving tourism development are shaped through a cognitive process in which sustainability-related information is processed via central and peripheral routes. In marine tourism contexts, sustainable tourism marketing practices and environmental concern act as persuasive inputs that influence divers' marine environmental consciousness, which subsequently determines their support for sustainable tourism development.

Sustainable tourism marketing comprises multiple communication mechanisms that vary in their mode of influence. Eco-labels are widely used to communicate sustainability practices and to distinguish environmentally responsible tourism operators from conventional ones (Težak Damijanić et al., 2023). In marine tourism, eco-labels signal compliance with environmental standards and may enhance divers' awareness of the ecological consequences of their activities. However, previous studies also highlight scepticism and confusion regarding eco-label credibility, which can weaken their persuasive impact (Kovač et al., 2025). Despite these limitations, eco-labels are expected to positively influence divers' marine environmental consciousness by legitimizing sustainability practices. Accordingly, **H1a** proposes that eco-labels positively affect marine environmental consciousness.

Green purchase behavior reflects consumers' willingness to select environmentally friendly products and services, thereby aligning consumption decisions with sustainability values (Ahmad et al., 2022; Sharma, 2021; Streimikiene, 2023). Moreover, Recent studies have emphasized the growing role of sustainability-oriented and digitally enabled marketing strategies in guiding tourist decision-making and

supporting destination-level sustainability outcomes, particularly in emerging tourism contexts (Streimikiene, 2023). In tourism contexts, engaging in green purchasing indicates a heightened awareness of environmental responsibility, including in marine settings where divers choose eco-friendly operators or equipment. Nonetheless, research consistently identifies an attitude–behavior gap, as higher costs and limited availability may constrain green purchasing decisions (Kim & Lee, 2023). Even so, green purchasing represents an active form of environmental engagement and is expected to reinforce marine environmental consciousness. Thus, **H1b** suggests a positive relationship between green purchase behavior and marine environmental consciousness.

In addition to firm-generated sustainability messages, user-generated content (UGC) plays a critical role in shaping tourists' environmental perceptions. Prior studies demonstrate that UGC can enhance environmental awareness by sharing authentic experiences related to conservation and responsible tourism practices (Abu Hassan et al., 2024). In marine tourism, exposure to UGC highlighting coral reef preservation or eco-friendly diving practices may increase divers' awareness of environmental impacts. However, some research cautions that UGC can also normalize irresponsible behaviors when harmful practices are glamorized (Nyberg, 2024). Despite this duality, environmentally positive UGC is expected to strengthen marine environmental consciousness by reinforcing social norms, leading to **H1c**.

Similarly, influencers act as opinion leaders who shape attitudes and behaviors through destination promotion and lifestyle representation. Influencers who emphasize sustainability have the potential to raise awareness of marine conservation and responsible diving practices (Buvár et al., 2023; Sousa et al., 2025). In the diving industry, influencer endorsement of eco-friendly operators or reef conservation initiatives can enhance divers' awareness of marine protection. Although influencer marketing may sometimes contribute to destination overexposure, their credibility and reach suggest a potential positive influence on marine environmental consciousness, leading to **H1d**.

Beyond marketing-related cues, environmental concern represents an individual-level motivational factor that predisposes tourists toward environmental awareness. Tourists with higher environmental concern are more likely to support eco-friendly initiatives and behave responsibly at destinations (Lee et al., 2021; Nowacki et al., 2021). In marine contexts, divers who are concerned about issues such as coral bleaching and marine pollution are more attentive to the environmental consequences of their activities. Although the value–action gap remains a challenge (Franco & Ghisetti, 2022; Grunwald et al., 2025), environmental concern provides the foundational awareness necessary for developing marine environmental consciousness. Accordingly, **H1e** proposes a positive effect of environmental concern on marine environmental consciousness.

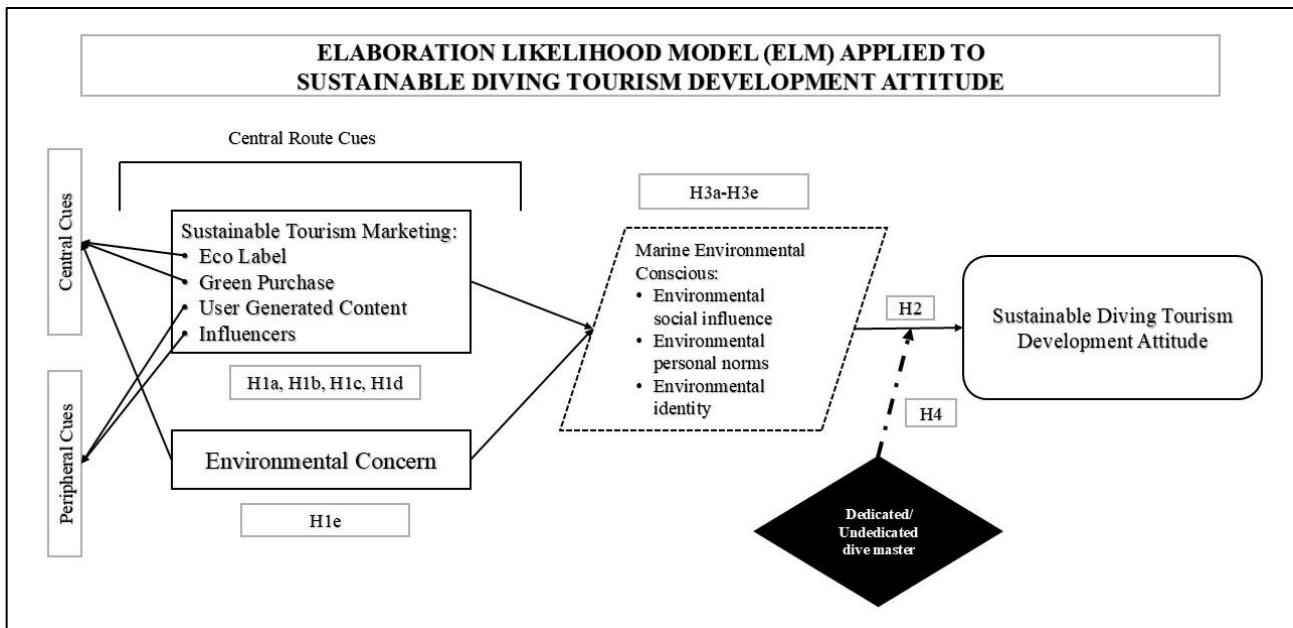
Marine environmental consciousness reflects divers' internalized awareness, values, and identity related to marine ecosystem protection. Previous studies indicate that individuals with higher environmental consciousness are more likely to support sustainable tourism practices and development initiatives (Kim et al., 2021). In diving tourism, divers who are socially influenced by environmental norms, who value marine protection, and who identify with sustainability are more likely to hold favorable attitudes toward sustainable diving tourism development. Despite evidence that awareness does not always translate into action due to weak enforcement or limited education (Mellen, 2021), marine environmental consciousness remains a key predictor of sustainability-oriented attitudes. Therefore, **H2** proposes that marine environmental consciousness positively influences sustainable diving tourism development attitude.

Furthermore, marine environmental consciousness is expected to mediate the relationships between sustainable tourism marketing practices, environmental concern, and sustainable diving tourism development attitude. While eco-labels, green purchasing, UGC, influencers, and environmental concern can raise awareness, their influence on sustainable attitudes often depends on whether these factors foster internalized environmental consciousness (Panopoulos et al., 2022). Previous research suggests that sustainability cues alone may be insufficient to shape lasting attitudes unless they activate personal norms and environmental identity (Pham et al., 2024; Srisathan et al., 2024). As such, marine environmental

consciousness acts as a psychological bridge translating external stimuli and individual values into sustainable attitudes, leading to **H3a–H3e**.

Finally, dive master dedication is considered as a contextual factor that may shape how marine environmental consciousness translates into sustainable diving tourism development attitudes. Dive masters often act as intermediaries between divers and the marine environment, and their commitment to sustainability practices may reinforce environmental awareness through education and role modeling (Mellen, 2021). Accordingly, **H4** proposes that dive master dedication moderates the relationship between marine environmental consciousness and sustainable diving tourism development attitude. Based on the development of hypotheses above, here is the proposed conceptual framework for this study:

Figure 1. **Proposed conceptual framework**



Source: Authors' Proposition

3. Methods

This study employed a quantitative research design to examine the relationships between sustainable tourism marketing, environmental concern, marine environmental consciousness, and sustainable diving tourism development attitude. Data were collected through a field survey conducted between March to September 2025 in Kapoposan, South Sulawesi, Indonesia. The study population consisted of certified recreational divers who had direct diving experience at the study site, ensuring that respondents possessed relevant contextual knowledge of marine tourism activities. Guided by a positivist research paradigm, this study sought to objectively test hypothesized relationships among the study constructs using empirical data. A quantitative approach was deemed appropriate due to the relatively large sample size and the study's focus on hypothesis testing and statistical generalization within the sampled context. A purposive sampling technique was applied to target individuals actively involved in diving tourism activities in Kapoposan. As the sampling was conducted within a single diving destination using a non-probability approach, the findings should be interpreted as exploratory and context-specific, rather than representative of the broader diver population in Indonesia or Southeast Asia.

Sample size adequacy was assessed using G*Power, which indicated a minimum required sample of 138 respondents, consistent with the increasing use of power analysis in social science research. A total of 300 questionnaires were distributed, of which 262 were returned, yielding a response rate of 87.3%. Following data screening procedures, 185 responses were retained for final analysis after excluding questionnaires with substantial missing data, straight-lining patterns, or inconsistent response behavior identified during preliminary screening. All study constructs were measured using reflective indicators, as the observed items were assumed to reflect the underlying latent variables. The questionnaire items were adapted from established studies (Lopez-Odar et al., 2020; Panopoulos et al., 2022; Santos-Roldán et al., 2020) (see Appendix 1) and contextualized to the marine tourism and diving setting. Responses were recorded using a five-point Likert scale ranging from strongly disagree to strongly agree.

The collected data were processed and analyzed using IBM SPSS Statistic (version 26) for data entry, coding, normality testing, and basic descriptive statistics, including frequencies, percentages, means, and standard deviations. To test the proposed hypotheses, the study employed Partial Least Squares–Structural Equation Modeling (PLS-SEM) using SmartPLS 4, an approach particularly appropriate for exploratory and prediction-oriented research involving complex model structures with mediating and moderating effects (Hair et al., 2021). Both the Reflective Measurement Model and Structural Model were employed to determine the explanatory power of the constructs. Path coefficients were used to examine the direct and indirect relationships among variables. In addition, a multigroup analysis (MGA) was conducted using a bootstrapping procedure to examine the conditional effect of dive master dedication on the relationship between marine environmental consciousness and sustainable diving tourism development attitude, rather than across the full structural model. PLS-SEM is particularly appropriate for such prediction-oriented research, as it emphasizes maximizing explained variance and assessing predictive relevance (Sharma et al., 2021). Consistent with this objective, the study reports key predictive evaluation criteria, including coefficients of determination (R^2), predictive relevance (Q^2), and effect sizes (f^2). These measures align with the analytical strengths of PLS-SEM, whereas covariance-based SEM (CB-SEM) is more suitable for strict theory confirmation and global model fit assessment (Hair et al., 2021), which was not the primary focus of this study.

4. Results

4.1 Demographic profiles

All respondents (100%, $n = 185$) had visited Kapoposan, South Sulawesi, ensuring that the findings are based on firsthand experiences of diving tourism in the area. The majority of respondents were residents (89.7%), while a smaller proportion were non-residents (10.3%), reflecting the predominance of domestic tourism with some international participation. Demographically, the sample was heavily skewed toward young adults aged 18–24 years (88.1%), with minimal representation from older age groups. In terms of marital status, most were unmarried (61.6%) compared to married respondents (38.4%), suggesting that younger and single individuals are more actively engaged in diving activities. Gender distribution further revealed a strong dominance of female respondents (87.6%), indicating greater female participation in diving tourism at this location.

The employment profile highlights that students formed the largest group (51.4%), followed by those employed in private companies (28.6%), with smaller proportions of unemployed individuals (8.6%), self-employed or business owners (5.9%), and public servants (5.4%). This suggests that diving tourism in Kapoposan appeals mainly to younger groups, particularly students and early-career professionals. Regarding travel frequency, most respondents reported being active travelers, with 33.0% traveling two to four times and 31.4% more than six times, while fewer traveled less than twice (19.5%) or five to six times (16.2%). This pattern indicates that visitors to Kapoposan are generally mobile,

frequent travelers who show strong interest in tourism and leisure activities. Table 1 summarizes the findings.

Table 1. Demographic profiles

Variable	Category	Frequency (n)
Visit to Kapoposan	Yes	185
Residency Status	Resident	166
	Non-resident	19
Age Group	18–24 years	163
	25–34 years	7
	35–44 years	3
	45–54 years	10
	55–64 years	1
	65 years and above	1
Marital Status	Unmarried	114
	Married	71
Gender	Female	162
	Male	23
Employment Status	Student	95
	Private company	53
	Unemployed	16
	Self-employed/Business owner	11
	Public servant	10
Travel Frequency	Below 2 times	36
	2–4 times	61
	5–6 times	30
	Above 6 times	58

Source: Authors' own elaboration

4.2 Reflective measurement model

This study assessed the reflective measurement analysis which consists of internal reliability, indicator reliability, convergent validity and discriminant validity. Table 2 and Figure 2 show the analysis.

Table 2. Measurement model assessment

Construct	Indicators	Outer Loadings	Composite Reliability	AVE	Cronbach Alpha
Sustainable Tourism Marketing a. Eco label	ECOLABEL1	0.790	0.896	0.640	0.886
	ECOLABEL2	0.837			
	ECOLABEL3	0.855			
	ECOLABEL4	0.763			
	ECOLABEL5	0.842			
	ECOLABEL6	0.700			
b.Green Purchase	GREENPURCHASE1*		0.801	0.613	0.789
	GREENPURCHASE2	0.708			
	GREENPURCHASE3	0.797			

	GREENPURCHASE4	0.839			
	GREENPURCHASE5	0.782			
c. User Generated Content	UGC1	0.827	0.870	0.634	0.856
	UGC2	0.863			
	UGC3	0.798			
	UGC4*				
	UGC5	0.714			
	UGC6	0.772			
d. Influencer	INFLUENCER1	0.767	0.894	0.635	0.885
	INFLUENCER2	0.796			
	INFLUENCER3	0.800			
	INFLUENCER4	0.877			
	INFLUENCER5	0.804			
	INFLUENCER6	0.730			
	INFLUENCER7*				
Environmental Concern	EC1	0.792	0.864	0.584	0.858
	EC2	0.763			
	EC3	0.770			
	EC4	0.708			
	EC5	0.759			
	EC6	0.791			
Marine Environmental Conscious	ES1	0.799	0.947	0.669	0.944
	ES2	0.755			
	ES3*				
	ES4*				
a. Environmental Social	ES5	0.726			
b. Environmental Personal Norms	EPN1	0.798			
	EPN2	0.782			
	EPN3	0.860			
c. Environmental Identity	EI1	0.872			
	EI2	0.870			
	EI3	0.829			
Sustainable Diving Tourism Development Attitude	SDT1	0.878	0.750	0.795	0.743
	SDT2	0.905			

N = 185

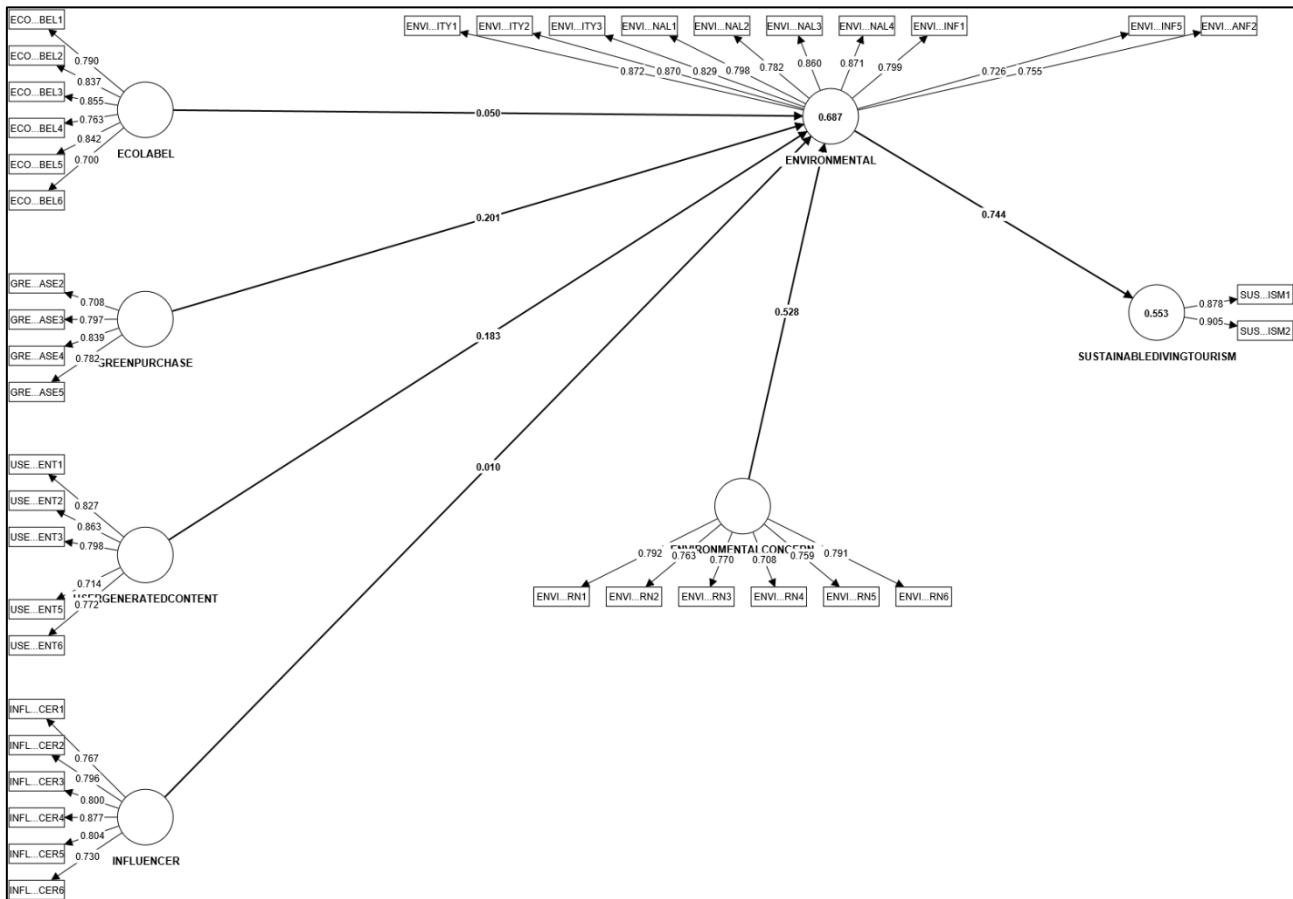
Note: Indicators marked with an asterisk (*) represent loadings below the recommended threshold of 0.70.

Source: Authors' own elaboration

Table 2 and Figure 2 present the reflective measurement model assessing the reliability and validity of the study constructs. The results show that all constructs achieved satisfactory levels of internal consistency, as indicated by Composite Reliability (CR) values exceeding 0.70, and Average Variance Extracted (AVE) values above 0.50, which confirm convergent validity. The construct Sustainable Tourism Marketing demonstrated strong reliability, with CR values ranging from 0.801 to 0.896 and AVE

values between 0.613 and 0.640. Similarly, Environmental Concern (CR = 0.864, AVE = 0.584) and Marine Environmental Consciousness (CR = 0.947, AVE = 0.669) also displayed good measurement quality. The Cronbach’s Alpha values across all constructs exceeded the threshold of 0.70, suggesting acceptable internal reliability and consistency among the measurement items.

Figure 2. Measurement model



Source: PLS-SEM Result

The outer loadings for most indicators exceeded the recommended level of 0.70, indicating that each item made a substantial contribution to its respective construct. A few indicators (marked with an asterisk) were removed due to low factor loadings after careful evaluation to ensure that their exclusion did not compromise the theoretical meaning or content validity of the constructs, thereby improving the overall reliability of the measurement model. The construct Sustainable Diving Tourism Development Attitude also exhibited strong factor loadings (0.878–0.905), with CR = 0.750 and AVE = 0.795, confirming its robustness as the dependent variable. Overall, the results validate that the measurement items reliably represent their underlying constructs, supporting the suitability of the reflective measurement model for further structural equation analysis.

Table 3. Model fit

Model Fit Index	Saturated Model	Estimated Model
SRMR	0.071	0.073
NFI	0.921	0.919

Source: Authors

The overall model fit (see Table 3) was further assessed using the Standardized Root Mean Square Residual (SRMR) and the Normed Fit Index (NFI), following recent PLS-SEM reporting guidelines (Hair et al., 2021). The SRMR values for both the saturated model (0.071) and the estimated model (0.073) were below the recommended threshold of 0.08, indicating an acceptable level of model fit. In addition, the NFI values for the saturated (0.921) and estimated (0.919) models exceeded the suggested cutoff of 0.90, indicating good comparative model fit. Collectively, these results suggest that the proposed measurement and structural models adequately represent the observed data and are suitable for hypothesis testing.

Table 4. VIF result

Structural Path	VIF
Eco Label → Environmental	2.119
Environmental Concern → Environmental	1.722
Green Purchase → Environmental	2.160
Influencer → Environmental	2.554
User-Generated Content → Environmental	2.611
Environmental → Sustainable Diving Tourism	1.000

Source: Authors

Common Method Bias (CMB) and multicollinearity were assessed using the full collinearity variance inflation factor (VIF) approach. As shown in Table 4, all VIF values ranged from 1.000 to 2.611, which are below the recommended threshold of 3.3. This indicates that multicollinearity is not a concern and suggests that common method bias is unlikely to significantly affect the results of this study. The Heterotrait-Monotrait Ratio (HTMT) is a modern criterion used in PLS-SEM to evaluate discriminant validity with higher precision. The Fornell Larker is also assessed in the analysis as summarized in Table 4 and 5, confirm the discriminant validity of all study constructs.

Table 5. HTMT result

	Ecolabel	Environmental	Environmental concern	Green purchase	Influencer	Sustainable diving tourism	User generated content
Ecolabel							
Environmental	0.647						
Environmental concern	0.640	0.829					
Green purchase	0.736	0.718	0.577				
Influencer	0.699	0.650	0.638	0.719			
Sustainable diving tourism	0.640	0.885	0.688	0.672	0.668		
User generated content	0.738	0.722	0.627	0.830	0.840	0.786	

Source: Authors

Table 6. Fornell larker result

Construct	Eco Label	Marine Environmental Consciousness	Environmental Concern	Green Purchase	Influencer	Sustainable Diving Tourism Development Attitude	User-Generated Content
Eco Label	0.800						
Marine Environmental Consciousness	0.598	0.818					
Environmental Concern	0.569	0.765	0.764				
Green Purchase	0.606	0.623	0.488	0.783			
Influencer	0.624	0.605	0.576	0.614	0.797		
Sustainable Diving Tourism Development Attitude	0.524	0.744	0.562	0.522	0.547	0.892	
User-Generated Content	0.650	0.662	0.566	0.698	0.741	0.637	0.796

Source: Authors

The HTMT results in Table 5 demonstrate that all correlation ratios between constructs are below the recommended threshold of 0.90, confirming good discriminant validity. The highest HTMT value observed was between Environmental Concern and Marine Environmental Consciousness (0.829), followed by User-Generated Content and Influencer (0.840), both within acceptable limits. These findings indicate that each construct in the model is conceptually distinct and measures a unique aspect of sustainable diving tourism. Therefore, the results validate that no multicollinearity or overlap exists among the study constructs, supporting the adequacy of the measurement model for further structural analysis. Discriminant validity was additionally assessed using the Fornell–Larcker criterion. As shown in Table 6, the square root of the AVE for each construct exceeded its correlations with all other constructs, indicating adequate discriminant validity. These findings are consistent with the HTMT results, further confirming the distinctiveness of the study constructs.

4.3 Structural model

After confirming the reliability of the measurement model, the subsequent phase focused on evaluating the structural relationships between the exogenous (independent) and endogenous (dependent) constructs. This stage involved testing the proposed hypotheses through several key statistical indicators, including the coefficient of determination (R^2), path coefficients (β), effect size (f^2), and predictive relevance (Q^2). The SmartPLS software was utilized to conduct this analysis, where the significance of each path was determined by examining regression coefficients (β) and their associated t -values derived from the PLS bootstrapping technique. Hypothesis testing was conducted using a bootstrapping procedure with [e.g., 5,000] resamples and two-tailed significance testing at the 5% level. Confidence intervals were examined to assess the significance of direct and indirect effects. A summary of the outcomes from this structural model assessment is provided in Table 7.

Table 7. Structural Model Assessment Result

Path Analysis	β	S.E.	T-Statistics	P-Values	f^2	R^2	Q^2	Results

Eco Label -> Marine Env Cons	H1a	0.050	0.057	0.877	0.381	0.004	0.687	0.450	Not supported
Green Purchase -> Marine Env Cons	H1b	0.201	0.078	2.567	0.010	0.060			Supported
UGC -> Marine Env Cons	H1c	0.183	0.069	0.152	0.879	0.035			Not Supported
Influencer -> Marine Env Cons	H1d	0.010	0.074	2.477	0.013	0.000			Supported
EC -> Marine Env Cons	H1e	0.528	0.058	9.093	0.000	0.518			Supported
Marine Env Cons -> SDT	H2	0.744	0.053	13.948	0.000	0.553	0.430	Supported	
Eco Label -> Marine Env Cons -> SDT	H3a	0.037	0.043	0.878	0.380			Not Supported	
Green Purchase -> Marine Env Cons -> SDT	H3b	0.150	0.059	2.513	0.012			Supported	
UGC -> Marine Env Cons -> SDT	H3c	0.136	0.057	2.379	0.017			Supported	
Influencer -> Marine Env Cons -> SDT	H3d	0.008	0.051	0.152	0.880			Not Supported	
EC-> Marine Env Cons -> SDT	H3e	0.393	0.049	8.059	0.000			Supported	

Source: Authors

The structural model results in Table 7 indicate that several hypothesized relationships were statistically significant, demonstrating strong support for most pathways between sustainable tourism marketing variables, marine environmental consciousness, and sustainable diving tourism development attitude. Among the independent variables, green purchase ($\beta = 0.201$, $t = 2.567$, $p = 0.010$), influencer marketing ($\beta = 0.010$, $t = 2.477$, $p = 0.013$), and environmental concern ($\beta = 0.528$, $t = 9.093$, $p < 0.001$) had significant positive effects on marine environmental consciousness. Although the relationship between influencer and marine environmental consciousness was statistically significant, the effect size was negligible ($\beta = 0.010$), indicating limited practical relevance. In contrast, eco-label ($\beta = 0.050$, $p = 0.381$) and user-generated content ($\beta = 0.183$, $p = 0.879$) were found to be insignificant, suggesting that these elements did not substantially shape divers' environmental consciousness in this context. In addition to statistical significance, effect sizes (f^2) were examined to assess the practical relevance of the structural relationships. The results indicate substantial variation in effect magnitude across paths. Environmental concern exhibited a large effect on marine environmental consciousness ($f^2 = 0.518$), highlighting its strong explanatory contribution. In contrast, green purchase ($f^2 = 0.060$) and user-

generated content ($f^2 = 0.035$) demonstrated small effect sizes, suggesting limited but meaningful influence. Eco label ($f^2 = 0.004$) and influencer ($f^2 = 0.000$) exhibited statistically detectable but practically negligible effects, indicating minimal explanatory power in this context. These findings highlighted the importance of interpreting statistical significance alongside practical relevance. The model recorded an R^2 value of 0.687 for marine environmental consciousness, indicating that approximately 69% of the variance in this construct is explained by the independent variables. In addition, the Q^2 value of 0.450 suggests strong predictive relevance, indicating that the model possesses adequate out-of-sample predictive capability rather than merely fitting the sample data. Given the theory-driven and parsimonious model specification, these results suggest meaningful explanatory strength with a low risk of overfitting in the context of exploratory research.

Mediation effects were assessed using bootstrapped indirect effects and confidence intervals, whereby a mediation effect was considered present when the indirect path was statistically significant, regardless of the significance of the corresponding direct effect. The results indicate that marine environmental consciousness significantly mediated the relationships between green purchase ($\beta = 0.150$, $t = 2.513$, $p = 0.012$), user-generated content ($\beta = 0.136$, $t = 2.379$, $p = 0.017$), and environmental concern ($\beta = 0.393$, $t = 8.059$, $p < 0.001$) and sustainable diving tourism development attitude. In contrast, no mediation effect was observed for the eco-label and influencer variables. Additionally, the direct relationship between marine environmental consciousness and sustainable diving tourism development attitude was found to be strong and significant ($\beta = 0.744$, $t = 13.948$, $p < 0.001$), explaining 55.3% ($R^2 = 0.553$) of the variance in sustainable diving tourism attitudes, with a Q^2 value of 0.430, confirming predictive accuracy. These findings highlight that divers' environmental awareness and values serve as key psychological mechanisms linking sustainable marketing practices and environmental concern to positive attitudes toward sustainable diving tourism development attitude in Kapoposan, South Sulawesi.

Following the recommendations of Shmueli et al. (2019), the predictive performance of the model was assessed using the PLSpredict procedure with a 10-fold cross-validation approach.

Table 8. Predictive assessment results (PLSpredict)

Items	Q^2 predict	PLS-SEM_RMSE	LM_RMSE
Environmentalidentity1	0.484	0.687	0.709
Environmentalidentity2	0.542	0.636	0.652
Environmentalidentity3	0.483	0.709	0.713
Environmentalpersonal1	0.387	0.822	0.895
Environmentalpersonal2	0.4	0.743	0.773
Environmentalpersonal3	0.505	0.718	0.778
Environmentalpersonal4	0.505	0.694	0.69
Environmentalsocialinf1	0.452	0.689	0.686
Environmentalsocialinf5	0.27	0.833	0.847

Environmentalsocilianf2	0.372	0.743	0.798
Sustainabledivingtourism1	0.288	0.867	0.936
Sustainabledivingtourism2	0.387	0.759	0.847

Source: Authors

The results (refer Table 8) indicate that all endogenous indicators demonstrated positive Q²_predict values, confirming the model’s out-of-sample predictive relevance. In addition, the prediction errors (RMSE) generated by the PLS-SEM model were lower than those of the linear benchmark model for the sustainable diving tourism development attitude indicators. These findings suggest that the proposed model exhibits adequate predictive power and is not merely a result of in-sample overfitting.

Table 9. Guassian Copula analysis

	β	P values
GC (ECOLABEL) -> ENVIRONMENTAL	-0.046	0.379
GC (GREENPURCHASE) -> ENVIRONMENTAL	0.007	0.478
GC (USERGENERATEDCONTENT) -> ENVIRONMENTAL	-0.105	0.254
GC (INFLUENCER) -> ENVIRONMENTAL	-0.207	0.129
GC (ENVIRONMENTALCONCERN) -> ENVIRONMENTAL	0.051	0.304
GC (ENVIRONMENTAL) -> SUSTAINABLEDIVINGTOURISM	0.051	0.302

Source: Authors

To assess potential endogeneity in the structural model, Gaussian copula analysis was conducted following the approach proposed by Park and Gupta (2012). Copula terms were generated for all key predictor variables and included in the model. The results (see Table 9) indicate that none of the copula paths were statistically significant ($p > 0.05$), suggesting the absence of endogeneity bias. These findings confirm the robustness of the structural model results and support the validity of the reported path coefficients.

Table 10. Multi-Group Analysis (MGA) result

	Difference (Dedicated - Not Dedicated)	1-Tailed (Dedicated Vs Not Dedicated) P Value	2-Tailed (Dedicated Vs Not Dedicated) P Value
Environmental -> Sustainable diving tourism	-0.103	0.843	0.313

Source: Authors

Moderation analysis was conducted using a multi-group analysis (MGA) approach in SmartPLS. Respondents were divided into groups based on dive master dedication (dedicated vs. not dedicated),

and differences in the structural relationships between the groups were examined using the bootstrapping MGA procedure. This approach allows for the assessment of whether the strength of the relationships differs significantly across groups, without estimating an explicit interaction term, and is appropriate when the moderator represents a categorical grouping variable.

Bootstrapping was performed using 5,000 subsamples with bias-corrected confidence intervals. Therefore, the MGA results indicate that Dive Master Dedication (as shown in Table 10) does not have a significant moderating effect on the relationship between Marine environmental consciousness and sustainable diving tourism development attitude. The difference between dedicated and non-dedicated groups was -0.103 , with one-tailed and two-tailed p -values of 0.843 and 0.313 , respectively both above the 0.05 threshold for significance. This suggests that the level of dive master dedication does not meaningfully change the strength or direction of the relationship; divers' environmentally conscious attitudes influence their support for sustainable diving tourism similarly, regardless of their dive master's level of dedication.

5. Discussion

5.1 Antecedents of marine environmental consciousness

The study tested five predictors of Sustainable Tourism Marketing including eco-label, green purchase, user-generated content, influencer, and environmental concern towards Marine Environmental Consciousness. Among these, green purchase, influencer, and environmental concern were significant, while eco-label and user-generated content were not. These results highlight the varying persuasive routes through which divers process sustainability messages, as explained by the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1986). From the ELM perspective, green purchase represents a central-route cue, requiring active cognitive processing and personal involvement. Divers who intentionally choose eco-friendly operators and services engage in evaluative reasoning consistent with sustainability principles. This conscious decision-making reflects higher elaboration likelihood, resulting in more stable and enduring pro-environmental attitudes (Ahmad et al., 2022; Majeed et al., 2022; Sharma, 2021). Similarly, environmental concern emerged as the strongest determinant of marine environmental consciousness, highlighting the importance of pre-existing issue involvement. Concerned individuals are more motivated to scrutinize environmental messages deeply, consistent with central-route persuasion that results in long-lasting attitudinal change (Lee et al., 2021; Nowacki et al., 2021).

In contrast, eco-labels and user-generated content (UGC), both designed to communicate sustainability messages, were insignificant. These outcomes suggest that divers may have processed them peripherally, relying on surface cues rather than thoughtful elaboration. Eco-labels, despite their credibility potential, may have failed to stimulate deep reflection due to perceived greenwashing, lack of understanding, or weak visibility (Kovač et al., 2025; Nygaard, 2023). Likewise, UGC often emphasizes aesthetics and entertainment rather than educational depth, limiting its persuasive power (O'Leary et al., 2024; Sujatmiko et al., 2025). Without sufficient cognitive elaboration, such peripheral messages do not generate meaningful awareness or attitudinal transformation.

Interestingly, influencers significantly shaped marine environmental consciousness, demonstrating that peripheral cues can still be powerful when embedded with authenticity and emotional resonance. Influencers act as social opinion leaders whose credibility and storytelling create affective engagement that complements cognitive awareness (Buvár et al., 2023; Sousa et al., 2025). Within the ELM, this finding reflects a dual-route mechanism, where emotionally compelling yet credible influencer messages transition from peripheral to central processing as followers internalize environmental values. Collectively, these results show that divers' environmental consciousness develops through both

cognitive elaboration (central route) and emotional-social influence (peripheral route), depending on message quality, credibility, and individual involvement.

5.2 Environmental consciousness towards sustainable diving tourism attitude

The strong positive relationship between marine environmental consciousness and sustainable diving tourism development attitude confirms that divers who are more environmentally conscious are also more supportive of sustainable tourism initiatives. This finding supports earlier research by Kim et al. (2021) and Fakfare et al. (2024), who established that awareness of ecological values directly fosters pro-sustainability attitudes. Within the ELM framework, this represents the central-route outcome, where high elaboration leads to deeply internalized beliefs and consistent behavioral intentions. Once divers cognitively link their environmental values to diving practices, their attitudes become more resistant to change and less dependent on superficial persuasion. This suggests that cultivating marine environmental consciousness among divers is essential for developing long-term commitment toward sustainable tourism goals in destinations like Kapoposan.

5.3 Mediating role of marine environmental consciousness

Marine environmental consciousness was found to significantly mediate the relationships between green purchase, user-generated content (UGC), and environmental concern and sustainable diving tourism development attitudes, while no mediating effect was observed for eco-labels and influencers. These findings indicate that marine environmental consciousness functions as a critical cognitive mechanism through which certain sustainability-related cues and personal concern are translated into pro-sustainability attitudes, whereas other cues may operate through weaker or alternative pathways. Importantly, the results suggest that exposure to sustainability messages alone is insufficient; attitude formation depends on whether such information is cognitively elaborated and internalized as personal meaning.

Consistent with the Elaboration Likelihood Model, central-route cues such as green purchase behavior and environmental concern are more likely to stimulate deep cognitive processing, thereby activating marine environmental consciousness and leading to stable attitudinal outcomes (Panopoulos et al., 2022; Pham et al., 2024). In contrast, UGC did not exhibit a significant direct effect on marine environmental consciousness, indicating that peripheral cues may not independently trigger deep elaboration. Nevertheless, the significant indirect effect of UGC suggests that peripheral cues can still contribute to attitude formation once environmental consciousness is established, for instance, by reinforcing social norms or validating existing environmental values through repeated or socially endorsed exposure. Conversely, the absence of mediation effects for eco-labels and influencers implies that these cues may remain at a surface level in this context, potentially due to limited visibility, skepticism, or insufficient perceived relevance. Therefore, these findings reinforce the role of marine environmental consciousness as a psychological bridge that integrates both cognitively demanding (central-route) and socially driven (peripheral-route) stimuli into enduring support for sustainable diving tourism development.

5.4 Moderating role of dive master dedication

The moderating analysis found that dive master dedication did not significantly influence the relationship between marine environmental consciousness and sustainable diving tourism attitude. This indicates that once divers have internalized environmental values through cognitive elaboration, external guidance plays a limited role in shaping their attitudes. From the ELM viewpoint, highly elaborated attitudes are resistant to peripheral modification, meaning that divers' awareness and pro-sustainability

beliefs persist regardless of situational cues or instructor influence (Mellen, 2021). Although dive master dedication was theoretically expected to moderate the relationship between marine environmental consciousness and sustainable diving tourism development, the empirical results did not support this assumption. The findings suggest that environmental consciousness influences sustainable diving attitudes regardless of the perceived level of dive master dedication. Nevertheless, dive master dedication may still play a practical or operational role in shaping diving experiences, which warrants further qualitative or experimental investigation.

5.5 Theoretical contributions on the Elaboration Likelihood Model (ELM)

This study demonstrates the usefulness of the Elaboration Likelihood Model (ELM) as a theoretical lens for explaining how sustainability-related information shapes attitudes in marine tourism contexts (Petty & Cacioppo, 1986). While previous tourism studies have often examined marketing effects in isolation, the present findings show that ELM provides a coherent explanation for why certain sustainability cues such as green purchase behavior and environmental concern which exert stronger and more enduring influence than others, including eco-labels and generic user-generated content. By distinguishing between central-route and peripheral-route processing, ELM helps explain the observed variation in the effectiveness of sustainable tourism marketing strategies among divers, particularly in experiential settings where message elaboration depends on personal involvement and perceived relevance (Ahmad et al., 2022; Majeed et al., 2022; Sharma, 2021; Lee et al., 2021; Nowacki et al., 2021).

More importantly, this study advances theory by empirically positioning marine environmental consciousness as a cognitive outcome of persuasion, rather than merely an antecedent of pro-environmental behavior. The mediation findings demonstrate that sustainability cues influence attitudes toward sustainable diving tourism development only when they are internalized through cognitive elaboration. This supports the central-route logic of ELM, whereby deeply processed information leads to more stable and enduring attitudes. By integrating marine environmental consciousness as a mediating mechanism, this study extends ELM into experiential and nature-based tourism contexts, where attitudes are shaped not only by information exposure but also by personal involvement, environmental values, and identity formation (Panopoulos et al., 2022; Pham et al., 2024).

Furthermore, the findings indicate that peripheral cues can influence environmental consciousness only when they possess sufficient credibility and emotional resonance, as observed in the case of influencers. While eco-labels and user-generated content were found to have limited persuasive power possibly due to scepticism, superficial engagement, or greenwashing perceptions (Kovač et al., 2025; Nygaard, 2023; O'Leary et al., 2024; Sujatmiko et al., 2025), influencers demonstrated a significant effect when their messages were perceived as authentic and socially relevant (Buvár et al., 2023; Sousa et al., 2025). This highlights a nuanced application of ELM in tourism, where the boundary between peripheral and central processing may shift depending on message credibility and social reinforcement. Collectively, these insights contribute to persuasion theory by illustrating how ELM operates in marine tourism environments and by clarifying the cognitive mechanisms through which sustainable tourism marketing and environmental concern translate into sustainable tourism development attitudes (Kim et al., 2021).

6. Conclusion

This study contributes to the growing discourse on sustainable diving tourism by integrating the Elaboration Likelihood Model (ELM) with sustainable tourism marketing, environmental concern, and marine environmental consciousness. From a theoretical perspective, the findings advance understanding of how both central-route cues (green purchase behavior and environmental concern) and peripheral-

route cues (influencers and user-generated content) shape divers' environmental consciousness and attitudes toward sustainable tourism development. By empirically demonstrating that sustainable attitude formation depends not merely on exposure to sustainability messages but on the depth of cognitive elaboration and personal involvement, this study extends the applicability of ELM to marine tourism contexts. Importantly, marine environmental consciousness is identified as a key mediating mechanism that links external marketing stimuli with internalized pro-environmental attitudes, highlighting ELM's explanatory power in connecting persuasion, cognition, and sustainability outcomes.

From a practical standpoint, the study offers valuable insights for destination managers, dive operators, and policymakers in Indonesia and comparable marine tourism destinations. Strengthening green marketing initiatives such as transparent eco-label communication, authentic influencer partnerships, and targeted consumer education that can enhance divers' environmental awareness and support for sustainable tourism development. Encouraging responsible purchasing decisions and communicating the ecological value of marine conservation are essential for translating environmental concern into meaningful support for sustainability. Although dive master dedication did not exhibit a statistically significant moderating effect, dive masters remain important in practice for reinforcing responsible diving behavior through education, supervision, and role modeling.

Despite these contributions, the study has several limitations. Its cross-sectional design restricts temporal inference, and the focus on a single destination (Kapoposan, South Sulawesi) limits generalizability. The use of purposive sampling resulted in a sample dominated by younger and student respondents, which may not fully capture the perspectives of more experienced or professional divers. Future research should therefore employ longitudinal or mixed-method designs, adopt probability-based sampling across multiple marine destinations, and include more diverse demographic groups. In addition, while this study focused on theory testing using PLS-SEM, future studies may incorporate PLS-Predict to assess out-of-sample predictive performance and Gaussian copula techniques to further address potential endogeneity. Extending the model to include variables such as environmental knowledge, trust, and policy intervention would further enrich understanding of how cognitive and persuasive mechanisms shape sustainable marine tourism behavior.

Acknowledgment

This study is supported by Politeknik Pariwisata Makassar, Indonesia under the Kementerian Pariwisata Republik Indonesia (B/SD/1167/PS.02.01/PTP.3/2025)

Disclosure Statement

Following international publication policy and our ethical obligation as a researcher, we report that we have no conflict of interest.

Data Availability

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

References

1. Abdellatif, H., Hicham, B., & Karim, B. (2024). Responsible green tourism: A new path for eco-friendly tourism development. *International journal of economic perspectives*, 18(2), 560-589.

2. Abu Hassan, N. A., Ismail, A. I., & Jamali, S. S. (2024). Underwater photography as an educational tool for environmental awareness and marine conservation. *Pakistan Journal of Life & Social Sciences*, 22(2).
3. Ahmad, F, Sh., Rosli, N. T., & Quoquab, F. (2022). Environmental quality awareness, green trust, green self-efficacy and environmental attitude in influencing green purchase behaviour. *International Journal of Ethics and Systems*, 38(1), 68-90. <https://doi.org/10.1108/IJOES-05-2020-0072>
4. Al Mahmoud, A. (2024). *A study on factors affecting eco-friendly tourism products purchase intention in the context of Jordan*. University of Bedfordshire
5. Al-Jawahry, B., Mahdi, M., Al-Fatlawi, Q., & Almagtome, A. (2022). The impact of IPSAS adoption on sustainable tourism development: a cross country analysis. *Polish Journal of Management Studies*, 25(2), 36-55. <https://doi.org/10.17512/pjms.2022.25.2.03>
6. Allkins, M. E., Tshipala, N. N., & Hermann, U. P. (2021). Scuba divers' attitudes towards responsible behaviour and profile. *African Journal for Physical Activity and Health Sciences (AJPHEs)*, 27(1), 1-15.
7. Aziz, S., & Niazi, M. A. K. (2023). Understanding environmentally responsible behavior of tourists at coastal tourist destinations. *Social Responsibility Journal*, 19(10), 1952-1977. <https://doi.org/10.1108/SRJ-10-2022-0412>
8. Babu, E., Priya, P. S., Binti, A. V., Farzana, O. I., & Remya, P. D. (2024). Influencing responsibly: Harnessing the power of social media influencers to promote responsible tourism. *International Journal of Communication Networks and Information Security*, 16(3), 91-102.
9. Baena, V., & Cerviño, J. (2024). Tourism in the era of social responsibility and sustainability: Understanding international tourists' destination choices. *Sustainability*, 16(19), 8509. <https://doi.org/10.3390/su16198509>
10. Baloch, Q. B., Shah, S. N., Iqbal, N., Sheeraz, M., Asadullah, M., Mahar, S., & Khan, A. U. (2023). Impact of tourism development upon environmental sustainability: a suggested framework for sustainable ecotourism. *Environmental Science and Pollution Research*, 30(3), 5917-5930. <https://doi.org/10.1007/s11356-022-22496-w>
11. Batool, N., Wani, M. D., Shah, S. A., & Dada, Z. A. (2025). Tourists' attitude and willingness to pay on conservation efforts: evidence from the west Himalayan eco-tourism sites. *Environment, Development and Sustainability*, 27(8), 18933-18951. <https://doi.org/10.1007/s10668-024-04679-2>
12. Bergseth, B. J., Arias, A., Barnes, M. L., Caldwell, I., Datta, A., Gelcich, S., Ham, S. H., Lau, J. D., Ruano-Chamorro, C., Smallhorn-West, P., Weekers, D., Zamborain-Mason, J., & Cinner, J. E. (2023). Closing the compliance gap in marine protected areas with human behavioural sciences. *Fish and Fisheries*, 24(4), 695-704. <https://doi.org/10.1111/faf.12749>
13. Buvár, Á., Zsila, Á., & Orosz, G. (2023). Non-green influencers promoting sustainable consumption: Dynamic norms enhance the credibility of authentic pro-environmental posts. *Frontiers in Psychology*, 14, 1112762. <https://doi.org/10.3389/fpsyg.2023.1112762>
14. Cao, C., Ramachandran, S., Siow, M. L., Subramaniam, T., & Liu, L. (2024). The impact of social media on wine tourists' decision-making intentions: An empirical study Using the Elaboration Likelihood Model. *Tourism Review International*, 28(3), 233-250.
15. Cohen, D. (2024). Transformative potential of sustainable Scuba Dive tourism. In *Sustainable development and resilience of tourism: Wellbeing and quality of life perspectives* (pp. 121-150). Cham: Springer International Publishing.
16. Correia, R., Aksionova, E., Venciute, D., Sousa, J., & Fontes, R. (2025). User-generated content's influence on tourist destination image: a generational perspective. *Consumer Behavior in Tourism and Hospitality*, 20(2), 167-185. <https://doi.org/10.1108/CBTH-11-2023-0208>

17. Devkota, N., Gajdka, K., Siwakoti, R., Klimova, M., & Dhakal, K. (2023). Promoting sustainable tourist behavior through promotional marketing. *Journal of Tourism and Services*, 14(26), 219–241. <https://doi.org/10.29036/jots.v14i26.512>
18. Di Franco, A., Thiriet, P., Di Carlo, G., Dimitriadis, C., Francour, P., Gutiérrez, N. L., ... & Guidetti, P. (2016). Five key attributes can increase marine protected areas performance for small-scale fisheries management. *Scientific reports*, 6(1), 38135. <https://doi.org/10.1038/srep38135>
19. Dias, F., Lavaredas, A. M., & Esteves, P. (2024). what is the value of an environmental certification label in tourism industry? Is it worth the effort?. *Sustainability*, 16(19), 8587. <https://doi.org/10.3390/su16198587>
20. Dong, Y. (2025). The impact of tourists on the marine environment: a review and managerial implications. *Regional Environmental Change*, 25(2), 49. <https://doi.org/10.1007/s10113-025-02385-x>
21. Fahlevi, M. (2023). A Systematic literature review on marine tourism in business management: State of the art and future research agenda. *Journal of Tourism and Services*, 14(27), 299–321. <https://doi.org/10.29036/jots.v14i27.549>
22. Fakfare, P., Manosuthi, N., Lee, J. S., Han, H., Jarumaneerat, T., & Kim, J. J. (2024). Marine tourism and environmental preservation: determinants of tourists' ecofriendly behavior and promotion through word-of-mouth. *Asia Pacific Journal of Tourism Research*, 29(7), 769-789. <https://doi.org/10.1080/10941665.2024.2350411>
23. Fatema, K., Sinnappan, P., Meng, C. S., & Watabe, M. (2024). Technological advancements and innovations in the tourism industry: driving sustainable tourism. In *The need for sustainable tourism in an era of global climate change: Pathway to a greener future* (pp. 121-149). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-83608-668-020241019>
24. Franco, C., & Ghisetti, C. (2022). What shapes the “value-action” gap? The role of time perception reconsidered. *Economia Politica*, 39(3), 1023-1053. <https://doi.org/10.1007/s40888-022-00282-8>
25. Fenitra, R. M., Hati, S. R. H., Gancar, C. P., Rakotoarisoa, M. H. S., Abbas, A., Ica, R. C., & Rashid, A. A. (2024). International tourist's perspective of environmentally responsibility behaviour. *Journal of Tourism and Services*, 15(28), 1–21. <https://doi.org/10.29036/jots.v15i28.789>
26. Garcia-Bustos, V. (2025, January). Conservation attitudes and perceived biodiversity among divers on the spanish mediterranean coast: insights from local ecological knowledge. *Oceans*, 6(1). <https://doi.org/10.3390/oceans6010004>
27. Garcia Rodrigues, J., Villasante, S., & Sousa-Pinto, I. (2024). Exploring perceptions to improve the outcomes of a marine protected area. *Ecology and Society*, 29(3), 18. <https://doi.org/10.5751/ES-15159-290318>
28. Ghouse, S. M., Shekhar, R., Ali Sulaiman, M. A. B., & Azam, A. (2025). Green purchase behaviour of Arab millennials towards eco-friendly products: the moderating role of eco-labelling. *The Bottom Line*, 38(3), 286-308. <https://doi.org/10.1108/BL-08-2023-0246>
29. Giglio, V. J., Marconi, M., Pereira-Filho, G. H., Leite, K. L., Figueroa, A. C., & Motta, F. S. (2022). Scuba divers' behavior and satisfaction in a new marine protected area: Lessons from the implementation of a best practices program. *Ocean & Coastal Management*, 220, 106091. <https://doi.org/10.1016/j.ocecoaman.2022.106091>
30. Grunwald, G., Kara, A., & Spillan, J. E. (2025). Involvement matters: navigating the value–action gap in business students' sustainability transformation expectations—a cross-country Kano study. *Sustainability Science*, 1-23. <https://doi.org/10.1007/s11625-025-01681-z>
31. Gupta, R., Mondal, M.E.A., Janardhan, M., Kumawat, H., & Shekhar, C. (2024). Sustainable tourism development: Balancing economic growth and environmental conservation. *Migration Letters*, 21(S7), 1240-1253. <https://dx.doi.org/10.2139/ssrn.4901174>

32. Hair Jr., J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., Ray, S. et al. (2021). *Evaluation of Reflective Measurement Models. In Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R. Classroom Companion: Business* (pp. 75-90). Springer.
33. Hodeck, A., Tüchel, J., Hente, L., & von Reibnitz, C. (2021). The importance of sustainability in diving tourism—the case of German speaking diving tourists. *Sustainability*, 13(11), 6485. <https://doi.org/10.3390/su13116485>
34. Huang, X., Han, Y., Meng, Q., Zeng, X., & Liao, H. (2022). Do the DMO and the tourists deliver the similar image? Research on representation of the health destination image based on UGC and the theory of discourse power: a case study of Bama, China. *Sustainability*, 14(2), 953. <https://doi.org/10.3390/su14020953>
35. Indonesia Statistic Central. (2025). *Number of foreign tourist visits to Indonesia by nationality (Visit), 2024*. Retrieved from <https://www.bps.go.id/en/statistics-table/2/MTgyMSMy/number-of-foreign-tourist-visits-to-indonesia-by-nationality.html>
36. Ismail, W. N. A. T. (2024). Challenges and opportunities for implementing innovative green tourism practices: Evidence From Indonesia. *Planning Malaysia*, 22.
37. Jayawardena, N. S. (2021). The e-learning persuasion through gamification: an elaboration likelihood model perspective. *Young Consumers*, 22(3), 480-502. <https://doi.org/10.1108/YC-08-2020-1201>
38. Khan, M. R., Khan, H. U. R., Lim, C. K., Tan, K. L., & Ahmed, M. F. (2021). Sustainable tourism policy, destination management and sustainable tourism development: A moderated-mediation model. *Sustainability*, 13(21), 12156. <https://doi.org/10.3390/su132112156>
39. Kilipiri, E., Papaioannou, E., & Kotzaivazoglou, I. (2023). Social media and influencer marketing for promoting sustainable tourism destinations: The Instagram case. *Sustainability*, 15(8), 6374. <https://doi.org/10.3390/su15086374>
40. Kim, A., Kim, K. P., & Nguyen, T. H. D. (2021). The green accommodation management practices: The role of environmentally responsible tourist markets in understanding tourists' pro-environmental behaviour. *Sustainability*, 13(4), 2326. <https://doi.org/10.3390/su13042326>
41. Kim, N., & Lee, K. (2023). Environmental consciousness, purchase intention, and actual purchase behavior of eco-friendly products: The moderating impact of situational context. *International Journal of Environmental Research and Public Health*, 20(7), 5312. <https://doi.org/10.3390/ijerph20075312>
42. Kovač, I., Dunković, D., & Kovač, B. (2025). Greenwashing and consumer skepticism toward eco-labels in Croatia: challenges and policy directions. *British Food Journal*. <https://doi.org/10.1108/BFJ-02-2025-0122>
43. Kroon Josefsson, M. (2024). Surfing serenades: Riding the digital waves of Nicaraguan shores: Exploring the influence of user-generated content on destination choice. *Master Thesis*.
44. Lee, C. K., Olya, H., Ahmad, M. S., Kim, K. H., & Oh, M. J. (2021). Sustainable intelligence, destination social responsibility, and pro-environmental behaviour of visitors: Evidence from an eco-tourism site. *Journal of Hospitality and Tourism Management*, 47, 365-376. <https://doi.org/10.1016/j.jhtm.2021.04.010>
45. Li, J., Coca-Stefaniak, J. A., Nguyen, T. H. H., & Morrison, A. M. (2024). *Sustainable tourist behavior: A systematic literature review and research agenda*. *Sustainable Development*, 32(4), 3356–3374. <https://doi.org/10.1002/sd.2859>
46. Lopes, J. M., Gomes, S., & Trancoso, T. (2024). Navigating the green maze: insights for businesses on consumer decision-making and the mediating role of their environmental concerns. *Sustainability Accounting, Management and Policy Journal*, 15(4), 861-883. <https://doi.org/10.1108/SAMPJ-07-2023-0492>
47. Lopez-Odar, D., Alvarez-Risco, A., Vara-Horna, A., Chafloque-Cespedes, R., & Sekar, M. C. (2020). Validity and reliability of the questionnaire that evaluates factors associated with perceived

- environmental behavior and perceived ecological purchasing behavior in Peruvian consumers. *Social Responsibility Journal*, 16(3), 403-417. <https://doi.org/10.1108/SRJ-08-2018-0201>
48. Lou, C., & Yuan, S. (2021). Influencer marketing: How message value and credibility affect consumer trust and purchase intention. *Journal of Interactive Advertising*, 21(1), 1–18. <https://doi.org/10.1080/15252019.2020.1867432>
49. Majeed, M. U., Aslam, S., Murtaza, S. A., Attila, S., & Molnár, E. (2022). Green marketing approaches and their impact on green purchase intentions: Mediating role of green brand image and consumer beliefs towards the environment. *Sustainability*, 14(18), 11703. <https://doi.org/10.3390/su141811703>
50. Mellen, M. (2021). Scuba diving & its environmental sustainability: open water certifications, new diver training & influencing factors for dive centre management. *Master Thesis*
51. Nastase, C., Chasovschi, C., & Lucaci, A. (2025). Mapping the Green Path: A Comprehensive Bibliometric Analysis of Green Tourism Research Trends. *Transformations In Business & Economics*, 24(2 (65), 174-194. <https://doi.org/10.15388/Tibe.2025.24.2.8>
52. Nguyen, M. H., Duong, M. P. T., Nguyen, Q. L., La, V. P., & Hoang, V. Q. (2025). In search of value: the intricate impacts of benefit perception, knowledge, and emotion about climate change on marine protection support. *Journal of Environmental Studies and Sciences*, 15(1), 124-142. <https://doi.org/10.1007/s13412-024-00902-8>
53. Nowacki, M., Chawla, Y., & Kowalczyk-Aniol, J. (2021). What drives the eco-friendly tourist destination choice? The Indian perspective. *Energies*, 14(19), 6237. <https://doi.org/10.3390/en14196237>
54. Nyberg, A. (2024). *The impact of a sense of community on purchasing decisions: influencer marketing and organic user-generated content on TikTok*. LUT University.
55. Nygaard, A. (2023). Is sustainable certification's ability to combat greenwashing trustworthy?. *Frontiers in Sustainability*, 4, 1188069. <https://doi.org/10.3389/frsus.2023.1188069>
56. O'Leary, H., Kramer, M., Shuff, H., & Howard, S. (2024). Illuminated sanctuaries: Social media images of restoration frame coral reefs with problematic visual and cultural tropes. *Environment and Society*, 15(1), 92-109.
57. Panopoulos, A., Poulis, A., Theodoridis, P., & Kalampakas, A. (2022). Influencing green purchase intention through eco labels and user-generated content. *Sustainability*, 15(1), 764. <https://doi.org/10.3390/su15010764>
58. Park, S., & Gupta, S. (2012). Handling endogenous regressors by joint estimation using copulas. *Marketing Science*, 31(4), 567-586. <https://doi.org/10.1287/mksc.1120.0718>
59. Petty, R. E., & Cacioppo, J. T. (1986). *The elaboration likelihood model of persuasion*. In *Communication and persuasion*, 1-24. Springer, New York, NY.
60. Pham, H. N., Thai, N. T., Heffernan, T. W., & Reynolds, N. (2024). Environmental policies and the promotion of pro-environmental consumer behavior: a systematic literature review. *Journal of Macromarketing*, 44(1), 30-58. <https://doi.org/10.1177/02761467231201507>
61. Pizzichini, L. (2024). Green tourism. In *Research Handbook on the Green Economy* (pp. 220-242). Edward Elgar Publishing.
62. Rusyani, E., Lavuri, R., & Gunardi, A. (2021). Purchasing eco-sustainable products: Interrelationship between environmental knowledge, environmental concern, green attitude, and perceived behavior. *Sustainability*, 13(9), 4601. <https://doi.org/10.3390/su13094601>
63. Saber, A. F., & Ali, N. H. (2025). The impact of green marketing strategies on tourism and hospitality sustainability: An applied study in the Red Sea Region. *Journal of the Faculty of Tourism and Hotels-University of Sadat City*, 9(2/1), 137-166.

64. Said, N.H. (2024). *Perjalanan Wisatawan di Sulsel naik 37,5%, Makassar tujuan paling diminati*. Retrieved from https://www.detik.com/sulsel/makassar/d-7566843/perjalanan-wisatawan-di-sulsel-naik-37-5-makassar-tujuan-paling-diminati#google_vignette
65. Samal, R., & Dash, M. (2024). Stakeholder engagement in advancing sustainable ecotourism: an exploratory case study of Chilika Wetland. *Discover sustainability*, 5(1), 50. <https://doi.org/10.1007/s43621-024-00233-2>
66. Santos-Roldán, L., Castillo Canalejo, A. M., Berbel-Pineda, J. M., & Palacios-Florencio, B. (2020). Sustainable tourism as a source of healthy tourism. *International Journal of Environmental Research and Public Health*, 17(15), 5353. <https://doi.org/10.3390/ijerph17155353>
67. Sawir, M., Mastika, I. K., Prayitno, H., Lestari, A., Nur'aini, A., & Hi. Arsyad, D. (2024). Public relations strategies and sustainable tourism in Tolitoli Regency: a case study in the Indonesian context. *Cogent Social Sciences*, 10(1), 2376163. <https://doi.org/10.1080/23311886.2024.2376163>
68. Shabani Shojaei, A., Barbosa, B., Oliveira, Z., & Regalo Coelho, A. M. (2024). Perceived greenwashing and its impact on eco-friendly product purchase. *Tourism & Management Studies*, 20(2), 1-12. <https://doi.org/10.18089/tms.20240201>
69. Sharma, A. P. (2021). Consumers' purchase behaviour and green marketing: A synthesis, review and agenda. *International Journal of Consumer Studies*, 45(6), 1217-1238. <https://doi.org/10.1111/ijcs.12722>
70. Sharma, P. N., Shmueli, G., Sarstedt, M., Danks, N., & Ray, S. (2021). Prediction-oriented model selection in partial least squares path modeling. *Decision Sciences*, 52(3), 567-607. <https://doi.org/10.1111/dec.12329>
71. Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: guidelines for using PLSpredict. *European Journal of Marketing*, 53(11), 2322–2347. <https://doi.org/10.1108/ejm-02-2019-0189>
72. Sousa, R., Nogueira, M., & Gomes, S. (2025). How influential can a sustainable digital influencer be? An exploratory study on the relationship between influencing skills and followers' environmental concerns, awareness and pro-environmental behaviour. *International Journal of Innovation Science*. 17 (4), 1110–1131. <https://doi.org/10.1108/IJIS-03-2024-0079>
73. Srisathan, W. A., Malai, K., Narathawaranan, N., Coochampoo, K., & Naruetharadhol, P. (2024). The impact of citizen science on environmental attitudes, environmental knowledge, environmental awareness to pro-environmental citizenship behaviour. *International Journal of Sustainable Engineering*, 17(1), 360-378. <https://doi.org/10.1080/19397038.2024.2354269>
74. Srivastava, M., & Saini, G. K. (2022). A bibliometric analysis of the elaboration likelihood model (ELM). *Journal of Consumer Marketing*, 39(7), 726-743. <https://doi.org/10.1108/JCM-12-2021-5049>
75. Srivastava, N., & Mittal, A. (2025). The influence of green communication tools on green purchase intention: mediating role of perceived eco-friendly brand and green consumption value. *Strategy & Leadership*, 1-22. <https://doi.org/10.1108/SL-04-2025-0067>
76. Streimikiene, D. (2023). Sustainability assessment of tourism destinations from the lens of green digital transformations. *Journal of Tourism and Services*, 14(27), 283–298. <https://doi.org/10.29036/jots.v14i27.651>
77. Sujatmiko, S., Ar, D. P., Hamdat, A., & Salam, K. N. (2025). User-Generated Content (UGC) and its impact on tourism marketing: A systematic literature review. *Golden Ratio of Mapping Idea and Literature Format*, 5(2), 97-105.
78. Svitlichna, V., Tonkoshkur, M., Cirella, G. T., Radionova, L., Yatsiuk, M., & Uhodnikova, O. (2024). Sustainable ecotourism development: Integrating public marketing, community engagement, and environmental stewardship in Ukraine. In *Handbook on Post-War Reconstruction and Development Economics of Ukraine: Catalyzing Progress* (pp. 271-291). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-031-48735-4_16

79. Težak Damijanić, A., Pičuljan, M., & Goreta Ban, S. (2023). The role of pro-environmental behavior, environmental knowledge, and eco-labeling perception in relation to travel intention in the hotel industry. *Sustainability*, 15(13), 10103. <https://doi.org/10.3390/su151310103>
80. Tomazos, K. (2022). Social media influencers and tourism sustainability: the good, the irritating, and the desperate. In *Handbook of innovation for sustainable tourism* (pp. 250-273). Edward Elgar Publishing.
81. Tseng, W. K., & Ou, C. C. (2025). Can virtual influencers drive online consumer behavior? an applied examination of ELM model investigating the marketing effects of virtual influencers. *Sustainability*, 17(23), 10721. <https://doi.org/10.3390/su172310721>
82. Wagner, B. C., & Petty, R. E. (2022). The elaboration likelihood model of persuasion: Thoughtful and non-thoughtful social influence. *Theories in Social Psychology, Second Edition*, 120-142. <https://doi.org/10.1002/9781394266616.ch5>
83. Wijekoon, R., & Sabri, M. F. (2021). Determinants that influence green product purchase intention and behavior: A literature review and guiding framework. *Sustainability*, 13(11), 6219. <https://doi.org/10.3390/su13116219>
84. Wut, T. M., Lee, D., & Lee, S. W. (2023). Does attitude or intention affect behavior in sustainable tourism? A review and research agenda. *Sustainability*, 15(19), 14076. <https://doi.org/10.3390/su151914076>
85. Xu, F., Zhao, X., & Li, D. (2025). Greener, more wasteful? Examining the rebound effect of green product offerings in tourism. *Journal of Sustainable Tourism*, 1-23. <https://doi.org/10.1080/09669582.2025.2562432>
86. Yadav, M., Gupta, R., & Nair, K. (2024). Time for sustainable marketing to build a green conscience in consumers: Evidence from a hybrid review. *Journal of Cleaner Production*, 443, 141188. <https://doi.org/10.1016/j.jclepro.2024.141188>
87. Yaumidin, U. K., & Zuas, O. (2021). Eco-Labeling and international trade agreements: The case of marine stewardship council certification for indonesia's shrimp potential market. *Buletin Ilmiah Litbang Perdagangan*, 15(2), 209-234.
88. Zeng, Z., Zhong, W., & Naz, S. (2023). Can environmental knowledge and risk perception make a difference? The role of environmental concern and pro-environmental behavior in fostering sustainable consumption behavior. *Sustainability*, 15(6), 4791. <https://doi.org/10.3390/su15064791>
89. Zhang, Y., Gao, J., Cole, S., & Ricci, P. (2021). How the spread of user-generated contents (UGC) shapes international tourism distribution: Using agent-based modeling to inform strategic UGC marketing. *Journal of Travel Research*, 60(7), 1469-1491. <https://doi.org/10.1177/0047287520951639>
90. Zhang, K., Lam, T. W., Ma, A. T., Fok, L., & Cheung, L. T. (2023). Recreational specialization and the marine-based conservation behaviour intention of recreational divers in Hong Kong. *Science of the Total Environment*, 899, 165664. <https://doi.org/10.1016/j.scitotenv.2023.165664>
91. Zhu, Y., & Song, W. (2025). From cues to choices: The effect of eco-labels and quality excellence on sustainable online consumption in product-service systems. *Computers & Industrial Engineering*, 111480. <https://doi.org/10.1016/j.cie.2025.111480>

Brief description of the authors:

Andi Hasbi, Dr.

ORCID ID: <https://orcid.org/0000-0002-4779-2661>

Affiliation: Hospitality Department, Politeknik Pariwisata Makassar, Makassar, 90224, Indonesia

<https://poltekiparmakassar.ac.id/>

Email: andihaspipoke@poltekiparmakassar.ac.id

Andi Hasbi is an Associate Professor Lecturer at Politeknik Pariwisata Makassar, Indonesia. He pursued his PhD at Universitas Muslim Indonesia (UMI). He is also an expert in hospitality and tourism management, as well as human resource management.

Quratul'ain Syahirah Awang Ali, Dr.

ORCID ID: <https://orcid.org/0000-0002-4963-4800>

Affiliation: Faculty of Applied Social Sciences, Universiti Sultan Zainal Abidin, Gong Badak Campus, 21300, Malaysia

<https://www.unisza.edu.my/ms/>

Email: quratulain@unisza.edu.my

Dr. Quratul'ain Syahirah Awang Ali is a senior lecturer at the Faculty of Applied Social Sciences, Universiti Sultan Zainal Abidin (UniSZA), Malaysia. She did her PhD in Tourism Management at Universiti Teknologi Mara, Puncak Alam. She specializes in tourism resilience, marine tourism, and crisis management.

Muhammad Arfin Muhammad Salim, Associate Professor, Dr.

ORCID ID: <https://orcid.org/0000-0002-8660-1944>

Affiliation: Hospitality Department, Politeknik Pariwisata Makassar, Makassar, 90224, Indonesia

<https://poltekiparmakassar.ac.id/>

Email: arfin70@yahoo.com

Muhammad Arfin Muhammad Salim is an Associate Professor at the Hotel Management Department, Politeknik Pariwisata Makassar, Indonesia. He is currently the Deputy Director for Academic Affairs. He completed his PhD in the Language of Tourism (Tourism Discourse) from UTM in 2015 and a master's in English Education from the State University of Makassar, Indonesia, in 2000. His areas of interest are Tourism, Discourses of tourism, Communications, and Semiotics of Tourism. In addition to his teaching activities and duties as Deputy Director, he has also conducted research and published in reputable journals, both nationally and internationally, including Scopus-indexed journals. In addition, he also serves as a reviewer for several national and international Journals.

Ahmad Ab, Dr.

ORCID ID: <https://orcid.org/0000-0002-8145-2927>

Affiliation: Hospitality Department, Politeknik Pariwisata Makassar, Makassar, 90224, Indonesia

<https://poltekiparmakassar.ac.id/>

Email: ahmadab@poltekiparmakassar.ac.id

Ahmad Ab is a Associate Professor at Politeknik Pariwisata Makassar, Indonesia. He pursued his PhD at Universitas Hasanuddin and He is work centers on hospitality and tourism management and economic.

Agus, Mr.

ORCID ID: <https://orcid.org/0009-0009-9199-1084>

Affiliation: Destination Department, Politeknik Pariwisata Makassar, Makassar, 90224, Indonesia

<https://poltekiparmakassar.ac.id/>

Email: agusesmp@gmail.com

Agus is a lecturer at Politeknik Pariwisata Makassar, Indonesia. He furthered his master's at Universitas Sumatra Utara (USU). His academic focus is on destination and infrastructure management

Nining Silvia Suni, Mdm.

ORCID ID: <https://orcid.org/0009-0005-7684-1353>

Affiliation: Destination Department, Politeknik Pariwisata Makassar, Makassar, 90224, Indonesia
<https://poltekparmakassar.ac.id/>

Email: niningsilviasuni19@gmail.com

Nining Silvia Suni is a lecturer at Politeknik Pariwisata Makassar, Indonesia. She pursued her master at Universitas Muslim Indonesia (UMI). Currently, she furthers her Phd at Institute Business dan Keuangan Nitro. Her research areas include tourism destination development.

Anis Abd Razak, Dr.

ORCID ID: <https://orcid.org/0000-0003-2288-4495>

Affiliation: Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, Kuala Nerus, 21030, Malaysia

<https://www.umt.edu.my/>

Email: anis@umt.edu.my

Dr. Anis Binti Abd Razak is a senior lecturer at the Faculty of Business, Economics, and Social Development, Universiti Malaysia Terengganu (UMT), Malaysia. She did her Phd in Management at Universiti Kuala Lumpur, Kuala Lumpur. She specializes in customer relation in tourism business and hospitality management.

Appendix 1. Item Construct

Constructs (sources)	Items
<p>Sustainable Tourism Marketing</p> <p>A. Eco Label (Panopoulos et al., 2022)</p> <p>B. Green Purchase (Panopoulos et al., 2022)</p> <p>C. User Generated Content (Panopoulos et al., 2022)</p> <p>C. Influencers (Panopoulos et al., 2022)</p> <p>Environmental Concern (Panopoulos et al., 2022)</p>	<p>EL1: Dive tourism services or products endorsed by eco-labels are credible.</p> <p>EL2: Eco-labeled dive tourism operators or gear comply with recognized environmental standards.</p> <p>EL3: Eco-labels provide reliable information about the environmental quality and performance of dive tourism offerings.</p> <p>EL4: Most of the environmental claims made by eco-labels in dive tourism are accurate.</p> <p>EL5: Eco-labels help inform divers about the environmental safety of dive-related products or services.</p> <p>EL6: I look for eco-labels or environmental logos when choosing dive tourism services or purchasing diving equipment.</p> <p>GP1: I choose to buy products that are environment friendly.</p> <p>GP2: I intend to buy green products next time because of its positive environmental contribution.</p> <p>GP3: I buy green products even if they are more expensive than the non-green ones.</p> <p>GP4: I prefer green products over non-green products when their product qualities are similar.</p> <p>GP5: I often buy products that use recycled /recyclable packaging.</p> <p>UGC1: I believe user reviews about dive activities or operators are more helpful than information provided by the service providers themselves</p> <p>UGC2: I trust user-generated reviews to accurately reflect the quality of a dive experience or service.</p> <p>UGC3: I trust dive-related reviews or recommendations from friends or people I follow on social media.</p> <p>UGC4: I am more likely to trust a dive activity review written by a regular diver than one written by an expert or professional.</p> <p>UGC5: I have written a review or shared my experience about a dive activity, operator, or destination on an online platform.</p> <p>UGC6: I find it easy to share and exchange opinions about dive experiences with others on digital platforms.</p> <p>I1: The dive influencers I follow seem competent and knowledgeable about diving activities and destinations.</p> <p>I2: The dive influencers I follow are capable of delivering on what they promise or recommend.</p> <p>I3: The claims made by dive influencers I follow are believable and trustworthy.</p> <p>I4: Dive influencers I follow present themselves authentically and do not pretend to be something they are not.</p> <p>I5: I believe dive-related promotions featuring influencers with diving expertise are more respectable.</p> <p>I6: I find dive tourism brands or services endorsed by influencers to be more trustworthy.</p> <p>I7: Dive influencers help me remember specific dive brands, destinations, or products.</p> <p>EC1: I am concerned about the current environmental state of the world.</p> <p>EC2: I believe that human interference with nature can lead to serious consequences.</p> <p>EC2: I believe that human interference with nature can lead to serious consequences.</p> <p>EC3: I think the balance of nature is very delicate and can be easily disrupted.</p> <p>EC4: I am willing to reduce my consumption to help protect the environment.</p> <p>EC5: I believe modern development poses a threat to the environment.</p> <p>EC6: The effects of pollution on public health are worse than we realize.</p> <p>Environmental Social Influence:</p>

<p>Marine Environmental Conscious (Lopez-Odar et al., 2020)</p>	<p>ESI1: Often my dive buddy recommends products that respect the environment. ESI2: Often my dive buddy discusses environmental issues with me. ESI3: My dive buddy often argues about environmental issues. ESI4: I have learned from my dive master about environmental problems. ESI5: I have learned from my dive master about environmental solutions. Environmental Personal Norms: EPN1: I feel that improving the environment helps future generations. EPN2: I should do everything possible to conserve natural resources. EPN3: I am committed to the responsible use of energy. EPN4: I feel the obligation to save energy when possible.</p> <p>Environmental Identity: ESI1: I feel proud of being an ecological person. ESI2: Supporting the protection of the environment makes me feel like a valuable person. ESI3: Supporting the protection of the environment makes me feel that I am an ecologically responsible person.</p>
<p>Sustainable Diving Tourism Development (Santos-Roldán et al., 2020)</p>	<p>SDTD1: I think the attitudes and behaviors of divers are satisfactory and do not disturb local residents. SDTD2: I believe that the positive impacts of sustainable diving tourism development outweigh the negative aspects.</p>