

# Linking Tourism and Conservation Awareness: A Case Study from Raja Ampat, Indonesia

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## Abstract

*Raja Ampat is one of the most visited destinations by tourists to experience marine biodiversity, including sharks. Shark related tourism is one of the fastest growing tourisms and it can provide an engaging experience as well as improving public attitudes and raising awareness of shark conservation. In this case, this study assesses the knowledge and experience gained by tourists visiting Kri Island (Raja Ampat) while participating in shark related tourism. The study was conducted from August to October 2024 by interviewing 200 respondents. The assessment was carried out by implementing semi-structured interviews, with a qualitative-quantitative approach to assess tourist motivation and the outcomes after participating in the shark related activity program. This study also examines the extent to which education obtained from shark tourism experiences can contribute to tourist attitudes that supports shark conservation efforts in Raja Ampat. Based on a comparative analysis between pre- and post-activity surveys of 200 tourists showed a positive change in tourist perceptions of sharks after participating in these activities. The results of our finding indicate that providing education during shark-based activities can have a significant impact on conservation that will help in maintaining the ecological status of shark species that are currently endangered. Overall, we conclude that with interpretive encounters, shark-based tourism can provide significant benefits by increasing tourist satisfaction and encouraging attitudes that support conservation.*

**Keywords:** Attitudes, Conservation outcome, Ecotourism, Shark

## Introduction

Indonesia is one of the world's most important regions for shark diversity, hosting a high number of elasmobranch species across coral reef, pelagic, and coastal ecosystems. However, shark populations in Indonesian waters have experienced significant declines over recent decades, primarily due to intensive fishing pressure, bycatch, habitat degradation, and illegal, unreported, and unregulated fishing (Simeon *et al.*, 2019; Wiryawan *et al.*, 2021). Multiple studies indicate strong downward trends in population abundance: catch-per-unit-effort (CPUE) for sharks in some Indonesian regions has declined by approximately 26–50% over the past decade, persistent fishing pressure (Krisnafi *et al.*, 2025). Indonesia consistently ranks as the largest shark-catching nation globally, reflecting both the scale of fishing activity and the limited effectiveness of existing management and enforcement mechanisms. The ecological consequences of shark depletion are

substantial, as sharks play critical roles as apex and mesopredators that regulate prey populations, maintain trophic structure, and support the resilience of coral reef ecosystems (Gallagher *et al.*, 2015; Dulvy *et al.*, 2017). Given the biological characteristics of sharks—such as slow growth rates, late sexual maturity, long life spans, and low reproductive output—the ongoing exploitation of Indonesian shark populations poses a serious threat to their long-term persistence (Tapilatu *et al.*, 2023).

One such hotspot is Raja Ampat, located in the Bird's Head Seascape of eastern Indonesia. Raja Ampat is globally renowned for its extraordinary marine biodiversity and is widely regarded as one of the most biologically rich marine regions (Mangubhai *et al.*, 2012). Its underwater landscape makes Raja Ampat one of the most popular underwater tourism destinations and an Indonesian icon for the beauty of natural resources (Andradi-Brown *et al.*, 2020). Raja Ampat has variety of important habitats with high

biodiversity, such as coral reefs, mangroves, reef fishes, marine mammals, and invertebrates. Raja Ampat reefs contain the greatest richness, with over 550 scleractinian coral species (Mangubhai *et al.*, 2012) and more than 1,638 reef fish species (Allen and Erdmann, 2012). All the marine biodiversity has made it a popular destination for tourists visiting Papua.

Over time, the number of tourists coming to dive, snorkel, or explore has steadily increased (Tjilen *et al.*, 2022). Among the many marine animals that attract attention, sharks are one of the most sought-after species by visitors visiting the Bird's Head region (Anna and Saputra, 2017). Macdonald *et al.* (2017) emphasized that tourism that focuses on predatory wildlife has become increasingly popular. Shark encounters are often perceived as thrilling and educational experiences, offering opportunities for close observation of species that are otherwise poorly understood by the general public.

Over the past decade, the urgency surrounding shark conservation has only grown more pronounced. Effective conservation requires broad support particularly by increasing public awareness to better support shark conservation efforts and policies (Giovos *et al.*, 2021). Public awareness is a crucial foundation for effective conservation, as increased understanding of ecological roles and threats can foster more positive attitudes toward wildlife protection and encourage pro-environmental behaviors (Guidino *et al.*, 2023).

Awareness-based approaches are therefore viewed as essential complements to formal management tools such as marine protected areas and fishing regulations. In Indonesia, recent policy shifts suggest the government has begun moving in this direction. Until 2023, the whale shark (*Rhincodon typus*) was the only shark species afforded full legal protection. Since then, however, the government has extended protected status to six species of walking sharks, aligning with the CITES framework and national regulations (Minister of Marine Affairs and Fisheries Regulation No. 59/2014 and Decree No. 18/2013) which restrict fishing practices and finning. According to the Ministry of Marine Affairs and Fisheries (2025), conservation areas now designated to protect shark and ray habitats cover approximately 5.75 million hectares. Beyond regulatory measures, the government has also forged partnerships with non-governmental organizations and international bodies to establish marine protected areas and species focused habitat protection zones for sharks and rays.

One of the strategic approaches to support shark conservation efforts is by increasing

understanding through nature-based tourism or ecotourism (Mondino *et al.*, 2019). In general, ecotourism is referred to as a responsible travel experience by implementing sustainable practices and providing environmental education. This approach is an alternative to ensure the protection of natural environments by minimizing environmental threats through specific guidelines and regulations. Ecotourism is a tool that is considered by both tourists and academics to raise environmental awareness and foster a deeper connection with nature through wildlife experiences (Tanalgo *et al.*, 2021). Environmental awareness, once cultivated, tends to translate into genuine enthusiasm for solving environmental problems (Ariffin *et al.*, 2016). In the context of shark conservation, ecotourism introduces tourists to sharks through interactive educational experiences that can foster support for protective measures and compliance with local rules.

This strategy is particularly appropriate for Raja Ampat, where conservation-oriented tourism has evolved alongside a governance system that explicitly links tourism revenue to marine protection (Atmodjo *et al.*, 2020). NGOs and local authorities have implemented practical mechanisms such as MPA patrol systems, entrance fee systems that help fund enforcement and management (White *et al.*, 2022). Importantly, evidence from Southeast Misool shows that reef shark abundance is significantly higher inside enforced no-take zones than in adjacent open-access areas (Jaiteh *et al.*, 2016). This suggests that locally implemented spatial protection, particularly when reinforced by tourism value, can deliver measurable conservation gains. The Misool Marine Reserve itself is frequently cited as a model of conservation-tourism synergy, where a tourism-linked management structure supports the protection of a highly biodiverse reef system (UNESCAP, 2020). More recent work continues to emphasize the importance of collaborative stakeholder approaches to strengthen ecotourism implementation in the region (Sa'adah *et al.*, 2024). Environmentally aware tourists, the research suggests, tend to be better informed, more engaged (Üzülmez *et al.*, 2023), and more willing to participate in protecting the places they visit (Moon *et al.*, 2016).

Raja Ampat offers a compelling case study for examining how tourism might contribute to shark conservation awareness. According to Statistics Indonesia, roughly 19,000 tourists visit the Raja Ampat marine area each year, engaging in a range of marine activities (BPS, 2024). That volume of visitors presents a significant opportunity to integrate public education into tourism especially given the high risk of shark extinction documented globally (Dulvy *et al.*, 2014). Raja Ampat is a potential site to fostering conservation tourism, and interactive programs

should be designed to highlight the threats facing shark populations (Buckley *et al.*, 2016).

There are several methods have been used to improve public perception and promote wildlife conservation, including zoos, aquariums, and direct wildlife observation (Moss *et al.*, 2015). These approaches are widely known to promote “charismatic species” such as elephants, tigers, pandas (Colléony *et al.*, 2017; Hausmann *et al.*, 2017), including sharks. Through direct encounters, guided interpretation, and educational briefings, tourists can gain firsthand exposure to sharks and learn about their ecological importance, conservation status, and the threats they face. Informative and engaging educational encounters have been shown to increase public awareness (Hoffmaster *et al.*, 2016) and foster more conservation-supportive mindsets (Apps *et al.*, 2017). Following prior research on ecotourism, this study aims to explore the potential of shark tourism to improve tourists' knowledge and attitudes toward sharks. The ultimate goal is to develop effective observation programs that translate visitor interest into lasting public support for shark conservation.

## Material and Methods

The study was carried out on Kri Island ( $0^{\circ} 33'24''$  S;  $130^{\circ} 41'11''$  E) (Figure 1). The coral reef ecosystems surrounding Kri Island are characterized by high biodiversity and support a wide range of apex predator species, including sharks. The study area hosts multiple shark-related tourism activities, such as shark diving, shark feeding, and participation in a

shark nursery program. The shark nursery is operated by the Raja Ampat Research and Conservation Center (RARCC) as part of a broader conservation initiative implemented by ReShark. All tourism activities are accompanied by short educational briefings, lasting approximately 10 minutes, which provide participants with information on shark ecology, conservation challenges, and ongoing management efforts.

In this study, semi-structured interviews were conducted with tourists visiting the study area. A combination of convenience and quantitative sampling was implemented following a similar survey approach to that of Apps *et al.* (2017), to assess tourists' knowledge and attitudes toward sharks and their conservation before and after participation in shark-related activities. Respondents were required to be at least 18 years old, to have voluntarily participated in shark-related tourism activities, and to be willing to complete both pre- and post-visit surveys. Visitors were asked a set of questions before engaging in shark-related activity (pre-visit survey), followed by a post-visit survey after completing their shark experience. The topics and questions covered included motivations for participating in shark-based activities, experiences gained from the tours, information gained during the activities, and attitudinal responses to the shark encounters. The questions used categorical responses (“Strongly Disagree”, “Disagree”, “Not sure”, “Agree”, “Strongly Agree”), which were later grouped for analysis. These interviews were conducted in Raja Ampat from April to September 2024. In addition to interviews, a literature review was used to supplement the study and strengthen the discussion.

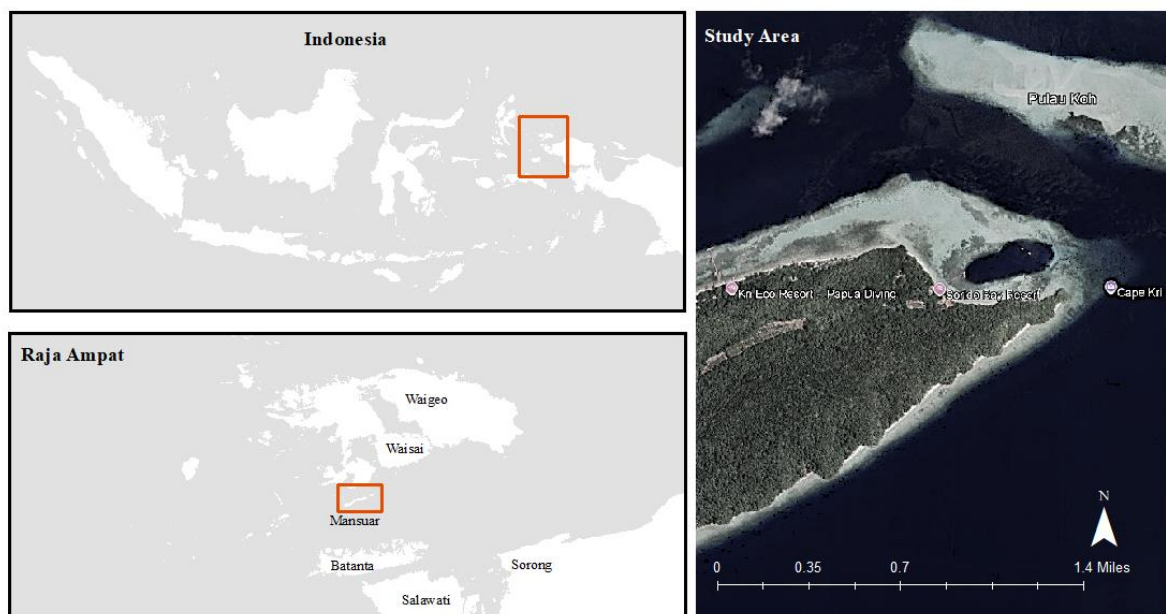


Figure 1. Research Location ( $0^{\circ} 33'24''$  S;  $130^{\circ} 41'11''$  E).

All adult age classes were deliberate, grounded in the understanding that environmental knowledge, risk perception, and conservation attitudes do not remain static across a person's life. Previous work in nature-based tourism has shown that age shapes how visitors perceive wildlife, what they take away from educational experiences, and whether they translate those experiences into pro-environmental intentions (Ballantyne *et al.*, 2016; Tapsuwan *et al.*, 2018; Guidino *et al.*, 2023). By sampling across the adult age spectrum, the present study also aimed to capture a more representative cross-section of the tourist population as an important consideration in ecotourism settings where visitors span multiple generations and to minimize the risk of age-related bias in attitudinal assessments (Kim *et al.*, 2020). The total number of tourists interviewed was 200, with ages ranging from 18 to 70 years (mean age = 39 years). The representation of males (61%) was higher than that of females (39%) among participants, reflecting observed gender patterns in marine wildlife tourism participation (Apps *et al.*, 2017; Bentz *et al.*, 2021). Interviewees originated from multiple countries, including the USA, the Netherlands, Germany, France, Spain, Japan, China, South Korea, Australia, Switzerland, Malaysia, Singapore, and India.

All statistical analyses were conducted using R statistical software (version 4.3.2; R Core Team 2024). Descriptive statistics, including frequencies and percentages, were calculated for all Likert-scale items. To visualize patterns in responses produced using the likert and ggplot2 packages, allowing comparison of agreement levels across survey items. Internal consistency of multi-item attitude and awareness scales was assessed using Cronbach's alpha.

## Results and Discussion

### Motivations for participating in shark tours

Charismatic species such as whales, sharks, and turtles (Giglio *et al.*, 2015) are highly attractive to tourists, this is what motivates tourists to visit destinations where they can observe these animals. There are many reasons why tourists enjoy seeing sharks directly, whether up close or from a distance. These motivations serve as benchmark for the desired expectations through each interaction. Anna and Saputra (2017) stated that the motivation for tourists to visit is to have a unique and exciting experience by observing animals directly in their natural habitats. This reason is similar with the responses given by participants in this study showed by Figure 2, where 83% "strongly agreed" that they wanted to see sharks up close. The appeal of sharks

as a tourist attraction is related to fascination with their roles as apex predators, the willingness to change negative perspectives about sharks, search for thrilling, and adrenaline rush experiences (Bargnesi *et al.*, 2020). However, in this study, only 29.5% of participants agreed that they wanted to feel the thrill of seeing sharks. Another key motivation that drives tourists is the opportunity to see several shark species and tends to be less likely to choose a location if there are no sharks (Pires *et al.*, 2016; Huveneers *et al.*, 2017), like the survey results showing that 86% "strongly agreed" that seeing sharks was a primary reason for their visit.

### Shark tour education

Several factors influence a tourist's satisfaction with tour activities, among which the tour guide plays a pivotal role. As frontline workers, tour guides act not only as leaders but also as educators, interpreters, and cultural mediators, significantly shaping the overall tourist experience (Özsoy and Yilmaz, 2025). Their performance directly impacts tourists' emotions, knowledge acquisition, and attitudes, which in turn determine their overall satisfaction. The multifaceted nature of this role requires guides to possess not only deep regional knowledge but also strong communication and interpersonal skills to effectively manage the visitor experience (Özsoy and Yilmaz, 2025).

The findings of this study strongly support these established theories. A relatively high percentage of participants expressed satisfaction with the tour staff, particularly commending their ability to provide information and answer questions. Most interviewed tourists reported thoroughly enjoying the shark tour, a sentiment reflected in the questionnaire results: 46.5% of tourists "strongly agreed" that the tour staff possessed extensive and in-depth knowledge of sharks. This transformed the tour into an educational experience, allowing participants to learn directly from experts in the field.

The guides were consistently regarded as highly capable due to their delivery of informative briefings and their responsiveness to questions. They demonstrated strong interpersonal skills and a deep understanding of sharks, which ensured that tourists received accurate information and developed a greater appreciation for the animals they encountered. These attributes are critical, as a guide's communication competency including both verbal skills and non-verbal approachability can significantly influence how tourists perceive and value an experience (Sulaiman Al Jahwari *et al.*, 2016). By acting as credible information providers, the guides played a fundamental role in shaping the tourists' experience, a dynamic well-documented in tourism literature.

Furthermore, in the specific context of wildlife tourism, the guide's role as a credible expert is paramount. As one marine scientist notes, wildlife experiences must be guided by science and ethics, as underqualified guides can lead to misinformation and harmful practices (McTieran *et al.*, 2025). The guides in this study, by prioritizing accurate information and conservation education, exemplify the shift towards responsible and ethical wildlife tourism, where the focus is on respect for the animal and the environment, not just entertainment (McTieran *et al.*, 2025). Their ability to foster trust and ensure tourist safety, both physically and psychologically, further solidifies their role as essential mediators in the

tourism system (McTiernan *et al.*, 2025). This was clearly reflected in the survey results, where most participants "strongly agreed" that they learned a great deal about sharks during the tour, underscoring the guides' effectiveness as environmental educators and stewards.

**Knowledge gained by tourists during shark tours**

Providing information is a key strategy for influencing human attitudes and behaviours to achieve conservation goals (Cheung *et al.*, 2017). This can be done through various forms, including formal and informal education, awareness campaigns, and

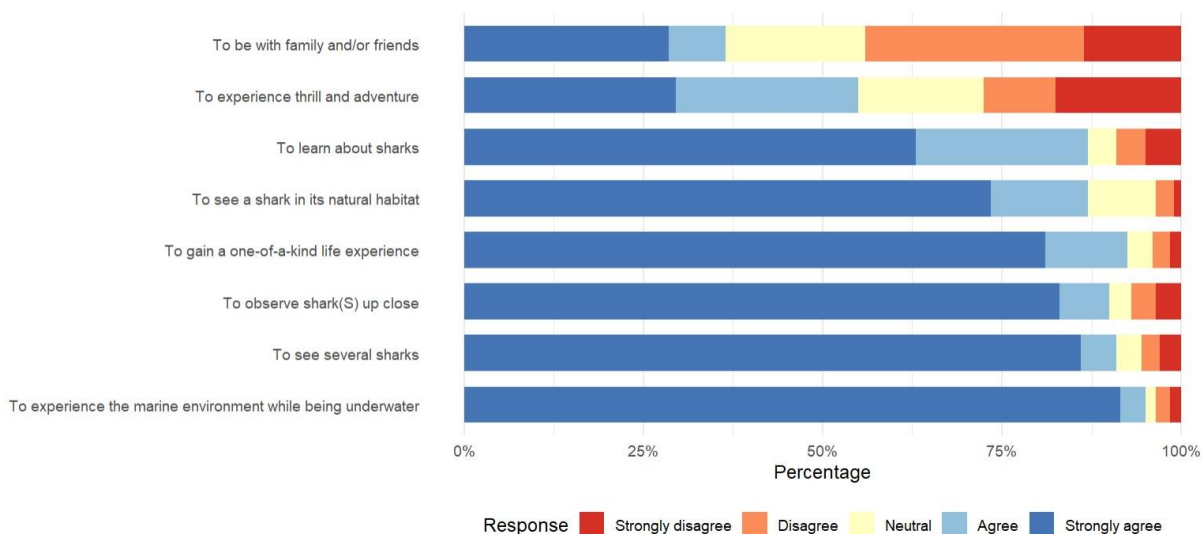


Figure 2. Motivations for Shark-Related Activities. Cronbach's  $\alpha = 0.80$

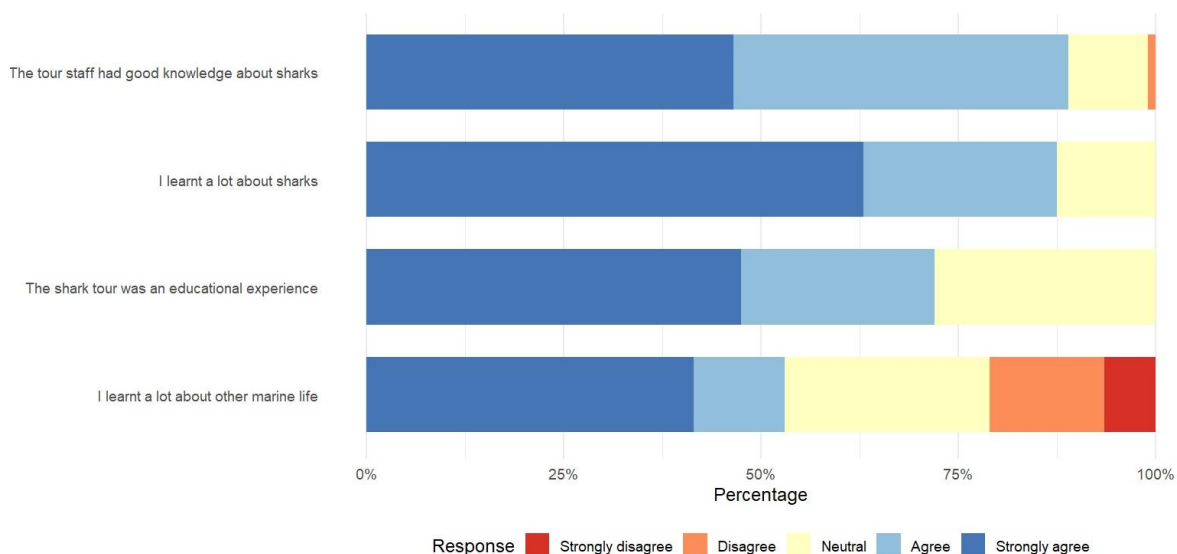


Figure 3. Education Outcomes of The Shark Tour. Cronbach's  $\alpha = 0.85$

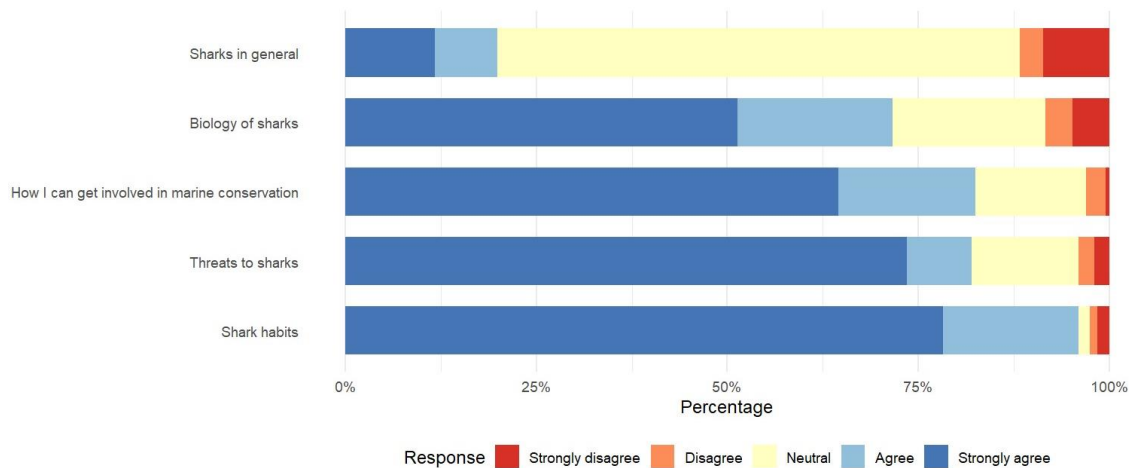


Figure 4. Knowledge Gained from the Shark Tour. Cronbach's  $\alpha = 0.81$

ecotourism operations. In this case, ecotourism, especially wildlife viewing tourism, has a high potential to increase tourist awareness and encourage positive behaviours by fostering emotional experiences (Pratt and Suntikul, 2016).

Participants demonstrated considerable interest in learning about shark behaviour and the threats confronting shark populations. Prior to the tour, staff delivered a preliminary briefing outlining the activities, followed by more detailed explanations covering shark biology, behavioural traits, existing threats, and actionable steps tourists could take to contribute to conservation efforts. Nearly four-fifths of respondents indicated that information pertaining to shark behaviour emerged as the most popular topic. Their attentiveness was particularly evident in their tendency to photograph and record shark activity, whether observing solitary individuals or groups. Tourists frequently sought clarification on each interaction and observed behaviour, reflecting a genuine effort to deepen their understanding. As shown in Figure 4, 73.5% of participants "strongly agreed" that information on shark threats in Indonesia was notably compelling. Discussions surrounding these threats frequently served as a catalyst for further dialogue, with several tourists sharing comparable experiences from their own countries or other destinations they had visited. Among the specific topics of concern raised were shark fishing, bycatch, overfishing, and entanglement in fishing nets.

**The educational impact of guided shark tours: a pre- and post-experience**

Figure 5 summarizes tourists' general knowledge of sharks, their attitudes toward shark

conservation, and their willingness to participate in conservation efforts. Most respondents affirmed that "it is important that we learn about sharks." This foundational awareness appears to shape broader perceptions, as nearly all tourists recognized that sharks face significant threats. Respondents also acknowledged the ecological role of sharks as apex predators in maintaining marine ecosystem balance. Interview data further corroborated these findings, revealing strong support for shark conservation among tourists. Many expressed a willingness to contribute through commitments of time, energy, and financial resources to support conservation initiatives.

Figure 5 summarizes participant knowledge of sharks based on survey responses. The questionnaire, designed to assess opinions before and after the shark tour, yielded acceptable internal consistency measures appropriate for the exploratory stage of psychometric research. These findings offer robust evidence that participation in shark tourism activities can positively shape public perceptions. Observed shifts in participant attitudes toward sharks reflect an increased awareness of conservation needs. Notably, respondents demonstrated a marked change in their view of media narratives surrounding sharks, with 63.5% acknowledging that sharks are under significant threat as a substantial increase from 42.5% prior to the tour. Similarly, the proportion of respondents who strongly agreed that sharks are "important to maintaining a healthy marine ecosystem" rose from 40.5% to 58.5% following the experience. The data indicate that a combination of direct encounters with sharks and educational briefings delivered by tour operators were critical drivers of these perceptual changes. These results align with previous studies, which suggests that educational experience foster more beneficial ethical

attitudes (Gallagher *et al.*, 2015; Apps *et al.*, 2017; Sutcliffe and Barnes, 2018). Tour activities incorporate with educational provision encourages the development of empathy towards sharks through direct observation of their behavior. The results of changes in perspective towards sharks are associated with support given for environmental conservation (Castillo-Huitrón *et al.*, 2020) and may even reduce the likelihood of consuming shark meat. Moreover, changes in attitudes serves as strong predictors of long-term impacts in developing support for conservation efforts (Stronza *et al.*, 2019; Ziegler *et al.*, 2021).

**Interpretation as a tool for conservation engagement**

The results of this program demonstrate its effectiveness in enhancing good knowledge and fostering positive attitudes of tourists towards shark populations, as well as increasing their willingness to support shark conservation efforts. Conservation benefits are more likely to be obtained when the learning benefits from information are reinforced with emotional connection from experiences during the

program. In the form of support for shark conservation efforts, most tourists interviewed expressed a willingness to take advantage of opportunities in the form of providing funds or sharing information related to sharks they encountered in the Raja Ampat area. The provision of information is intended to inform about the existence of sharks seen by tourists visiting a dive site or from the surface. The information tourists provide includes sightings of sharks at dive sites or from the surface, which they share through direct messages to operator staff, resorts, local NGOs, or via social media. Tourists who have participated in guided shark tours often show a strong potential in providing valuable data due to their heightened interest in marine conservation and knowledge gained during their experience (Thiel *et al.*, 2014).

Tourists who have been briefed during shark-based activities, they were educated about the human impacts that on the shark population, such as shark finning and overfishing (Dulvy *et al.*, 2014). As a result, participants acknowledged the importance to contributing to shark conservation activities. In this

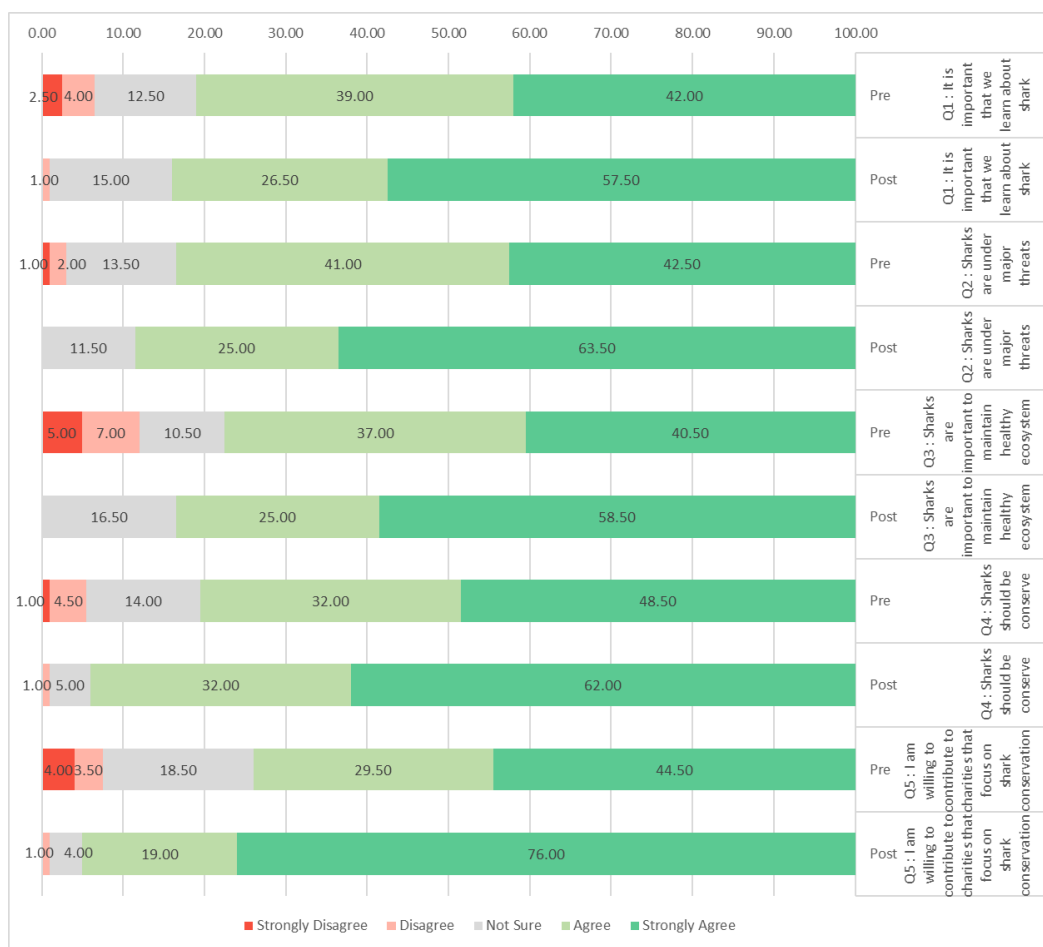


Figure 5. Attitude toward shark. Cronbach's  $\alpha$  Pre = 0.80; Cronbach's  $\alpha$  Post = 0.81

study, several tourists have succeeded in providing information and photographs related to the sightings of various sharks, including walking sharks, blacktip reef sharks, whitetip reef sharks, grey reef sharks, wobbegong sharks, and Indo - Pacific Leopard sharks at several dive sites in Raja Ampat. Similar to Raja Ampat, several other regions have been beneficial by the information provided by tourists. In the South Pacific, scuba divers have provided data on the presence of grey reef sharks (Vianna *et al.*, 2014). The same thing also happened in Thailand; scuba divers contributed temporary distribution data on sharks they found at dive sites (Ward-Paige *et al.*, 2018).

Ecotourism can provide a viable conservation strategy for sharks threatened by extractive industries by promoting their long-term survival and protection (Cisneros-Montemayor *et al.*, 2013; Sutcliffe and Barnes, 2018). Beyond its role in ecotourism, Raja Ampat has seen a significant expansion of marine protected areas (MPAs) aimed at strengthening ecosystem protection. These MPAs are designed to safeguard ecological and biodiversity values under increasing pressure from marine activities and global environmental change. In this context, local government efforts to position ecotourism as a conservation tool warrant continued support. Several countries, including Indonesia, have leveraged the economic value of shark-based tourism to drive species and habitat protection. Tourism remains the largest single sector in the Indonesian economy, contributing 4.1% to national GDP (BPS, 2024), and has provided the economic impetus for shark conservation advocacy. Recognizing the contribution of sharks to the tourism industry, authorities have designated several major dive sites as MPAs where shark fishing is now prohibited.

The sustainability of shark-based tourism depends on stakeholders who manage the relationship between the biological, social and economic dimensions of the activity (Fernandes and Rossi-Santos, 2018). It is recommend establishing a standardized framework in developing guidelines for continued and reinforced to promote the conservation of both marine biota and habitats. Support for education and training to be provided for tour guides and implementing guidelines to raise awareness are important considerations. In addition, it is important to provide the possibility for students from local schools to carry out their internships in shark tourism activity programs. Shark tourism program combined with education could also foster environmental awareness in their surrounding areas and can serve as a source of inspiration and education that raises conservation awareness (Rodrigues *et al.*, 2022). Developments in social, economic and biological aspects are expected to support shark populations to

maintain the shark survival rates, community well-being, and improve the tourism experience.

## Conclusions

This study examined to assess tourists' motivations for seeing sharks, how they experience these activities, their engagement with educational content provided during tours, and their resulting attitudes toward sharks. The findings reveal that motivation among tourists participating in shark-based tourism on Kri Island extends beyond the pursuit of an adrenaline rush. Curiosity and a genuine desire to observe sharks up close emerged as equally compelling drivers. The emotional connection cultivated during these encounters, combined with exposure to basic biological and ecological information, strengthens tourists' willingness to support and participate in shark conservation efforts. The continued expansion of shark-based tourism signals a need for closer scrutiny to ensure that recreation and conservation remain in balance. When managed appropriately, shark tourism offers a pathway to sustainable economic growth while simultaneously advancing conservation objectives. Education and interpretation, in particular, function as powerful mechanisms for fostering conservation support and enhancing tourist satisfaction. The challenge moving forward lies in developing shark tourism that serves as a genuine platform for education and conservation, one that actively engages all stakeholders, including tourists themselves, in raising awareness and promoting stewardship.

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