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Snorkeling Safety in Karimunjawa: Guide Skills, Training, and Tourist Comfort

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Abstract
This study explores the relationship between snorkelers' perceptions of service quality by snorkeling guide. Specifically, it investigates the essential safety skills and knowledge of guides operating in the Karimunjawa Islands, a popular marine tourism destination within Indonesia's exotic Coral Triangle. Ensuring proper safety standards is critical for minimizing risk and enhancing the destination's appeal. To understand the guides role in delivering safe, comfortable, and memorable experiences, this study employed a qualitative approach. Data were gathered through interviews with tourists, guides, and the member of Indonesian Tourist Association management, and were complimented by field observations to document activities and validate the information. The key findings reveal that guides are highly effective in providing informative briefings, supervising tourists, and possessing relevant training in water rescue and guiding competence. The study concludes that investing in guide skills is a proven strategy for improving tourist safety and preventing the future water accidents, recommending ongoing training updates.

Keywords: snorkeling guides; tourist safety; skill and knowledge; water rescue

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Introduction

Indonesia the second largest coastline in the world with more than 80.000 km of coasline and 17.500 islands (Marfai, 2014; Marfai, Riasasi, et all., 2019). The beauty of the underwater world is the highest motivating factor for snorkelling and diving attractions when compared to other forms of adventure tourism (Leujak & Ormond, 2007). Commitment and collective action on conservation is seen in the extent to which dive centre businesses adopt and implement environmental values into operational standards and bussiness behaviours. A study in Pemuteran Bali, dive centres are considered as one of the main factors needed in the success of environmental and coral reef conservation (Naja et all., 2021b) Travellers are willing to pay for a snorkelling guide when visiting a snorkelling destination. Travellers agree that the presence of a trained snorkelling guide at the lead of a snorkelling trip can be a safety and comfort factor (Grafeld et all., 2016; Hannak et all., 2011). Safety is not only for the coral reef environment, but especially safety for the tourists itself. Tourist satisfaction is determined by the quality of the guide in serving them, in order to create a sense of wanting to return to travel to a particular destination. This is a basic parameter in evaluating the performance of guides or services in a tourist destination (Yoon & Uysal, 2005). Snorkelling is more popular with tourists because it is relatively cheaper and easier than scuba diving. Many think snorkelling does not require any special training. However, the level of risk involved in snorkelling activities is no less dangerous; examples of potential hazards include being swept away by waves, near drowning, unfamiliarity with snorkelling equipment, tourists who cannot swim, etc (Cater, 2006; Dunne et all., 2021; Lucrezi et all., 2018; Walley & Totnes, 2011).

Snorkelling guides have the duty and responsibility of supervising tourists. Their level of training is unknown and may vary between affiliations or even be non-existent, unlike dive guides who are certified in their skills. The difficulty in supervising snorkelers is a unique skill as the relatively long time with the face underwater and the presence of waves may lead to the assumption that snorkelers are still swimming at the surface of the water and may result in a slowed response (Dunne et all., 2021a). There are many studies related to diving and snorkelling tourism, but the empirical research is on the impact of coral reef damage from diving and snorkelling activities. Some of these studies relate to coral reef ecosystems (Pattengill-Semmens & Semmens, 2003; Purnomo et all., 2022; Tito & Ampou, 2020; Windayati et all., 2022), impact of diving and snorkelling activities (Alharbi & Rangel-Buitrago, 2023; Balzaretti Merino et all., 2021; Claudet et all., 2010; Ospan et all., 2024; Rangel et all., 2015).

However, there is no research on the competence of snorkelling guides in the water rescue skills. One of the factors in tourists satisfaction is the quality of service, including the safety and comfort of tourist safety and risk management programmes in the snorkelling tourism industry. The records collected in the last two months (August – September 2024) showed four cases of accidents during snorkelling activities (Adit, 2024; Ardin, 2024; Rahman, 2024; Sad, 2024). The victims were suspected to have drowned because they were not wearing life jackets, while in other cases it was suspected that the tourists were exhausted. The data was obtained from news in the community which was confirmed to be true by the Secretariat of the Indonesian Dive-tourism Company Association. There are many factors that cause snorkelling accidents, which are suspected to be due to procedural errors, such as lack of knowledge of snorkelling equipment, separation from the group and swimming alone (Dunne et all., 2021; Gronfeldt, 2016; MMS, 2022).

To meet the needs of snorkeling tourism it is necessary to improve the professionalism of snorkeling tour guides, so the country has established work competency standarts for the snorkeling tourism industry. These Indonesian National Work Competency Standards (SKKNI) are standards guidelines that can be applied in the snorkeling tourism industry (KEMENAKER RI, 2024). The competencies of snorkeling tour guides have been formulated in the National Competency Standards which were ratified by the Ministry of Manpower of the Republic of Indonesia in 2019 and have been reviewed in 2024. The competency standards used in this study refer to the latest rules. There are eighteen competency units that must be mastered by a snorkeling tour guide (shown on Table 1).

Table 1.1 Standard Competency of Snorkeling Guide

No	Unit Code	Title of Competency Unit
1	R.93PWS01.001.1	Working Together with Partners
2	R.93PWS01.002.1	Analyzing the Profile of Snorkeling Tourists
3	R.93PWS01.003.1	Preparing Snorkeling Activity Documents
4	R.93PWS01.004.1	Developing a Snorkeling Tour Guide Plan
5	R.93PWS01.005.2	Identifying Snorkeling Locations According to Their Classification
6	R.93PWS01.006.1	Making Occupational Safety and Health Planning Snorkeling Tour Guides
7	R.93PWS01.007.2	Preparing Snorkeling Tour Equipment and Supplies
8	R.93PWS01.008.2	Conducting a Briefing on Snorkeling Tourism Activities
9	R.93PWS01.009.2	Doing a Snorkeling Orientation
10	R.93PWS01.010.2	Applying Basic Snorkeling Skills
11	R.93PWS01.011.1	Make Photos and/or Videos of Snorkeling Tour Guide Activities
12	R.93PWS01.012.1	Working in a Different Social Environment
13	R.93PWS01.013.1	Receiving Complaints from Snorkeling Tourists
14	R.93PWS01.014.1	Overcoming Conflicts Durinf Snorkeling Tours
15	R.93PWS01.015.1	Taking First Aid Measures in Emergencies Snorkeling Tour Guides
16	R.93PWS01.016.1	Performing Equipment and Equipment Maintenance After Snorkeling Tour Guide Activities
17	R.93PWS01.017.1	Storing Equipment and Work Supplies After Snorkeling Tour Guide Acctivities
18	R.93PWS01.018.2	Documentating the Snorkeling Tour Guide Activity Report

(Source: KEMENAKER RI, 2024)

To ensure tourist comfort and safety, guides must satisfy the all requirements. However, in this study, the author limits the discussion to outlined in competency unit number 6, 8 and 15.

Methods

This research was conducted in the Karimunjawa Islands, Jepara Regency of Central Java (Figure 1). Karimunjawa can be reached in 2.5 hours from Jepara – Central Java using the Bahari Express, while the ferry takes 5-6 hours, while Ferry takes 5-6 hours. Karimunjawa is an archipelago consisting of twenty-seven islands, six of which are inhabited. Marine tourism in Karimunjawa, especially snorkeling tourism has developed since 2006. Currently, diving and

snorkeling tour guides are incorporated in Indonesian Tourist Association with local community members. It has nineteen dive sites (Madyaningrum, 2018), seven of which are favorite snorkelling sites.

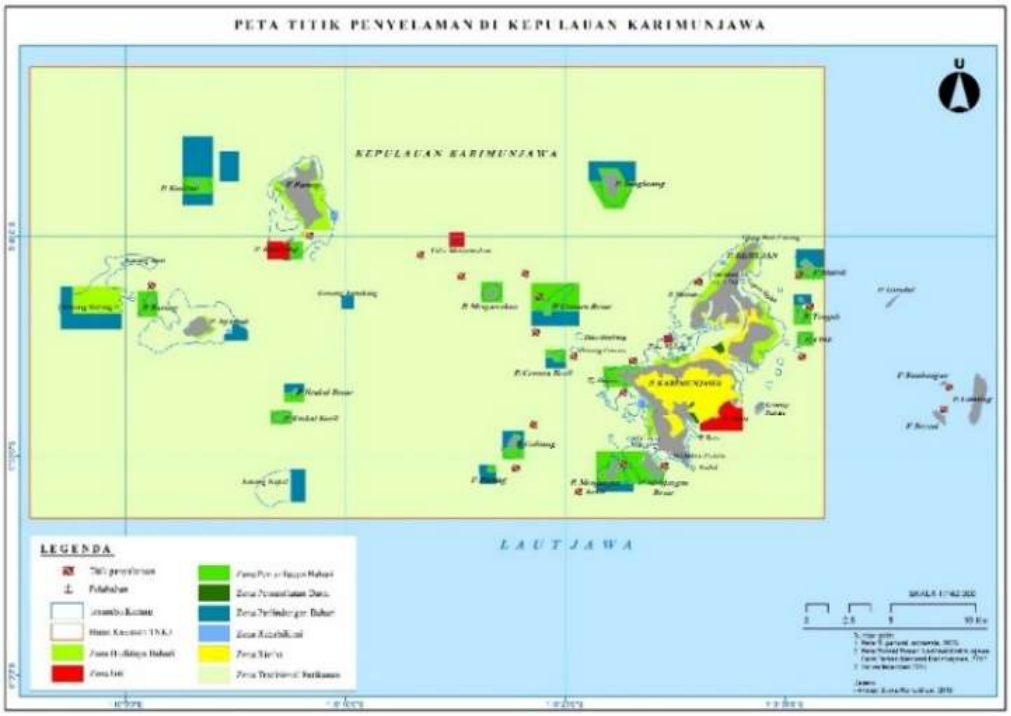

Figure 2.1 Map of the Study Location
(Source: Created by Ahmad S. Ramadan, 2018)

This research consisted of two stages of interviews, one with HPI officials and the second with tourists. The association officer interviewed was chairperson of the organization and an active member. They have been members for more than three years. An interview guide was prepared for this purpose, the first of which included information on guide profiles and trainings attended. In the second part, tourists were asked about the guide's service and assistance during snorkeling. The investigation was conducted in August 2024. The first stage, an informal meeting with HPI management, aimed to explore the competence of guides who are members of the HPI membership. What efforts are made to achieve tourist safety and security. To identify the tourists, we used indepth interview technique where the guides we followed were guides who had attended these trainings, so that researchers could confirm the competence of the guides to tourists.

Data collection was conducted in August 2024, starting interview with the advisor and chairperson of the tour guide organization. Then followed by participating in snorkelling trip activities for interviews with tourists as well as field observations to see firsthand the implementation of snorkelling tour guides. The number of informants was determined based on tourist who had visited repeatedly. This study, included interviews with five tourists who were repeat visitors to Karimunjawa. This research does not have statistical presentation because this research is qualitative research which aims for in-depth exploration of experiences (Westling et. al., 2014). Thorough documentation with photographs and field notes that reflect the

researcher's actual experience in the field (Oktadiana & Pearce, 2020). Through a participatory approach, the compilation of interview results was carried out with discussion. To prevent subjective bias, a discussion was conducted specifically to verify the data previously collected from both tourists and guides. The researcher subsequently performed a qualitative descriptive analysis of all interview and observation results.

Result and Discussion

Karimunjawa is in a National Park that has a utilisation zone and used as a marine tourism site. The national park, which is managed by a zoning system, can be utilised as a place for research, education, exploring science, aquaculture, tourism and recreation. With all potential that exists, it can support the economic life of the local community (Marfai, Mardiatno, et all., 2019). Karimunjawa's underwater ecosystems have the potential to drive the local economy through the tourism sector. The tour guide is housed by an organization called Himpunan Pramuwisata Indonesia (HPI). According to the advisor of organization, his journey as a guide began with his participation in several training to achieve his competence. The guide must have the knowledge, skills and attitude to be proficient and provide satisfaction for tourists. The competence of this guide is a demand to encourage repeat visits of tourist. This is similar to the research on tourist satisfaction in China, that the competence of tour guides is needed by tourists so that tourist will visit again (Chan et all., 2015).

Informal meeting with HPI management

The meeting was attended by fifteen people consisting of core management (include the advisors, chairperson, secretary and public relations) and active members who have been for more than three years. From the meeting, it was found that the need for snorkeling guides to meet competencies according to the competency standart for Snorkeling Guide is dive training, competency-based training as a snorkeling guide and training water rescue. These trainings have been carried out several times with budget support from the Jepara Tourism Office and Karimunjawa National Park. The HPI chairman noted that because not all members have participated in training, many snorkeling tour guide still lack the required competency certificate. In tourism research, it is well-established that the quality of services provided is a critical factor that profoundly influences a tourist's overall satisfaction and experience during their trip (Hidayah et all., 2025). Communities should priorities developing and offering a range of tourism focused services—such as providing tour guiding, hosting cultural displays, and meeting tourists' other everyday demands—as a key economic strategy. (Naja et all., 2021a). Effective safety management is the most crucial element for protecting guests during snorkeling activities.

The core requirement for snorkeling tour guides is the achievement of predetermined competency standards. In this research, the author limits the focus to guide competencies directly affecting tourist safety. These critical competencies include making occupational safety and health planning (competency unit number 6), conducting a briefing on snorkeling tourism activities (competency unit number 8) and taking first aid measures in emergencies snorkeling tour guides (competency unit number 15).

Creating occupational safety and health plans (competency unit number 6)

To fulfil competency unit 6 (creating occupational safety and health plans) guides must be knowledgeable about specific safety and health procedures used at the snorkeling tourism site. The knowledge learned is 1) potential hazards in the workplace in this case snorkeling

tourism locations; 2) the potential risk of each activity carried out in snorkeling tours; 3) occupational health and safety operational standards; and 4) get to know the equipment that must be used (KEMENAKER RI, 2024). This knowledge is obtained by the guide when participating in beginner dive training. During the dive training, they receive an introduction to snorkelling equipment and diving equipment. What equipment is needed, what is does and how to use it. By attending this training, participants will obtain a diving certificate at the one-star diver level or beginner level (Figure 2). Some professionals and dive operators are beginning to suggest that snorkelling needs training. There is generally an assumption that if you can swim, you can snorkeling. The argument that snorkellers need training is to avoid endangering themselves or the underwater environment (Gronfeldt, 2016). Meanwhile, the knowledge of tourist is wide, snorkeling tours are easy for anyone of all ages. The guide must have broad insight and knowledge that is always up to date with the times. The results of observations in the field show that the guide's knowledge meets the competence, but not all informants have the same ability to absorb the material. This is because of various levels of education, some graduate to high school but some do not.

Figure 3.1 Dive Training in Beginner Level to the Snorkeling Guide
(Source: Association, 2023)

The skills that a guide must master in this competency are 1) handling natural hazards; 2) perform assistance in an accident; and 3) create a workplace hazard analysis form (KEMENAKER RI, 2024). The Karimunjawa guide have demonstrated proficiency in the first two elements of this skill set; however, they currently lack expertise in conducting hazard analysis. They still require support to fully develop this particular skill. For rescue operations, guides should participate in water rescue training, which is led by professional instructors. This rescue proficiency is directly connected to competency unit number 15 (taking first aid measures in emergencies snorkeling tour guides).

It required the right attitude, careful and dexterity in providing the needs of proper safety equipment and placing the equipment in a location that is in accordance with procedures and easy to reach. This has been done by the guide in accordance with the checklist of equipment that must be brought every time you travel. From the observations, it appears that the guide

prepared the equipment well and carefully and placed it in the proper position. The following discussion will detail the connection between knowledge and skills and resulting changes in attitude (Yamada, 2011).

Conducting a briefing on snorkeling activities (competency unit number 8)

In every trip, a briefing is needed to convey what tourist do and don't. In this competency unit, the guide must be able to: 1) provide information about snorkeling area; 2) explain the use of snorkeling equipment; 3) conduct safety briefing; and 4) convey environmentally friendly snorkeling tourism procedures. (KEMENAKER RI, 2024). Knowledge about this competency relate to guidance is achieved by HPI members through snorkelling guide training (Figure 5) was conducted with Indonesia National Competency Standard (SKKNI) material, delivered by certified trainers from National Professional Certification Agency (BNSP).

Figure 3.2 Briefing Before Leaving for the Snorkeling Site

(Source: Author, 2024)

In this training, guides learn about trip preparation, trip implementation, how to handle tourists and what to do after the trip is over. The preparation stage, guides register with the association to report how many tourists they are bringing and which boat they are using. They also write down the purpose of the tour to which snorkelling spot. After carrying the equipment that has been prepared according to the size of the tourists, the guide goes to the boat and distributes the buoys to the tourists. Before leaving for the snorkelling site, the guide will give a briefing. The information is not only a way of minimising risks to yourself, but also of reducing negative impacts on the environment (Camp & Fraser, 2012; Toyoshima & Nadaoka, 2015). A guide's briefing skills need to be practiced and familiarised. Observations in the field have shown that not all guides are good briefers. Supervision at the snorkelling site is also taught in this training. The position of the snorkeler and guide should not be too far apart, close supervision, helpfulness if the snorkeler needs assistance, and helping to make fun documentation. The boatman will assist with the supervision and protection of the snorkelers, always being on the lookout and maintaining a safe distance between the boat and the tourists. Based on the standard operational procedure (SOP) of the Karimunjawa National Park regarding the establishment of a supervision ratio of 1 snorkelling guide supervising 5-7 tourists. This

supervision ratio is intended to provide comfort for tourists and facilitate snorkelling guides in carrying out their responsibilities.

During the observation, the guide gives a good briefing. Describing the snorkelling site, the value of wearing a life jacket, introducing and teaching the use of snorkelling equipment, mentioning the dos and don'ts of travelling, conveying emergencies and how to respond to them, and urging the preservation of the environment by not harming the ecosystem. In several studies, the authors highlighted careful briefing, careful site selection, buoys for anchoring or floating, life jackets and rotation of snorkelling lines as environmental management strategies (Camp & Fraser, 2012; Plathong et all., 2000; Toyoshima & Nadaoka, 2015; Yulianda et all., 2017). With adequate knowledge and skills, snorkeling tour guides in Karimunjawa already have confidence so that it affects their performance at the time of the briefing. The attitude of snorkeling guide who is confident and communicative when delivering briefings to tourist and is open in receiving questions and feedback, the guide's competence is achieved.

Figure 3.3 Supervision at the Snorkeling Site

(Source: Author, 2024)

Taking first aid measures in emergencies snorkeling tour guides (competency unit number 15). In order to successfully complete of competency number 15, the guide is required to 1) assess and respond to emergencies; 2) provide appropriate relief measures; and 3) make an incident report. The guide is expected to have the knowledge to identify emergencies and provide relief measures to carry out evacuation measures according to procedures. The guide must also pay attention to details of making an incident report and describes the emergency situation in question so that it can be acted upon (KEMENAKER RI, 2024). The appropriate training for this competency is the emergency first respond training (Figure 5). This training teaches the water rescue in guide swimming skills, rescue with and without rescue equipment, defense and release, evacuation in the water, first aid/CPR, oxygen administrator, evacuation (local protocols including Search and Rescue (SAR) facilities) and recovery of the victim. The training is conducted by experienced and certified basic live support instructors. Important note: 1) timely and appropriate use of first aid is an important factor in the treatment of a snorkeling injury. The administration of oxygen can be an important part of resuscitation, or can be used for any snorkeler who is breathing but in respiratory distress; 2) in emergency, remove the victim from

the water as quickly as possible before administering first aid/cardiopulmonary resuscitation (CDWS, 2020).

Based on observations in the field, the guide has learned the knowledge about emergencies, as evidenced by the delivery of a clear briefing when tourists ask what to do if their legs have cramps. The guide can explain well the steps that must be taken by tourists. In addition, the guide also emphasized the use of buoys which is mandatory for tourists, to keep it floating on the surface of the water and facilitate surveillance. The fulfilment of knowledge and skills in this competency creates a work attitude that is responsive to emergency situations and can face calmly and confidently in providing assistance. The guide is also creative in utilizing all the resources around him. It is evident that when tourists swim away from the boat and have difficulty approaching, the guide immediately throws the rope on the boat so that tourists grab it and pull closer to the boat.

Figure 3.4 Emergencies Response Training
(Source Association, 2024)

Tourists Satisfaction

Tourist satisfaction is fundamentally linked to the quality of services provided, which heavily influences their overall experience in tourism sector (Hidayah et all., 2025) The association officer said this training really helped them to feel confident when guiding tourists. To ensure that tourists return to Karimunjawa, tourist satisfaction is also a priority for the guides. In the global tourism industry, tourist satisfaction is very important to enhance the image of the destination (Salim et all., 2013, 2015).

Interviews with tourists showed that they were satisfied with the assistance during the snorkelling activities. One of the informants was a family man, who was over 60 years old, 40 years old and with his children under five years old. The interview was conducted with a 40 years old man, who is self-employed. This is his fourth visit to Karimunjawa always makes him want to come back again.

“Every year I bring my wife’s family here from Australia. My parents in law loves coming here, the people are friendly, and our snorkelling guide is always helpful. Especially when I bring my parents and children’s, their comfort and safety are most important.”

The other informants were a group of young people aged 20 and 23 years old. They were students at a university in Jakarta who were on holiday. This was his second visit, the time he brought his friends with him. According to them, the snorkelling guide explained how to use the snorkelling equipment, how to blow the water when it enters the snorkel, how to stay close to the boat and the group. He also helped us when we had problems taking photos. It was fun, we will come back next holiday.

Figure 3.5 A Guide Helps Put Life Jackets on Tourists
(Source: Author, 2024)

Another informant from Solo-Center of Java is a 30-year-old woman who work in a bank. She came with her friend and found it very helpful when she was afraid to start swimming. Even though this was her second visit, she still felt scared. At the beginning of briefing, the snorkelling guide finds out if there are any participants who have never snorkelled before and does a special briefing and introduction to snorkelling for them. However, the guide does not ask if the participants can swim or not.

"I cannot swim very well, so I was afraid to go near the objects on the reefs, but the snorkelling guide helped me and accompanied me so I felt safe. Especially when I almost choked on the water in my snorkel. He immediately taught me how to blow the water out oh the snorkel and clean the foggy mask. So far, I have felt very comfortable with the help of the snorkelling guide. Until I forgot that I can't swim, I was enjoying this snorkelling trip."

Tourists felt safe because the guides were attentive and helpful both during the swim and in the boat. Tourists' comfort is shown by the position of the guide, who is still in sight and the alert when there are tourists who need help. There were tourists who had leg cramps, the guide quickly approached and handled the emergency well so that the tourists could return to their activities. Another traveller commented that when we had difficulty using the snorkelling equipment, the guide helped us and gave us a little training and tricks to use the equipment comfortably. This helped us to enjoy the adventure. We will return to Karimunjawa with family and friends. The quality of the service determines the likelihood of a return visit. In addition, the ability of guides and operators to maintain relationships with tourists greatly influences the desire to visit again (Athanassopoulos et all., 2001; Yoon & Uysal, 2005).

Conclusion

Snorkelling guides in Karimunjawa have attended training sessions that support their knowledge, skills and attitude in serving tourists. This training provides them with an understanding of safety protocols, practical experiences and the ability to deal with emergencies, communication skills, giving them confidence when interacting with tourists. As a result, the tourists feel safe and comfortable and get an experience. This leads to tourist satisfaction and makes it possible to visit again. The safety and security of tourists and the guide team is the key to successful snorkelling guiding in Karimunjawa. This research provides a strategy to increase the capacity of snorkelling guides in supervision, mentoring the tour guiding process with dive training, water rescue training, and competency-based snorkelling tour guiding training. Hopefully, this research will provide recommendations for other snorkelling tourism destinations.

The research that has been conducted certainly has strategic value in supporting the development of snorkelling tourism in Indonesia even in Asia, but there are still challenges and further research agendas that need to be carry out. Challenges and further research agendas include how to provide first aid procedures in accidents before being handled by the medical team, or emergency response role before handling over the victims to medical response. This would allow a comparison of successes and failure in efforts to minimise the risk of accidents during snorkelling activities. Secondly, the skills and knowledge of snorkelling tourists in relation to the risk of snorkelling trips are also interesting to research, so that competence is not only emphasised on the guide, but also on the tourists. Third, what is the role of flotation devices in the safety of snorkelling and how should the use of flotation devices be enforced by guides?

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