

Local Wisdom in Mitigating the Impact of Culinary Tourism on Seawater Quality in Serangan Village, Bali

Arik Agustina¹, Ni Putu Isha Aprinica², I Ketut Muliadisa³

123

Institut Pariwisata dan Bisnis Internasional, Denpasar, Indonesia

* Correspondence e-mail; arikagustina@ipb-intl.ac.id

Article history

Submitted: 2026/07/02; Revised: 2026/09/15; Accepted: 2026/10/08

Abstract

The development of culinary tourism in coastal areas contributes significantly to local economic growth but may also create environmental pressures, particularly on marine water quality. Serangan Village, Bali, as a growing coastal tourism destination, faces challenges in maintaining environmental quality due to increasing seafood-based culinary activities. This study aims to identify marine water quality conditions in Serangan Village and formulate local wisdom-based mitigation strategies. A descriptive quantitative approach was employed by collecting seawater samples from five representative locations around the culinary tourism area. Physical, chemical, and biological parameters were analyzed and compared with the marine water quality standards stipulated in Government Regulation of the Republic of Indonesia Number 22 of 2021. The results indicate that most parameters remain within acceptable standards; however, local pollution indicators such as floating waste, oil layers, elevated Biological Oxygen Demand (BOD), and ammonia concentrations were observed near culinary tourism activities. Local wisdom practices, including *Tri Hita Karana*, communal cooperation (*gotong royong*), customary regulations (*awig-awig*), and community-based environmental management, have significant potential as mitigation instruments to preserve coastal environmental quality. The integration of local values and modern environmental management is essential for achieving sustainable culinary tourism in Serangan Village.

Keywords

Compensation System, Transformational Leadership, Employee Performance, Employee Engagement



© 2026 by the authors. This is an open access publication under the terms and conditions of the Creative Commons Attribution 4.0 International (CC BY SA) license, <https://creativecommons.org/licenses/by-sa/4.0/>.

INTRODUCTION

Coastal tourism is one of the tourism activities that has a close relationship between community economic activities, natural resources, and environmental quality. Coastal areas can function as an ecological space, social and economic space for the community through fishing, trade, recreation, and culinary activities. Serangan Village is located in Denpasar City, Bali Province, which is one of the areas that has the potential for coastal tourism and culinary tourism. Culinary tourism activities provide economic opportunities for local

communities, where most of the local people sell culinary products derived from marine products.

Based on Semara and Arianty's research, 2022 states that Serangan Tourism Village faces quite severe tourism challenges, namely the lack of development of culinary tourism as a local product for tourist attractions. Research by Gupta et al, 2023 states that culinary tourism in Serangan is less popular among the Balinese people when compared to the fish and processed culinary markets in Serangan Village. This is due to the location of Serangan Village which requires special access. Yani et al, 2024 stated that an effective structuring strategy is needed to develop tourism in Serangan Village through the design of a culinary tourism center based on local wisdom supported by an integrated area design. Where the design is expected to be able to increase tourism competitiveness through the development of new destinations through an approach from the people, by the people and for the people. The concept is based on the Tri Hita Karana Concept. The concept of Tri Hita Karana is the harmony between humans and God (Parhyangan), humans and humans (Pawongan), and humans and the environment (Palemahan).

Serangan Village Culinary Tourism is currently developing. In mid-2026, there will be a grand outlet or shopping center opened in the Serangan Village area, namely Sira Village. The development of a tourist center in the Serangan Village area is one of the other attractions for the community to Serangan Village. Local and international tourists have begun to visit Serangan Village to enjoy seafood cuisine. However, the development of activities can also reduce the quality of the environment derived from organic waste, waste water, food waste, oil and fat, and domestic waste. Waste that is not managed properly can affect the quality of seawater waters around Serangan Village. This condition can be a concentration for the sustainability of coastal tourist destinations. The role of local communities in environmental management does not have to depend on technological approaches alone but also on developing community knowledge, the value of togetherness, mutual cooperation, social norms and awig-awig (local rules). This is an important instrument in the management of environmental resources which is one of the determining factors for the sustainability of coastal tourist destinations. This approach is local wisdom.

Local wisdom is one of the strategic positions in mitigating the impact of tourism because local communities interact directly with the surrounding environment. The integration of local knowledge with modern environmental management can be a relevant approach to realize sustainable culinary tourism. Currently, Serangan Village has been designated as a Special Economic Zone (SEZ) of Kura-Kura Bali which is expected to encourage and increase economic growth, equitable development and development of tourist destinations. To support this, culinary tourism in Serangan Village needs to be managed properly to prevent pollution from domestic activities that pollute the sea. This research aims to identify seawater quality conditions and develop mitigation perspectives based on local wisdom in the management of culinary tourism in Serangan Village.

METHODS

This study uses a quantitative descriptive approach. Sampling was carried out at five points, namely: (1) control point, (2) East side of the landfill, (3) under the Serangan Bridge, (4) South side, and (5) area near culinary tourism. The seawater samples taken were first measured for physical properties such as waste, temperature, pH, oil coating, and odor. Furthermore, the seawater samples were tested at the Labhidro Laboratory, as well as information collection through literature review, observations, and discussions with the community. Literature review on culinary tourism and seawater quality. Furthermore, the results of the interview were formulated and related one concept to another, and the results of the seawater test will be compared with the quality standards of Government Regulation of the Republic of Indonesia Number 22 of 2021 Appendix VIII concerning Seawater Quality Standards. Observations and interviews were conducted with culinary tourism visitors and traders in Serangan Village related to waste management and environmental conditions in Serangan Village. Data were analyzed and identified patterns, relationships and policy implications.

RESULTS AND DISCUSSION

Potential Impact of Culinary Tourism

Culinary tourism activities can produce several types of environmental pressures as shown in Table 1 below.

Table 1. Potential Impact of Culinary Tourism

Activities	Potential Waste/Impact	Potential impact on the environment
Food processing	Organic wastewater	Increased organic load
Equipment washing	Detergents and organic matter	Changes in water quality
Oil use	Oils and fats	Water quality disorders
Food scraps	Organic waste	Odor and increased organic load
Food packaging	Plastic and disposable materials	Plastic waste
Tourist activities	Garbage and wastewater	Deterioration of water quality

Seawater samples were taken in April 2026 where Point 1 as a control is a control for the environment or used to assess natural conditions that have not been or are not affected by certain pollution conditions or activities. Point 2 is Seawater on the East side of the landfill, Point 3 is the lower side of the bridge in Serangan Village, Point 4 is seawater on the south side and Point 5 is an area near culinary tourism. These five points can represent the condition of seawater around Serangan Village.

Seawater Quality Inspection Results

Table 2. Seawater Quality Inspection Results

NO	PARAMATER	Units	QUALITY STANDARDS	TO 1	TO 2	TO 3	TO 4	TO 5
1	Smell		Odorless	Odorless	Odorless	Odorless	Odorless	Odorless
2	Suspended solids (TSS)	mg/L	20	1,0	0	0,6	0,6	1
3	garbage		Nil	Nil	There is garbage	There is garbage	There is garbage	There is garbage
4	Floating objects			Nil	There is a floating object	There is a floating object	There is a floating object	There is a floating object
5	Temperature	C	Alami	28	28	28	28	28
6	Oil coating		Nil	Nil	Nil	Nil	Nil	Positive
7	pH		6,5 – 8,5	7,6	7,3	7,2	7,5	7,6
8	Salinity		Alami	33	33	33	32	32
9	Amonia	mg/L	0,02	0,089	0,087	0,093	0,012	0,191
10	BOD	mg/L	10	9	10	11	10	13
11	Detergen/MBAS	mg/L	0,001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
12	Total coliform		1000	5	33	21	9	11

Quality Standard: Government Regulation Number 22 of 2021 Appendix VIII (Marine Tourism)

Discussion

Culinary Tourism and Pressure on the Coastal Environment

The results of the study showed that most of the physical parameters such as Suspended Solids (TSS), Temperature and pH still met the quality standards. The TSS value ranged from 0 – 1 mg/L where this value was far below the quality standard of Government Regulation Number 22 of 2021 Appendix VIII of the Marine Tourism section. However, the presence of garbage and floating objects was found at almost all observation points. At Point 1, which is the control, no garbage and floating objects were found. The oil layer was



identified at Point 5 which is a point adjacent to culinary tourism activities.

Figure 1. Point 1 (Control)



Figure 2. Point 5 (areas near culinary tourism)

The chemical parameters for the BOD parameter where at Point 1 which is a control with a value of 9.0 mg/L where this value still meets the quality standard, at Point 2 – 5 the value is in the range of 10 – 13 mg/L and the highest value at Point 5 where point 5 is the waters closest to culinary tourism in Serangan Village. BOD (Biological Oxygen Demand) is the oxygen requirement required by microorganisms to decompose organic compounds in aerobic conditions. High BOD values are usually caused by wastewater or domestic wastewater (Ramadhani & Purnama, 2022). The highest ammonia content was also found at the same point, namely at Point 5 with a value of 0.191 mg/L. The content of detergent/MBAS in the waters in Serangan Village was at a value of < 0.01 mg/L with a quality standard of 0.001 mg/L. The content of detergent/MBAS in a body of water can cause foam and inhibit the entry of sunlight into the waters.

Total coliform bacteria is one of the bacteria used as an indicator to determine whether the waters are contaminated with pathogenic bacteria or not. Based on the test results on the waters in Serangan Village, the value is in the range of 5 – 33 jml/100 mL where the quality standard is 1000 jml/100 mL. Although the Total coliform value is still below the quality standard, the presence of garbage and oil layers can show that culinary tourism activities are putting pressure on the coastal ecosystem. This condition requires a management strategy that is not only technology-based, but also involves community participation through cultural approaches and local wisdom.

Local Wisdom as a Mitigation Instrument

The local wisdom of the Balinese people has great potential in supporting the management of the coastal environment. The concept of Tri Hita Karana places the environment as an important element that needs to be maintained in balance. The implementation of this concept can be done through:

1. Awig awig a customary village is the local customary village rules regarding waste management and the prohibition of dumping waste or garbage into the sea or around the beach.
2. Mutual cooperation that can be done routinely in beach or tourist areas
3. Source-based waste management through waste sorting is easily decomposed and difficult to decompose in culinary businesses.

4. Environmental education to business actors and tourists about the importance of maintaining the quality of the waters
5. Collaboration between traditional villages, government officials and business actors in environmental supervision and conservation.

An approach based on local wisdom can increase public awareness because it is supported by cultural values that have lived and developed in the social life of the community. The integration between customary systems and modern management will strengthen the sustainability of culinary tourism destinations in Serangan Village.

CONCLUSION

Culinary tourism in Serangan Village provides economic benefits for the community but also has the potential to put pressure on the quality of the coast. The results of the study show that there are indications of pollution by domestic waste in the form of garbage, oil coatings and an increase in the value of BOD and ammonia in areas adjacent to culinary tourism activities. Although most of the parameters still meet quality standards, sustainable mitigation measures are needed.

Local wisdom such as Tri Hita Karana, awig-awig, and mutual cooperation are effective social instruments in supporting environmental management. The integration between local cultural values, community participation and modern environmental management is strategically important to realize sustainable culinary tourism in Serangan Village.

BIBLIOGRAPHY

- Adveni, L. V., Guntar, E. L., Farheni, M., & Wijayana, P. A. (2023). Penguatan kapasitas masyarakat Desa Serangan menuju pariwisata berkelanjutan. *Jurnal Abdi Masyarakat*, 3(2), 105–110. <https://jam.ipb-intl.ac.id/>
- Anismar, Harinawati, Mardhiah, A., Husniati, A. M., Andyna, C., Nazaruddin, M., & Muchlis. (2022). Sosialisasi pengelolaan destinasi wisata berbasis kearifan lokal di Pantai Krueng Geukueh. *Jurnal Malikussaleh Mengabdi*, 1(2), 55–64. <https://doi.org/10.29103/jmm.v1n2.9059>
- Fikriah, I. (2023). Kearifan lokal masyarakat dalam pengelolaan air berkelanjutan. *KOLABORATIF: Jurnal Isu Sosial dan Tinjauan Kebijakan*, 1(1), 1–6. <https://doi.org/10.52364/kolaboratif.v1i1.8>
- Gupta, A. A. N. A. C., Prabawa, M. S., & Nurwasih, N. W. (2023). Perencanaan dan perancangan pusat wisata kuliner laut di Serangan, Denpasar, Bali. *Jurnal Ilmiah*

- Arsitektur Universitas Warmadewa*, 11(1), 9–17.
<https://ejournal.warmadewa.ac.id/index.php/undagi/index>
- Hanifah, H., Suprijanto, J., & Subagiyo. (2020). Jumlah total bakteri dan bakteri coliform pada air laut dan sedimen perairan laut Kecamatan Kendal. *Journal of Marine Research*, 9(3), 245–250. <https://ejournal3.undip.ac.id/index.php/jmr>
- Juregi, T., Nuryanto, H., Mulyadi, T., & Gunawan, A. A. (2025). Strategi pengelolaan usaha kuliner berbasis kearifan lokal di Kelong Ciuyong Kabupaten Bintan. *Journal of Innovative and Creativity*, 5(3), 34297–34306. <https://joecy.org/index.php/joecy>
- Muhajirin, Fachry, M. E., Wahid, A., Amri, A., & Arief, A. A. (2024). Pendekatan kearifan lokal masyarakat pesisir terhadap pemanfaatan sumberdaya perikanan berkelanjutan di Kelurahan Lonrae, Kabupaten Bone. *Jurnal Masyarakat dan Budaya*, 26(1), 40–57. <https://jmb.lipi.go.id/jmb>
- Mulyani, D. (2022). Kearifan lokal masyarakat terhadap sumber mata air sebagai upaya konservasi dan pengelolaan sumber daya lingkungan. *Jurnal Bina Hukum Lingkungan*, 6(2), 410–424. <https://doi.org/10.24970/bhl.v6i3.286>
- Nurhasan, & Bunyamin. (2025). Peran kearifan lokal dalam mewujudkan prinsip keberlanjutan lingkungan hidup di Indonesia. *Jurnal Litigasi*, 26(1), 382–408. <https://doi.org/10.23969/litigasi.v26i1.19691>
- Ramadhani, A., & Purnama, V. (2022). Analisis kadar BOD (biological oxygen demand) dan COD (chemical oxygen demand) pada air Sungai Batang Masumai Kabupaten Merangin di UPTD Laboratorium Dinas Lingkungan Hidup. *Indonesian Journal of Chemical Research*, 7(2), 36–43.
- Saraswati, N. L. G. R. A., Arthana, I. W., & Hendrawan, I. G. (2017). Analisis kualitas perairan pada wilayah perairan Pulau Serangan bagian utara berdasarkan baku mutu air laut. *Journal of Marine and Aquatic Sciences*, 3(2), 163–170.
- Semara, I. M. T., & Arianty, A. A. A. S. (2022). Pengembangan wisata tematik berbasis kuliner di Desa Wisata Serangan. *Jurnal IPTA (Industri Perjalanan*

Wisata), 10(2), 380–385.

Yani, M. S., Pracintya, I. A. E., & Semara, I. M. T. (2024). Pusat wisata kuliner berbasis kearifan lokal di pesisir Pantai Serangan. *Journal Media Bina Ilmiah*, 19(4), 4339–4346.