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Coastal Litter and Surf Community Stewardship in Selected Surf Areas of Kuta, Canggu, and Uluwatu, Bali

Zion Pierson Medal and Frestika Dwinanda Situmeang*
Cendekia Harapan School, Bali, Indonesia
Jl. Seruni I-2 08, Br. Gubug, Puri Gading, Jimbaran, Kuta Selatan, Badung, Bali 80361, Indonesia
Corresponding author, e-mail: frestika@cendekiaharapan.sch.id

ABSTRACT: Visible coastal litter remains a concern in Bali's coastal areas, especially where tourism, marine ecosystems, and surfing activities intersect. This study examines visible coastal litter and the potential role of surf communities in supporting coastal environmental responsibility in selected surf-related areas in Kuta, Canggu, and Uluwatu. Using an exploratory qualitative case study, data were drawn from field observations, beach cleanup participation notes, contextual field notes, and relevant literature. The field records documented single-use plastics, food and beverage packaging, and mixed waste within different site-specific contexts, while organic or natural material was recorded separately as a contextual condition. At Kuta Beach, litter was documented around visitor-use and beach-access areas. At Batu Bolong Beach, debris was observed near shoreline, surf-access, and drainage- or river-connected zones. At Suluban Beach, localized litter was documented around surf-access and coastal recreation areas. These litter patterns suggest coastal litter may be linked to beach-based consumption, tourism activity, rainfall-related runoff, drainage pathways, and land-based waste movement. Surf communities may contribute through cleanups, plastic reduction, peer education, social media communication, and local advocacy, but these actions require support from waste infrastructure, policy enforcement, producer responsibility, and sustainable tourism governance.

Keywords: visible marine debris; coastal governance; environmental responsibility

INTRODUCTION

Ocean pollution is one of the most visible environmental problems in coastal regions where tourism, urban development, and marine ecosystems intersect. In Bali, this issue is especially important because beaches and coastal waters support tourism, livelihoods, fisheries, small businesses, and surfing communities. When plastic waste, organic debris, and polluted runoff enter coastal waters, their impacts extend beyond ecological degradation. They also affect marine animals, human well-being, coastal aesthetics, recreational safety, and the social meaning of the ocean for communities that depend on it. As Bali is widely known as an international tourism and surfing destination, ocean pollution should be understood as both an environmental problem and a matter of coastal governance (Beaumont *et al*., 2019; Grelaud & Ziveri, 2020).

Marine plastic pollution is closely linked to the imbalance between plastic production, consumption, and waste management capacity. Large quantities of plastic waste enter marine environments from land-based sources, especially where waste collection, recycling, and disposal systems remain insufficient (Borrelle *et al*., 2020; Meijer *et al*., 2021). In Indonesia, marine debris is shaped by archipelagic geography, dense coastal populations, seasonal flows, river transport, and uneven waste management infrastructure (Purba *et al*., 2019). In Bali, these pressures are intensified by tourism activity, rainfall, river discharge, and the high symbolic value of beaches for local residents and international visitors. Studies in Bali have shown that plastic debris remains a dominant component of stranded marine debris in coastal and conservation areas (Hendrawan *et al*., 2023; Suteja *et al*., 2021).

The consequences of marine debris may be ecological, social, and recreational. Marine animals may experience injury, ingestion, entanglement, habitat disturbance, and reduced survival

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due to anthropogenic debris (Rochman *et al*., 2016; Roman *et al*., 2022). Plastic pollution also raises concerns for human well-being through aesthetic degradation, reduced recreational quality, exposure to contaminated water, and possible microplastic pathways in environmental media (Prata *et al*., 2020). Previous research suggests that surfers' repeated engagement with coastal environments may contribute to greater awareness of ocean conditions and environmental change (Fox *et al*., 2021). However, the present study did not collect participant-based data and therefore does not make empirical claims about surfers' individual experiences or perceptions.

Previous studies in Indonesia and Bali have documented the composition, distribution, and possible pathways of marine debris, including the prominence of plastic waste in tourism and conservation coastal areas (Hendrawan *et al*., 2023; Purba *et al*., 2019; Suteja *et al*., 2021). However, less attention has been given to how visible coastal litter varies with specific site features within Bali's surf-tourism settings, including visitor-use areas, shoreline zones, surf access points, and drainage- or river-connected areas. These site-based litter patterns also require further examination in terms of management implications. This gap is important because surf-tourism destinations combine intensive coastal recreation, tourism-related consumption, coastal access, and possible land-to-sea waste pathways.

Surfing scholarship frames surf breaks and their surrounding environments as surfing ecosystems that combine ecological, cultural, recreational, and economic values (Manero & Mach, 2023; Román *et al*., 2022). Within this perspective, surf communities may potentially support environmental education, litter monitoring, beach cleanups, and local advocacy. However, these community-based actions cannot independently address upstream plastic production, inadequate waste collection, illegal dumping, or river- and drainage-based waste leakage. Surf community stewardship should therefore be considered as one potential component of broader coastal management involving public infrastructure, policy enforcement, tourism businesses, producers, and local government.

This study examines field-observed patterns of visible coastal litter and their possible management implications in selected surf-tourism areas of Bali. The research is guided by the following question: What patterns of visible coastal litter were observed in selected Bali surf-tourism sites, and what management implications do these patterns suggest for surf community stewardship and coastal governance? The objective of this study is to identify field-observed patterns of visible coastal litter and to discuss their possible implications for local litter management, surf community stewardship, and coastal governance. The study contributes a site-based exploratory account that relates observed litter types and site conditions to possible management needs while positioning surf community stewardship as a potential component of multi-actor coastal governance rather than as a substitute for waste infrastructure, policy enforcement, and upstream waste reduction.

MATERIALS AND METHODS

This study employed an exploratory qualitative case study supported by literature-informed analysis to examine visible coastal litter patterns and their possible implications for surf community stewardship in selected coastal areas. This design was selected because the study aimed to understand visible coastal litter as a situated coastal-management issue rather than to measure marine debris quantitatively or generalize statistically across coastal communities. A case study approach is appropriate for examining complex issues in real-life settings, particularly when the analysis focuses on relationships among context, actors, practices, and institutional conditions (Harrison *et al*., 2017; Yin, 2017).

Field observations were conducted between October 2025 and January 2026 at three purposively selected surf-tourism sites in southern Bali: Kuta Beach, Batu Bolong Beach in Canggu, and Suluban Beach in Uluwatu. These sites were selected to represent contrasting coastal-use and spatial characteristics, including intensive tourism activity, drainage- or river-connected coastal areas, and cliff- and reef-based surf access. The site names refer only to the observed coastal segments and do not represent the entire coastal areas of Kuta, Canggu, or Uluwatu. Table 1 summarizes the representative coordinates, observation boundaries, shoreline characteristics,

visitor-use features, drainage connections, and selection rationale. Coordinates are presented in decimal degrees using WGS 84 and represent approximate central reference points, while observation lengths were reconstructed from mapped distances between documented boundary landmarks.

The observation schedule was reconstructed from field notes, photographic metadata, calendar records, and cleanup documentation. Six documented weekend visits were confirmed: three visits to Suluban Beach, two to Kuta Beach, and one to Batu Bolong Beach. Field sessions were conducted during morning or afternoon hours and lasted approximately 30-45 minutes. Observations covered the predefined coastal segments presented in Table 1 and focused on visible litter types, their locations within each segment, visitor-use areas, surf-access points, and drainage- or river-connected features. Because the number of visits was unevenly distributed among the sites, the findings are interpreted qualitatively, and no comparisons of litter frequency or abundance are made among sites. The dates, time windows, durations, and relevant field conditions are presented in Table 2.

Because the number of visits was unevenly distributed among the three sites, the observations were used to describe site-specific litter types and spatial contexts rather than to compare litter frequency, abundance, or pollution levels among sites. References to recurring patterns indicate observations documented within the available field records and should not be interpreted as standardized frequency measurements.

Data were recorded using field notes and a field observation checklist covering visible litter categories, spatial context, and general field conditions. The documented litter categories comprised plastic bottles, food and beverage packaging, plastic bags, straws, mixed debris, and other identifiable materials. Organic debris was recorded separately as contextual natural material and was not automatically classified as anthropogenic coastal litter. The spatial context included shoreline areas, visitor-use spaces, surf-access points, drainage- or river-connected areas, and cliffside or viewing areas where applicable. General field conditions included beach cleanliness, visitor activity, rainfall or visible runoff, proximity to drainage or river outlets, visual water appearance, and cleanup activity. Observations were recorded descriptively, with brief notes on visible litter types, their locations, and relevant site conditions. No standardized litter counts or numerical abundance scores were assigned. A reconstructed version of the field observation checklist, based on categories consistently documented in the original field records, is provided in Appendix A.

Informal contextual field conversations with surfers, surf instructors, and community members were used only to support the researcher's understanding of site conditions and local environmental concerns. These conversations were not treated as formal interview data, were not audio-recorded or transcribed, were not coded as participant responses, and were not used to produce representative claims about surfer perceptions, attitudes, or behavior. Therefore, the analysis emphasizes observed field patterns, cleanup participation notes, and literature-supported interpretation rather than participant-based generalization.

The field data were analyzed thematically across the three sites. Field notes and observation checklists were reviewed to identify recurring categories related to visible litter types, site conditions, possible litter pathways, and potential management implications. These categories were organized into field-observed litter patterns, possible sources and pathways, potential environmental and recreational implications, surf community stewardship, and multi-level coastal responsibility. Site-specific contexts and shared themes were examined without comparing litter frequency, abundance, or pollution levels. This analytical process followed the logic of thematic analysis, in which recurring patterns are identified, organized, and interpreted in relation to the research question and study context (Braun & Clarke, 2021).

Trustworthiness was strengthened through triangulation across field observations, cleanup participation notes, informal contextual field notes, and secondary literature. Reflexive attention was also applied because the researcher's interest in surfing could create a positive bias toward surf community action. To reduce this potential bias, the analysis explicitly considered the limitations of surfer-led initiatives and emphasized that beach cleanups, awareness campaigns, and individual plastic reduction cannot replace waste infrastructure, policy enforcement, producer responsibility,

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and systemic waste reduction. These strategies are consistent with efforts to strengthen credibility and transparency in qualitative thematic analysis (Nowell *et al*., 2017). Because this study did not apply standardized transect sampling, waste weighing, laboratory water testing, or quantitative debris measurement, the findings are presented as exploratory field-based patterns rather than statistically generalizable results.

Table 1. Characteristics of the Selected Study Sites

Site	Coordinates	Observation area	Site characteristics	Drainage connection	Selection rationale
Kuta Beach	8.7183° S, 115.1686° E	Beachwalk beach access to the beachfront adjacent to the Hard Rock Hotel; approximately 500 m	Wide sandy shoreline, paved access, visitor areas, rental sunbeds, vendors, and nearby parking	Municipal drainage outlet within the observed segment	Represents a highly visited tourism beach with concentrated visitor and commercial activity
Batu Bolong Beach, Canggu	8.6595° S, 115.1301° E	Small river outlet to the main beach-road access; approximately 400 m	Dark volcanic sand, exposed reef patches, surf-access ramps, hospitality businesses, surf schools, vendors, and parking	Small river outlet and drainage channel near the main beach entry	Represents a surf-tourism area where recreation, hospitality activity, and land-to-coast waste pathways intersect
Suluban Beach, Uluwatu	8.8149° S, 115.0884° E	Cliff-cave entrance to the exposed outer reef edge; approximately 250 m	Limestone cliffs, reef flats, narrow sandy beach, stairway and cave access, warung seating, and lookout platforms	Localized rainwater runoff pathways; no major river outlet	Represents a cliff- and reef-based surf-tourism setting with specialized access conditions

Table 2. Field Observation Schedule and Intensity

Site	Date	Time	Duration	Field condition
Suluban Beach	19 Oct 2025	Morning	45 min	Clear weather; low tide; localized plastic litter near warung access
Suluban Beach	7 Dec 2025	Afternoon	45 min	Weekend visitor and surf activity; packaging litter near the cave base
Suluban Beach	24 Jan 2026	Morning	30 min	Rainfall runoff; scattered plastics near viewing platforms
Kuta Beach	12 Oct 2025	Morning	45 min	Dry weather; vendor activity; packaging litter near sunbeds
Kuta Beach	20 Dec 2025	Morning	45 min	Heavy rainfall; visible drainage discharge along the shoreline
Batu Bolong Beach	15 Nov 2025	Morning	45 min	Clear weather; active surf use; litter documented near the river outlet

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RESULTS AND DISCUSSION

Field observations documented different forms and spatial distributions of visible coastal litter across the selected sites. Across the observed sites, the documented litter categories included plastic bottles, food and beverage packaging, plastic bags, straws, and mixed small debris. Organic or natural material was recorded separately as a contextual field condition. These materials were visible around beach-use areas, shoreline zones, surf access points, and areas connected to drainage or river-based runoff. Because this study did not use standardized debris counting, transect sampling, or waste weighing, the findings are presented as qualitative field-observed patterns rather than quantitative measurements of debris abundance.

At Kuta Beach, visible litter was documented around visitor-use areas, shoreline spaces, beach-access points, and sunbed areas. Plastic bottles, food wrappers, straws, plastic bags, and mixed packaging waste were observed around visitor activity areas, shoreline spaces, and beach access points. The condition of the site suggests that tourism-related consumption and direct beach use may have contributed to visible litter, although the study cannot determine the exact source of each item. This pattern is consistent with previous research showing that tourism activity can intensify coastal waste generation when not supported by effective waste prevention and management systems (Grelaud & Ziveri, 2020).

At Batu Bolong Beach, mixed plastic debris, food and beverage packaging, and stranded litter were documented around shoreline, surf-access, and drainage- or river-connected areas. Organic or natural material was recorded separately as a contextual condition. This interpretation is supported by studies showing that rivers, drainage pathways, and land-based waste leakage are important routes through which plastic debris can enter marine environments (L. C. M. Lebreton *et al*., 2017; Meijer *et al*., 2021; van Emmerik & Schwarz, 2020).

At Suluban Beach, localized plastic packaging, bottles, and mixed litter were documented near the cave base, cliffside access areas, upper viewing platforms, and surf-entry zones. Because Uluwatu is associated with cliff access, reef environments, and surf tourism, even scattered debris may affect the perceived quality of the coastal environment and the surfing experience. This interpretation is consistent with surf tourism literature that frames surf areas as social-ecological spaces shaped by environmental quality, recreation, and coastal access (Manero & Mach, 2023; Román *et al*., 2022).

Across the documented visits, visible coastal litter was recorded in several site-specific contexts. At Kuta Beach, litter was documented around visitor-use areas, beach-access points, sunbed areas, and a municipal drainage outlet. At Batu Bolong Beach, litter was documented near shoreline, surf-access, and river- or drainage-connected areas. At Suluban Beach, litter was documented around cliffside access, the cave base, viewing platforms, and surf-entry areas. These descriptions represent site-specific observations and should not be interpreted as comparisons of litter frequency, abundance, or pollution levels among the sites.

Table 3 presents a qualitative summary of the coastal litter documented at the three selected study sites. The table organizes the observations by site, observation focus, visible litter types, site conditions, observed litter context, and field interpretation. The summary presents site-specific observations and is not intended to compare litter frequency, abundance, or pollution levels among Kuta Beach, Batu Bolong Beach, and Suluban Beach.

The field-observed patterns suggest that visible coastal litter in the selected surf-related coastal areas cannot be explained by direct littering alone or reduced to irresponsible individual behavior. While direct beach use and visitor activity may contribute to visible litter, visible beach waste also reflects broader systems of production, consumption, disposal, collection, runoff, and coastal governance. The observed presence of debris around drainage- or river-connected areas further indicates the importance of land-based waste movement. This interpretation is consistent with previous studies showing that rivers, drainage systems, and mismanaged waste pathways are major routes through which plastic debris can enter marine environments (L. C. M. Lebreton *et al*., 2017; Meijer *et al*., 2021; van Emmerik & Schwarz, 2020).

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The field records documented single-use plastic items, including plastic bottles, food and beverage packaging, straws, plastic bags, and mixed packaging waste. Their presence is consistent with previous studies linking coastal litter to patterns of consumption and waste-management capacity (Borrelle *et al*., 2020; Nielsen *et al*., 2020). However, the present study did not quantify the occurrence of these items or determine their specific sources.

Visible litter was documented in contexts associated with visitor-use areas, commercial and hospitality activity, surf-access points, and drainage- or river-connected zones. These observations suggest possible links with beach-based consumption, waste collection, and land-to-coast litter movement. Nevertheless, the study cannot attribute individual litter items to specific activities or establish causal relationships between the observed site conditions and litter occurrence.

Rainfall, visible runoff, or drainage discharge was recorded during selected visits to Kuta Beach and Suluban Beach, whereas the Batu Bolong Beach visit was conducted under clear weather conditions. Therefore, the study does not compare rainfall-related litter conditions among sites. Drainage, river connections, and runoff are discussed only as possible litter pathways supported by the field context and previous literature on land-based plastic leakage (L. Lebreton *et al*., 2018; Meijer *et al*., 2021; van Emmerik & Schwarz, 2020).

Overall, the field observations and supporting literature suggest that visible coastal litter may be associated with several interacting conditions, including single-use plastic consumption, visitor and commercial activity, waste-management limitations, and land-to-coast litter pathways. Because

Table 3. Field-observed coastal litter patterns in selected Bali surf areas

Location	Main observation focus	Visible waste types	Site condition	Observed litter context	Field interpretation
Kuta Beach	Visitor activity areas, shoreline zones, and beach access points	Plastic bottles, food wrappers, straws, plastic bags, and mixed packaging waste	Visitor and commercial activity near beach-use areas	Litter documented near visitor-use areas, sunbeds, beach access, and the drainage outlet	The observed litter distribution suggests that tourism activity, beach consumption, and visible litter may be connected within the observed areas
Batu Bolong Beach, Canggu	Shoreline areas, surf access points, and drainage- or river-connected zones	Mixed plastic debris, food and beverage packaging, and floating or stranded waste	Coastal, hospitality, and surf activity near river and drainage connections	Litter documented near shoreline, surf-access, and river- or drainage-connected areas	The observed litter distribution suggests that drainage pathways, coastal activity, and possible land-to-sea waste movement may influence visible debris in the observed areas
Suluban Beach, Uluwatu	Surf access points, coastal edges, cliff-related access areas, and recreation spaces	Plastic packaging, bottles, scattered mixed debris, and localized visible waste	Cliff-based access, cave, viewing, and surf-entry areas	Localized litter documented near cliff access, cave base, viewing platforms, and surf-entry areas	The observed litter distribution suggests localized presence of litter around surf-access points and coastal recreation spaces

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The study was exploratory and did not measure litter abundance or source contributions quantitatively; these conditions should be interpreted as possible explanations rather than confirmed causal drivers. The findings indicate potential management needs related to waste prevention, collection, drainage management, and upstream litter reduction.

Visible coastal litter may have environmental and recreational implications for coastal areas. Field observations documented floating and stranded litter near surf zones and beach edges. The study also noted visually turbid water during rainfall-related conditions. However, visual turbidity may result from suspended sediment or other physical processes and was not treated as evidence of chemical, microbiological, or other forms of water pollution. Because the study did not conduct laboratory testing or in-situ water-quality measurements, it recorded water appearance only as a contextual field condition. The findings are therefore interpreted as exploratory field-based observations rather than direct evidence of ecological impact or water contamination.

Marine debris can affect marine organisms through ingestion, entanglement, injury, habitat disturbance, and reduced survival (Rochman *et al*., 2016; Roman *et al*., 2022). Based on previous literature, visible litter and runoff-related conditions may reduce perceived coastal quality and recreational value. However, the present study did not directly assess surfers' perceptions or experiences. For surfers, a surf break is not only a physical wave. It is part of a wider surfing ecosystem that includes water quality, reef condition, beach access, local community, safety, and emotional attachment to place (Manero & Mach, 2023; Román *et al*., 2022). Therefore, visible coastal litter in surf-related areas may have both environmental and recreational relevance. Table 4 summarizes potential environmental and recreational implications derived from the field observations and supporting literature.

The potential implications summarized in Table 4 indicate that coastal litter may have ecological, social, and recreational relevance. Previous studies suggest that surfers may function as informal observers of coastal conditions because of their repeated engagement with marine environments. In the present study, however, this potential role was not assessed through formal participant data. This does not mean that surfers should be treated as scientific monitors by default. However, their repeated contact with the ocean can generate practical environmental awareness that supports citizen observation, public communication, and local advocacy. Previous studies suggest that coastal users often connect environmental concern with personal experience, which can motivate support for pollution reduction (Fox *et al*., 2021; Hartley *et al*., 2018; Wyles *et al*., 2017).

We interpreted surf community stewardship through observed cleanup participation, field notes, and literature-supported discussion of surf-related environmental action. Within this exploratory study, surfer-led actions such as beach cleanups, plastic reduction, peer education, social media communication, and local advocacy are treated as potential forms of coastal stewardship rather than as representative evidence of the behavior of all surfers or surf communities in Bali. Beach cleanups can provide immediate visible improvement and strengthen public awareness, but they do not address upstream waste leakage. The present study was not designed to evaluate post-cleanup litter recurrence.

Surf instructors, experienced surfers, and community groups may contribute by integrating ocean literacy into surf lessons, encouraging reusable items, supporting cleanup routines, and using social media to communicate coastal responsibility. These actions are important because they connect environmental concern with everyday surf culture. However, surfers should be understood as potential environmental stewards rather than inherently sustainable actors. Their contribution becomes more meaningful when supported by waste infrastructure, local regulation, tourism management, and producer responsibility. Therefore, surf community action should be treated as an entry point into broader coastal governance rather than as a complete solution to ocean pollution.

Individual and community responsibility may help address visible coastal litter, but these efforts are insufficient without broader improvements in waste management and coastal governance. Surfers can reduce their personal plastic use, encourage others, organize cleanups, support environmental education, and raise pollution concerns on social media. However, they cannot independently control plastic production, municipal waste collection, drainage systems, tourism waste flows, or producer responsibility. This limitation shows that persistent coastal litter should be

Table 4. Potential Environmental and Recreational Implications of Coastal Litter in Surf Areas

Potential implication	Observed condition or literature-based concern	Interpretation	Supporting literature
Marine animals	Concerns about turtles, fish, birds, and coral-related habitats	Plastic creates risks through ingestion, entanglement, injury, and habitat disturbance	Rochman *et al*. (2016); Roman *et al*. (2022)
Surf and reef areas	Floating or stranded litter near surf zones and visually turbid water during rainfall-related conditions	Visible litter may affect recreational quality. Visual turbidity was recorded only as a contextual condition and was not treated as evidence of water pollution or degraded water quality	Manero and Mach (2023); Román *et al*. (2022)
Recreational experience	Visible litter near surf-access and coastal recreation areas	Previous studies suggest that visible litter may reduce perceived recreational quality; surfers' experiences were not directly assessed in this study	Fox *et al*. (2021); Wyles *et al*. (2017)
Coastal aesthetics and tourism value	Visible litter on beaches and near visitor areas	Previous studies indicate that visible litter may reduce coastal attractiveness and weaken the value of beach-based tourism.	Beaumont *et al*. (2019); Grelaud and Ziveri (2020)

understood as a waste-management and coastal-governance issue rather than solely a matter of individual behavior.

A balanced model of responsibility is therefore needed. At the individual level, coastal users should reduce unnecessary plastic use, avoid littering, and participate in responsible beach behavior. At the community level, surf groups, local residents, and youth communities can organize cleanups, peer education, and public awareness activities. At the government level, local authorities should improve waste collection, enforce disposal regulations, manage rivers and drainage systems, and provide adequate public facilities. At the producer and tourism-business level, producers should reduce disposable packaging, support refill systems, strengthen extended producer responsibility, and finance waste reduction. This multi-level model avoids blaming one actor while recognizing each actor's specific role in coastal environmental protection.

This interpretation is relevant to Bali because surfing contributes to tourism value by attracting visitors, supporting surf schools, creating employment, and shaping the island's global coastal image. Yet this value depends on clean beaches, safe water, healthy reefs, and accessible coastal spaces. Surf schools, hotels, cafes, beach clubs, and local vendors all influence waste generation and disposal practices. Sustainable surf tourism should therefore include reduced disposable packaging, refill stations, waste sorting, visitor education, cleanup support, and transparent collaboration with local waste services. Responsible behavior becomes more practical with accessible facilities, visible norms, and institutional coordination.

The governance implication is that surf communities should not be treated merely as volunteer labor for repeated beach cleanups. Their everyday exposure to ocean conditions can help identify pollution hotspots, seasonal waste patterns, and public awareness needs. However, their efforts should be connected to formal waste systems, tourism management, school programs, village-level regulations, and producer responsibility. Previous studies emphasize that marine plastic pollution requires both behavioral and systemic interventions, including upstream reduction, improved waste management, policy tools, and life-cycle approaches to plastic governance (Lau *et al*., 2020; MacLeod *et al*., 2021; Simon *et al*., 2021; Willis *et al*., 2022).

Based on the analysis, five practical directions are proposed. First, surf schools should integrate basic ocean literacy and waste responsibility into beginner lessons and youth programs. Second, surf communities should collaborate with local authorities to identify pollution hotspots and seasonal waste patterns. Third, tourism businesses near surf areas should reduce disposable plastic and provide refill and sorting facilities. Fourth, cleanup data should be recorded and shared so that waste types and possible sources can inform policy. Fifth, local government should strengthen upstream waste management, drainage control, and enforcement against illegal dumping. These directions position surfer-led stewardship as an entry point into broader coastal governance rather than as a complete solution to ocean pollution.

Because this study is exploratory and limited to selected surf-related coastal areas in Kuta, Canggu, and Uluwatu, the findings should not be generalized to all coastal areas in Bali or to all surf communities. The observations provide a site-based interpretation of visible coastal litter patterns, possible pollution pathways, and potential forms of surf community stewardship. They do not represent statistical measurements of marine debris abundance, direct assessment of water quality, or formal evidence of community-wide perceptions and behavior. Therefore, this study contributes an exploratory, field-based understanding of how visible coastal litter and surf-related environmental responsibility may be connected in selected Bali surf areas.

CONCLUSION

This exploratory study recorded coastal litter at three Bali surf sites and considered surf community stewardship. Field records noted single-use plastics, food and beverage packaging, bags, straws, and mixed debris, with organic material logged separately. At Kuta, litter appeared around visitor and beach-access areas; at Batu Bolong, near shoreline and drainage or river zones; at Suluban, around cliffside access and surf-entry points. Patterns may relate to beach consumption, tourism, drainage, runoff, and waste management, but no source was confirmed, and differing visit numbers rule out litter comparisons. Surf communities can raise awareness through cleanups, plastic reduction, peer education, and advocacy, yet cannot replace stronger waste infrastructure, policy, and tourism governance. Future work should pair standardized litter monitoring with water-quality, microbiological, chemical, and microplastic assessments.

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