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Exploring the ecological values of the Sedekah Laut tradition in Cilacap community and its relevance to IPAS learning in primary schools

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Abstract

Local traditions can provide meaningful contexts for connecting scientific concepts with students' everyday experiences. This study explores ecological values embedded in the Sedekah Laut tradition of the Cilacap coastal community and examines their relevance to primary IPAS learning. A qualitative approach with an ethnographic–ethnoscience perspective was employed. Data were collected through in-depth interviews, participant observation, and documentation, and were analyzed through data reduction, data display, and conclusion drawing. The findings reveal three interconnected ecological values: harmony between humans and nature, collective responsibility for marine conservation, and ecological spirituality expressed through gratitude and environmental care. These values correspond with IPAS topics concerning ecosystems, human–environment relationships, and natural resource conservation. The findings indicate that Sedekah Laut can serve as a contextual learning resource that brings local ecological knowledge into classroom learning while supporting environmental awareness and the preservation of coastal cultural knowledge.

Keywords

Ecological values, ethnoscience, IPAS learning, local wisdom, Sedekah Laut

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Introduction

Environmental education has become increasingly important as schools respond to ecological challenges such as climate change, biodiversity loss, resource depletion, and environmental injustice. These issues require learning that goes beyond the transmission of scientific knowledge and encourages students to understand their relationship with the environment and act responsibly toward it (Guevara-Herrero et al., 2024). At the primary level, this need is especially relevant because early learning experiences can shape how students perceive environmental problems and their role in addressing them.

One approach that can make environmental learning more meaningful is the integration of local and indigenous knowledge into science education. Such knowledge develops through long-term interaction between communities and their surroundings and often contains practical understandings of ecosystems, resource use, and environmental balance. Latip et al. (2024) found that local and indigenous knowledge (LIK) can strengthen scientific literacy while also supporting ecological awareness and reflective learning. Blackie (2024) similarly argues that indigenous knowledge can broaden science education by connecting formal scientific explanations with culturally grounded ways of understanding nature. In this sense, local knowledge should not be treated merely as supplementary cultural content but as a contextual resource through which scientific ideas can be interpreted more meaningfully.

Ethnoscience provides an appropriate framework for bringing these forms of knowledge into classroom learning. Rather than separating science from culture, ethnoscience examines how scientific understanding is embedded in the practices, beliefs, and experiences of particular communities. Evidence from previous research indicates that ethnoscience-based learning can support students' scientific literacy and critical thinking by connecting abstract concepts with familiar cultural contexts (Idul & Fajardo, 2023). This approach is particularly relevant to primary IPAS learning, where scientific and social perspectives are integrated to help students understand interactions among humans, society, and the natural environment.

In Indonesia, this contextual orientation is consistent with the direction of the Kurikulum Merdeka, which encourages learning that is responsive to students' environments and lived experiences. Local wisdom can therefore provide an important bridge between curricular content and the ecological realities surrounding students. However, the incorporation of local knowledge into primary IPAS learning remains uneven. In many settings, environmental concepts are still introduced mainly through textbooks and generalized examples, even though students live within communities that possess their own ecological practices, values, and environmental knowledge.

Previous studies in Indonesia have demonstrated the potential of local wisdom and ethnoscience for science learning, including their contribution to scientific literacy, contextual understanding, and the development of positive environmental attitudes (Rosidah et al., 2024; Hikmawati et al., 2024; Suryanti et al., 2020). Nevertheless, much of this literature has focused on terrestrial knowledge, cultural products, or general forms of local wisdom. Coastal and maritime traditions have received considerably less attention as sources of ecological knowledge for primary science education. This limitation is important because coastal communities possess distinctive knowledge systems shaped by their dependence on marine ecosystems, seasonal patterns, collective resource management, and cultural relationships with the sea.

The Sedekah Laut tradition in Cilacap provides a useful context for examining this issue. Practiced by coastal communities as an expression of gratitude and social solidarity, Sedekah Laut also reflects attitudes toward the sea, environmental balance, communal responsibility, and the relationship between humans and nature. These values are relevant to several primary IPAS themes, including ecosystems, human–environment interactions, natural resource conservation, and environmental responsibility. Examining the tradition through an ethnoscience perspective may therefore reveal forms of ecological knowledge that can be transformed into culturally relevant learning resources.

The novelty of this study lies in its focus on a coastal cultural tradition as a source of ecological knowledge for primary IPAS learning. Rather than examining Sedekah Laut only as a ritual or cultural heritage, this study interprets its ecological meanings. It considers how those meanings correspond with science and social learning in primary education. This perspective extends existing ethnoscience research by bringing maritime local knowledge into discussions of contextual and environmentally oriented learning.

Accordingly, this study aims to identify the ecological values embedded in the Sedekah Laut tradition of the Cilacap coastal community and to analyze their relevance to primary IPAS learning. It also seeks to formulate a conceptual basis for integrating these ecological values into contextual and culturally responsive learning. Through this approach, the study is expected to contribute to the development of IPAS learning that is scientifically meaningful, locally grounded, and responsive to environmental sustainability.

Research Methodology

Research design

This study used a qualitative approach with an ethnographic orientation and an ethnoscience perspective. The design was selected to examine how the Cilacap coastal community understands and expresses ecological values through the Sedekah Laut tradition and to explore the relevance of these values to primary science and social learning (IPAS).

The ethnographic orientation enabled the researcher to examine the tradition within its cultural setting through community practices, narratives, symbols, and interactions. Ethnoscience was used as an interpretive perspective to identify local ecological knowledge embedded in these practices and relate it to scientific concepts relevant to primary IPAS learning. In this study, the researcher served as the primary research instrument and interacted directly with participants and the cultural setting during data collection.

This approach was appropriate because Sedekah Laut involves not only ceremonial practices but also community knowledge concerning human–nature relationships, environmental responsibility, and the use of marine resources. Previous studies have similarly used local and indigenous knowledge to examine the relationship between cultural practices and science education (Febrian et al., 2024; Rosidah et al., 2024; Hikmawati et al., 2024; Widowati & Wakid, 2024).

Research site and participants

The study was conducted in the coastal area of Cilacap Regency, Central Java, Indonesia, where Sedekah Laut continues to be practiced by fishing communities. The site was selected

purposively because the tradition remains closely associated with the social and cultural life of coastal residents and provides an appropriate setting for examining local ecological knowledge.

Participants were selected through purposive sampling based on their direct involvement in, knowledge of, or educational experience related to Sedekah Laut. Seven key informants participated in the study: one traditional leader, two fishermen, two primary school teachers, and two community leaders. The inclusion of different participant groups allowed the study to examine cultural, ecological, and educational perspectives on the tradition. The participant composition reported in the manuscript is summarized below.

Table 1. *Research participants*

Participants	Codes	n	Age (years)	Role/Relevant Experience
Traditional leader	TA	1	59	Preserves cultural values and interprets ritual symbols
Fishermen	N1, N2	2	45, 50	Engage in fishing activities and participate in Sedekah Laut
Primary teachers	G1, G2	2	38, 39	Relate cultural and environmental values to science/IPAS learning
Community leaders	TM1, TM2	2	55, 65	Support, communicate, and oversee community traditions

Data collection

Data were collected through in-depth interviews, participant observation, and documentation. The use of multiple sources made it possible to compare participants' accounts with practices observed during the Sedekah Laut activities and with relevant documentary evidence. Semi-structured interviews were conducted with traditional leaders, fishermen, primary school teachers, and community leaders. Each interview lasted approximately 30–60 minutes and was recorded with the participant's consent. Field notes were also taken to document contextual information and relevant observations during the interviews. The interviews explored participants' understanding of the sea, meanings attached to Sedekah Laut practices and symbols, environmental responsibility, conservation practices, and the possible relevance of these values to primary IPAS learning.

Participant observation was conducted during activities associated with Sedekah Laut. The researcher observed and participated in selected community activities, including beach cleaning, the procession of offerings, communal prayers, and the release of decorated boats into the sea. Particular attention was given to interactions between community members, environmental practices, ritual symbols, and activities that reflected relationships between people and the coastal environment. Observations were recorded systematically in field notes. This description is consistent with the method reported earlier in the manuscript, where the researcher states that they actively participated while maintaining the role of a participant observer.

Documentation was used to complement interview and observational data. The materials included photographs and videos of Sedekah Laut activities, organizing committee records, documentation from previous events, cultural symbols, and relevant primary IPAS

curriculum materials. These sources were examined to support the interpretation of ecological values and their potential connections with IPAS content.

Data analysis

Data analysis was conducted concurrently with data collection using the interactive qualitative analysis framework of Miles et al. (2014), involving data condensation, data display, and conclusion drawing and verification. Interview recordings were transcribed, while observation notes and documentary materials were organized according to their sources.

The analysis proceeded in several stages. First, the researcher read the transcripts and field notes repeatedly to identify statements and practices related to ecological knowledge and human–environment relationships. Relevant segments were then assigned initial codes. Similar codes were grouped into categories, and relationships among the categories were examined across interviews, observations, and documents. Through this process, three overarching themes were developed: harmony between humans and nature, collective responsibility for marine conservation, and ecological spirituality. These themes correspond to those reported in the manuscript's findings.

In the next stage, each theme was examined in relation to primary IPAS content, particularly ecosystems, human–environment interactions, environmental conservation, and natural resource use. The analysis moved iteratively between the empirical data, emerging categories, and relevant educational concepts rather than following a strictly linear sequence. Interpretations were subsequently checked against data from different participants and data-collection methods before conclusions were drawn.

Trustworthiness

The trustworthiness of the findings was addressed through source triangulation, method triangulation, member checking, and peer debriefing. Source triangulation involved comparing accounts provided by traditional leaders, fishermen, teachers, and community leaders. Method triangulation was conducted by comparing evidence obtained from interviews, participant observation, and documentation.

Member checking was used to confirm selected interpretations with participants and to reduce the possibility that the researcher had misrepresented their intended meanings. Peer debriefing was conducted with colleagues familiar with qualitative research and IPAS education to examine the interpretation of the data and the development of themes. Together, these procedures were used to strengthen the credibility and consistency of the analysis.

Findings

Analysis of the interview, observation, and documentation data identified three interconnected ecological values in the Sedekah Laut tradition: (1) harmony between humans and nature, (2) collective responsibility for marine conservation, and (3) ecological spirituality expressed through gratitude and environmental care. These themes emerged repeatedly across the accounts of traditional leaders, fishermen, teachers, and community leaders and were also reflected in observed community practices.

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The themes were developed through coding and comparison of interview transcripts, field notes, and documentation. The main categories and their relevance to primary IPAS learning are summarized in Table 2.

Table 2. *Ecological values identified in the Sedekah Laut tradition*

Main Themes	Categories	Empirical Evidence	Interpretations	Relevance to Primary IPAS
Harmony between humans and nature	Sea as a partner in life	Traditional and fishing-community narratives described the sea as a source of livelihood that should be respected and protected.	The sea is understood not only as an economic resource but as part of a reciprocal human–nature relationship.	Ecosystems, human–environment interaction, and ecological balance
	Ecological interdependence	Fishermen associated marine life and coastal resources with balance between land and sea.	Human livelihood depends on the continuity of interconnected ecological systems.	Interdependence among living things and environmental components
Collective responsibility for marine conservation	Communal beach cleaning	Teachers and community members described regular collaborative beach-cleaning activities involving schools and local residents.	Environmental protection is viewed as a shared social responsibility.	Conservation, waste management, and environmental action
	Social participation	Community members contributed time and effort to coastal maintenance and Sedekah Laut activities.	Conservation is reinforced through cooperation and collective responsibility.	Social responsibility and environmental stewardship
Ecological spirituality	Prayer and gratitude	Ritual prayers and offerings were described as expressions of gratitude for	Environmental care is connected with moral and spiritual responsibility.	Environmental values, gratitude, responsibility, and reflection

	Cultural symbols	marine resources and safety. Ritual objects, colors, offerings, and ceremonial practices were interpreted as reminders of the relationship between people, nature, and the Creator.	Cultural symbols strengthen the moral meaning attached to environmental protection.	Contextual and value-based environmental learning

Harmony between humans and nature

The first theme reflects the community's understanding of the sea as part of a reciprocal relationship between humans and the natural environment. The procession of offerings, the use of agricultural products in the *jolen*, and the ceremonial release of offerings into the sea were consistently associated with gratitude and respect for marine resources. A traditional leader explained that the *jolen* was not simply a ceremonial object but also a reminder of the limits of resource use:

> "The jolen, which contains agricultural produce and offerings, represents our gratitude and serves as a reminder not to exploit the blessings of the sea excessively." (TA, 59) (In English)

This account shows that the sea is not understood solely in economic terms. It is also seen as a source of life whose continuity depends on responsible human behavior. The fishermen expressed a similar view. N1 emphasized the dependence of fishing activities on the condition of the sea:

> "Kami bawa jodang itu supaya ingat bahwa laut tempat kami hidup. Kalau laut dijaga, melaut pun aman." (In Bahasa) (We carry the jodang to remind ourselves that the sea is where we live. If the sea is protected, fishing will also be safer.) (N1, 45) (In English)

N2 connected the contents of the offering with the relationship between terrestrial and marine environments:

> "Sayuran dan hasil bumi di jodang itu pesan bahwa darat dan laut itu saling terkait. Kita hidup dari keduanya, jadi harus seimbang." (In Bahasa) (The vegetables and agricultural products in the jodang remind us that land and sea are connected. We depend on both, so they must remain in balance.) (N2, 50) (In English)

These accounts indicate that ecological balance is understood through everyday experience rather than through formal scientific terminology. The relationship between land, sea, livelihood, and community survival forms part of the ecological knowledge embedded in the tradition. Teachers also recognized the educational value of this relationship. G1 explained that visual material from the tradition helped students relate environmental concepts to familiar experiences:

> "Ketika saya menampilkan gambar ini di kelas, siswa langsung paham bahwa manusia berhubungan dengan alam, bukan teori saja." (In Bahasa) (When I show this picture in class, students immediately understand that humans are connected with nature; it is not only theory.) (G1, 38) (In English)

This finding suggests that the tradition provides concrete examples that can be connected with IPAS topics such as ecosystems, ecological balance, and human–environment interaction.

Figure 1. *Harmony between humans and nature in Sedekah Laut*

A: Coastal residents carrying a jolen containing agricultural products and offerings; B: Fishermen releasing the jolen during the Sedekah Laut procession at Teluk Penyu Beach, Cilacap. Source: Dwi Setyaningsih (2025).

Collective responsibility for marine conservation

The second theme concerns the collective nature of environmental responsibility. Field observations and teacher interviews showed that beach cleaning and other coastal activities were carried out through cooperation between schools and members of the surrounding community. These practices illustrate that environmental maintenance is treated as a shared obligation rather than an individual responsibility. G1 described the educational purpose of involving students in beach-cleaning activities:

> "Kami melibatkan siswa dalam kegiatan bersih pantai karena kami ingin mereka belajar langsung bahwa menjaga laut bukan hanya tugas orang dewasa atau nelayan, tetapi tanggung jawab bersama." (In Bahasa) (We involve students in beach-cleaning activities because we want them to learn directly that protecting the sea is not only the responsibility of adults or fishermen, but a shared responsibility.) (G1, 38) (In English)

G2 further explained that the activity had become part of the school's character-building program:

> "Setiap semester kami menjadwalkan kegiatan bersih pantai sebagai bagian dari karakter pendidikan. Dengan cara ini, siswa tidak hanya diberi teori, tetapi juga melihat kondisi pantai, mengumpulkan sampah, dan berdiskusi tentang dampaknya." (In Bahasa) (Every semester we schedule beach-cleaning activities as part of character education. In this way, students do not only receive theoretical explanations; they also observe the condition of the beach, collect waste, and discuss its effects.) (G2, 39) (In English)

Community leaders also viewed school participation positively. TM1 described it as a means of passing environmental responsibility from one generation to the next:

> "Kami sangat mendukung bila sekolah turun ke pantai untuk bersih-bersih. Ini cara yang baik agar anak-anak tahu bahwa menjaga laut itu bekerja bersama. Masyarakat pesisir sudah lama memegang prinsip bahwa laut harus diperlakukan dengan hormat." (In Bahasa) (We strongly support schools coming to the beach for cleaning activities. It is a good way for children to learn that protecting the sea requires working together. Coastal communities have long held the principle that the sea should be treated with respect.) (TM1, 55) (In English)

Taken together, these findings show that environmental protection is embedded in collective practices such as cooperation, participation, and shared responsibility. In an IPAS context, these practices provide concrete examples for learning about conservation, waste management, natural resource protection, and community participation.

Figure 2. *Collective environmental responsibility in the Cilacap coastal community*

A: Primary students and teachers participating in a beach-cleaning activity; B: Community and traditional leaders taking part in the Sedekah Laut ceremonial activities. Source: Dwi Setyaningsih (2025).

Ecological spirituality, gratitude, and environmental care

The third theme concerns the spiritual meaning attached to the relationship between the community and the sea. Prayer, offerings, ritual symbols, and expressions of gratitude were repeatedly described as reminders that marine resources should not be used without restraint. The traditional leader explained that the ritual contains a moral message about the sea:

> "Prosesi ini mengajarkan bahwa laut itu bukan sekadar tempat mencari ikan. Ada roh kehidupan di dalamnya yang harus dihormati. Oleh karena itu, kami selalu mendahului acara dengan doa dan simbol-simbol kesakralan." (In Bahasa) (This procession teaches that the sea is not merely a place to catch fish. There is life within it that must be respected. Therefore, we always begin the ceremony with prayers and sacred symbols.) (TA, 59) (In English)

The symbolic use of green clothing, flowers, and other ceremonial ornaments was also interpreted by community participants as representing nature and reminding people of their responsibility to protect it. TM1 explained:

> "Warna hijau itu melambangkan alam. Ketika dipakai dalam ritual, itu mengingatkan kita bahwa menjaga laut adalah bagian dari menjaga ciptaan Tuhan." (In Bahasa) (The color green represents nature. When it is used in the ritual, it reminds us that protecting the sea is part of caring for God's creation.) (TM1, 55) (In English)

The fishermen expressed the same moral relationship in terms of gratitude for livelihood. N2 stated:

> "Kalau kami tidak menjaga laut, itu seperti tidak menghormati rezeki yang diberikan Tuhan. Ritual ini mengingatkan kami agar tidak serakah dan tetap merawat pantai." (In Bahasa) (If we do not protect the sea, it is like failing to respect the livelihood given by God. The ritual reminds us not to be greedy and to continue caring for the coast.) (N2, 50) (In English)

Teachers considered these meanings relevant to the affective dimension of environmental learning. G2 explained:

> "Nilai-nilai spiritual yang muncul dalam ritual ini membantu anak memahami bahwa merawat lingkungan adalah amanah, bukan hanya tugas sekolah." (In Bahasa) (The spiritual values reflected in the ritual help children understand that caring for the environment is a responsibility, not merely a school assignment.) (G2, 39) (In English)

The data therefore suggest that environmental responsibility within Sedekah Laut is shaped not only by practical dependence on marine resources but also by moral and spiritual meanings. Gratitude, restraint, and responsibility toward nature form part of the community's ecological understanding. For primary IPAS learning, these values may provide a contextual

basis for discussing environmental responsibility while maintaining sensitivity to the cultural and religious meanings attached to the tradition.

Figure 3. *Ecological spirituality in the Sedekah Laut tradition*

A: A miniature jolen containing agricultural products, food, and traditional ornaments prepared for Sedekah Laut; B: A performer in traditional attire representing the cultural symbolism associated with the sea. Source: Dwi Setyaningsih (2025).

Discussion

The findings show that the Sedekah Laut tradition contains ecological meanings that extend beyond its ceremonial function. Three related themes emerged from the data: harmony between humans and nature, collective responsibility for marine conservation, and ecological spirituality expressed through gratitude and environmental care. Together, these themes illustrate how the Cilacap coastal community interprets the sea not only as a source of livelihood but also as an ecological, social, and cultural space that requires responsible treatment.

Harmony between humans and nature, the first theme concerns the reciprocal relationship between coastal communities and the marine environment. Participants described the sea as a source of life whose sustainability depends on restraint, respect, and environmental balance. This perspective is evident in the meaning attached to jolen, agricultural products, and ritual practices that remind community members not to exploit marine resources excessively.

This finding is consistent with research showing that local and indigenous knowledge often combines practical ecological understanding with cultural values and community

experience. Latip et al. (2024), for example, found that local and indigenous knowledge can provide meaningful contexts for science learning because ecological concepts are interpreted through experiences familiar to learners. Similarly, Blackie (2024) argues that indigenous knowledge should not be treated merely as cultural information added to formal science; rather, it can broaden how students understand relationships between people, knowledge, and the environment.

A comparable pattern has been reported in coastal indigenous communities outside Indonesia. Lange et al. (2025) found that traditional knowledge among Sámi coastal communities incorporates ecological observations as well as values concerning human relationships with marine environments. Although the cultural settings differ, both cases demonstrate that coastal knowledge develops from sustained interaction with local ecosystems. The contribution of the present study lies in showing how such a relationship is expressed through a maritime tradition in Cilacap and how it can be interpreted within primary IPAS learning.

From an educational perspective, these findings are particularly relevant to topics such as ecosystems, ecological balance, and human–environment interaction. The interview data indicate that teachers already use visual representations of Sedekah Laut to make environmental concepts more concrete. This supports the broader argument that culturally situated examples can help connect formal scientific concepts with students' everyday environments (Rosidah et al., 2024). However, the present study did not measure changes in students' conceptual understanding. Sedekah Laut should therefore be regarded as a potential contextual learning resource, rather than evidence that the tradition itself improves learning outcomes.

Collective responsibility for marine conservation, the second theme highlights the social dimension of environmental responsibility. Beach-cleaning activities, community participation, and cooperation between schools and coastal residents show that environmental care is understood as a shared responsibility. In this setting, conservation is not framed primarily as an individual behavior but as a collective practice supported by gotong royong and community participation.

This finding is relevant to current discussions of collective agency in environmental education. Kranz et al. (2025) argue that responses to environmental problems require more than individual awareness; they also depend on people's capacity to act together around shared environmental concerns. The collaborative practices observed in Cilacap reflect this principle at the community level. Environmental responsibility is developed through participation and interaction rather than through knowledge alone.

The finding also corresponds with the work of Kovách et al. (2021), who showed that local knowledge and community experience can form important components of environmental education. Their study suggests that environmental learning becomes socially meaningful when students encounter environmental issues within actual community practices. In the present study, beach cleaning provides such an example. Teachers described the activity not merely as waste collection but as an opportunity for students to observe coastal conditions, discuss environmental consequences, and take part in shared environmental action.

This dimension makes Sedekah Laut particularly relevant to IPAS because the subject integrates scientific understanding with social relationships and human interaction with the environment. Concepts such as pollution, resource conservation, and environmental change can therefore be discussed alongside community responsibility and cooperation. Such

integration is consistent with Education for Sustainable Development, which emphasizes the relationship between knowledge and responsible participation in environmental issues (El Yazidi & Rijal, 2024).

Nevertheless, the educational implications should be interpreted cautiously. The present study identified community practices and teachers' perceptions of their educational relevance; it did not evaluate whether participation in these activities produced measurable changes in students' environmental behavior. Further classroom-based research would be required to examine that effect.

Ecological spirituality and environmental care, the third theme concerns the moral and spiritual meanings associated with environmental responsibility. Prayer, offerings, gratitude, and ritual symbols indicate that the community's relationship with the sea includes more than economic dependence or ecological knowledge. Participants also interpreted caring for the marine environment as a moral responsibility connected with gratitude to God.

This finding reflects the concept of ecological spirituality, in which ethical and spiritual meanings shape relationships with nature. Bock (2024) explains that spiritual understandings of nature can strengthen a sense of responsibility toward environmental protection by positioning nature as something that possesses value beyond its usefulness to humans. In the Sedekah Laut context, this perspective appears in participants' statements that protecting the sea is connected with gratitude, restraint, and respect for creation.

The study therefore adds an affective dimension to the discussion of ethnoscience in primary education. Local ecological knowledge is not limited to observations of natural processes; it can also include values that influence how communities decide to interact with nature. This is consistent with Yulisinta et al. (2024), who discuss the relationship between spiritual ecology, indigenous wisdom, and sustainable environmental practices in Indonesia.

For primary IPAS learning, this dimension may provide opportunities for reflective discussion about responsibility, gratitude, and environmental care. Such use, however, requires sensitivity. Teachers should distinguish between scientific explanations of environmental processes and the cultural or spiritual meanings associated with those processes. The objective should not be to treat cultural beliefs as scientific facts, but to help students understand how communities construct environmental responsibility through different forms of knowledge and value systems.

This distinction is important in ethnoscience-based education. Jones et al. (2025) emphasize that meaningful interaction between indigenous knowledge and formal science should involve dialogue rather than simply absorbing one knowledge system into another. Applied to Sedekah Laut, this approach means that ecological concepts such as ecosystems, food webs, pollution, and conservation can be examined scientifically. At the same time, the tradition's cultural and spiritual meanings are discussed within their own social context.

Relevance to primary IPAS learning, taken together, the three themes provide a useful basis for contextualizing primary IPAS learning. Harmony between humans and nature can support discussion of ecosystems and ecological interdependence. Collective responsibility can be linked to conservation, pollution, waste management, and community participation. Ecological spirituality can enrich reflection on environmental responsibility and the values underlying human relationships with nature.

This potential is consistent with the broader orientation of ethnoscience-based education. Hikmawati et al. (2024) report that ethnoscience learning can support both cognitive and affective dimensions when scientific concepts are related to culturally familiar

contexts. Rosidah et al. (2024) similarly emphasize the relevance of ethnoscience to integrated science and social learning at the primary level.

In practical terms, Sedekah Laut could be used through photographs, local narratives, environmental case studies, discussions with community members, or field-based activities such as coastal observation and beach cleaning. These activities would allow teachers to connect curriculum content with the students' immediate environment without turning the tradition itself into a scientific explanation.

Educational and socio-cultural implications, the findings also suggest that stronger cooperation between schools and coastal communities could enrich the development of locally grounded teaching materials. Teachers are central to this process because cultural knowledge cannot simply be inserted into science lessons without interpretation. They need to identify which aspects relate to scientific concepts, which represent cultural meanings, and how both can be discussed without reducing one to the other.

This challenge has also been identified in research on integrating indigenous knowledge and formal science. Lammassaari et al. (2024) note that teachers need sufficient epistemological awareness to work across different knowledge traditions. In the Cilacap context, collaboration among teachers, community leaders, fishermen, and cultural practitioners may therefore provide a more appropriate basis for developing locally relevant IPAS materials.

At the socio-cultural level, using Sedekah Laut as a contextual learning resource may also create opportunities for intergenerational transmission of coastal knowledge. Students can encounter local environmental practices not simply as cultural heritage, but as part of continuing discussions about marine conservation and responsible resource use. In this sense, contextual learning may support both environmental education and appreciation of local cultural knowledge.

Conclusion

The study identified three ecological values embedded in the Sedekah Laut tradition of the Cilacap coastal community: harmony between humans and nature, collective responsibility for marine conservation, and ecological spirituality expressed through gratitude and environmental care. These values show that the sea is understood not only as a source of livelihood, but also as part of a broader relationship that involves ecological balance, social responsibility, and moral meaning.

The findings indicate that Sedekah Laut contains local ecological knowledge that can be connected with primary IPAS topics, particularly ecosystems, human–environment interactions, conservation, and responsible use of natural resources. Its educational value lies in providing locally grounded examples that can make these concepts more contextual and culturally meaningful for students.

However, this study did not directly test Sedekah Laut-based learning in the classroom. Therefore, its contribution should be understood as establishing a contextual and conceptual basis for future learning development rather than demonstrating measurable effects on students. Further studies are needed to design, implement, and evaluate IPAS learning materials based on these ecological values.

Disclosure Statement

No potential conflict of interest was reported by the authors.

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