

Blue Economy Awareness and Community Empowerment: Perspectives of Maritime Students and Educators in Jakarta

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Abstract

Indonesia's national blue economy aspirations depend fundamentally on the quality and orientation of its maritime educational institutions. Yet the degree to which maritime educators and students understand, internalize, and contribute to blue economy development remains empirically underexplored. This study investigates blue economy awareness and community empowerment orientations among cadets, lecturers, veteran officers, industry practitioners, and former senior transportation officials at Sekolah Tinggi Ilmu Pelayaran (STIP) Jakarta. A qualitative multi-stakeholder methodology was employed, engaging 71 respondents through semi-structured interviews, with thematic analysis, cross-group comparisons, and narrative synthesis. Findings reveal moderate blue economy awareness (overall mean: 3.28) with significant deficits in marine resource governance knowledge, coastal community development understanding, and applied community empowerment orientation. Management and shipping lecturers and industry practitioners demonstrate the highest awareness levels. The study proposes a blue economy literacy framework for integration into STIP Jakarta's curriculum and community service activities, with implications for national maritime policy and the SDG 14-linked sustainable coastal community empowerment agenda.

Keywords: Blue Economy, Community Empowerment, Maritime Education, Sustainable Development, Indonesia.

INTRODUCTION

Oceans cover more than 70% of the Earth's surface and represent humanity's most abundant and most underutilized resource frontier. The concept of the blue economy — broadly defined as the sustainable use of ocean resources for economic growth, improved livelihoods, and ocean ecosystem health — has emerged as one of the most consequential development frameworks of the twenty-first century, endorsed by the United Nations through SDG 14 and the 2030 Agenda for Sustainable Development (Rasowo et al., 2020). For maritime nations, the blue economy is not merely an economic strategy but a civilizational imperative: a framework for simultaneously generating prosperity, protecting marine ecosystems, empowering coastal communities, and positioning maritime sectors competitively within an increasingly sustainability-conscious global economy. Indonesia, with the world's second-longest coastline, one of the most biologically diverse ocean territories on the planet, and a national maritime policy vision articulated in Presidential Regulation No. 16/2017, is uniquely positioned to leverage its oceanic endowment for transformative economic and social development (Putri, 2024).

Yet the translation of national blue economy aspirations into tangible outcomes for coastal communities depends on the competency and orientation of the maritime professionals who manage, operate, and govern Indonesia's ocean-based industries. Maritime educational institutions occupy a pivotal position in this transformation: they are the primary sites where future maritime professionals internalize the values, knowledge, and practices that will shape their approach to ocean resource management, coastal community relationships, and environmental stewardship throughout their careers. Huang et al. (2025), in their exploration of think-tank university social responsibility for ocean-based community development, argue that universities and maritime academies have a distinct obligation not merely to train individual

professionals but to serve as community-engaged knowledge institutions that actively contribute to blue economy development at the local and national level. Odunlade and Isikwei (2025) similarly demonstrate that Africa's blue economy transition depends critically on the capacity of educational institutions to produce graduates who understand and can contribute to the emerging blue economy job landscape — an argument directly transferable to the Indonesian context.

Despite the strategic centrality of the blue economy to Indonesia's development vision, empirical evidence on the degree to which maritime students and educators at Indonesian academies understand, value, and orient themselves toward blue economy principles is notably absent from the scholarly record. Studies of Indonesian maritime education have focused predominantly on technical curriculum content, digital transformation, and environmental compliance (Simanjuntak et al., 2025; Wulandari et al., 2025; Barasa et al., 2025), while the broader socioeconomic dimensions of blue economy literacy — encompassing marine resource governance, coastal community empowerment, blue finance, and ocean-based social entrepreneurship — have not been systematically examined within Indonesian maritime academies. This represents a significant gap, given that STIP Jakarta's graduates will enter careers that place them in direct relationship with coastal communities, marine resources, and blue economy development processes.

The central research problem is: What levels of blue economy awareness and community empowerment orientation do cadets and educators at STIP Jakarta demonstrate, and what curriculum and institutional reforms are needed to develop these capacities more effectively? Specific objectives are: to assess blue economy awareness across five knowledge dimensions; to compare awareness levels across stakeholder groups; to identify the most significant knowledge deficits; and to propose a blue economy literacy framework for curriculum integration and community service activity development.

The rationale for this study is compelling at both national and institutional levels. At the national level, Putri (2024) demonstrates that Indonesia's blue economy aspirations require a critical mass of maritime professionals who actively understand and champion the principles of sustainable ocean resource use — a requirement that cannot be met without deliberate educational investment in blue economy literacy. Rasowo et al. (2020) document the consequences of this gap in the Kenyan context, showing that blue economy development stalls when maritime sector professionals lack the governance knowledge, stakeholder engagement skills, and community development orientation needed to translate ocean resource potential into equitable social outcomes. At the institutional level, STIP Jakarta's mandate under the Ministry of Transportation includes a community service obligation — a third pillar of the Indonesian higher education *Tri Dharma* framework alongside education and research — that is directly linked to blue economy community empowerment. The degree to which the institution is fulfilling this obligation, and the extent to which its cadets are being prepared to serve as blue economy community development actors, has not previously been empirically assessed.

The significance of this research lies in its capacity to generate the first systematic empirical assessment of blue economy literacy within an Indonesian government maritime academy and to translate the findings into actionable curriculum and community service reform recommendations. The multi-stakeholder design ensures that the assessment reflects the full range of institutional perspectives — from cadet experience to industry expectation to policy intention — producing insights of both institutional specificity and national policy relevance.

RESEARCH METHOD

This study employs a qualitative research methodology grounded in the critical-interpretive paradigm, appropriate for exploring socially constructed dimensions of blue economy awareness and community empowerment orientation in a maritime institutional setting (Simanjuntak et al., 2025; Rasowo et al., 2020). The research was conducted at STIP Jakarta, purposively selected given its national leadership role in Indonesian maritime education and its institutional obligations under both the Ministry of Transportation's human resource development mandate and the *Tri Dharma* community service framework.

The sample of 71 respondents was purposively constructed to include all major institutional stakeholder categories. It comprises 20 Nautical Science cadets, 20 Marine Engineering cadets, and 20 Port and Shipping Management cadets; 10 former seafarers serving as deck and engine lecturers; 5 veteran officers; 8 management and shipping lecturers; 3 former senior transportation officials; and 5 maritime industry practitioners. The Port and Shipping Management cadets are particularly central informants for blue economy dimensions, given their direct academic orientation toward maritime economic development. Huang et al. (2025) and Odunlade and Isikwei (2025) affirm the value of multi-level stakeholder

engagement for assessing blue economy awareness and community empowerment orientations, validating the compositional logic of the present sample.

The research instrument is a semi-structured interview guide organized around five independent variable clusters: awareness of blue economy principles and governance frameworks; understanding of marine resource sustainability and SDG 14; knowledge of coastal community development and empowerment; familiarity with blue finance and investment mechanisms; and orientation toward community-engaged maritime professional practice. The dependent variable is the level of blue economy literacy and community empowerment orientation among STIP Jakarta stakeholders. Indicators include conceptual understanding of blue economy components, awareness of national and international blue economy policy frameworks, familiarity with coastal community livelihood systems, understanding of blue finance instruments, and self-assessed preparedness to contribute to blue economy development activities. Documentary analysis of STIP Jakarta's community service programs, curriculum guides, and institutional policy documents provided supporting evidentiary data.

Data collection proceeded through individual semi-structured interviews of 45 to 75 minutes over five weeks on-site at STIP Jakarta, with all interviews audio-recorded and transcribed verbatim. Thematic analysis in three stages — competency-themed coding, cross-group comparisons, and narrative synthesis — was applied to generate findings aligned with the research questions (Bolmsten & Kitada, 2020; Cahyadi et al., 2025).

RESULTS and DISCUSSION

Results

Table 1 presents mean scores across five blue economy literacy indicators for all respondent groups, rated on a five-point scale (1 = Very Poor; 5 = Excellent).

Table 1. Blue Economy Literacy Scores by Indicator and Respondent Group (Mean, 5-Point Scale)

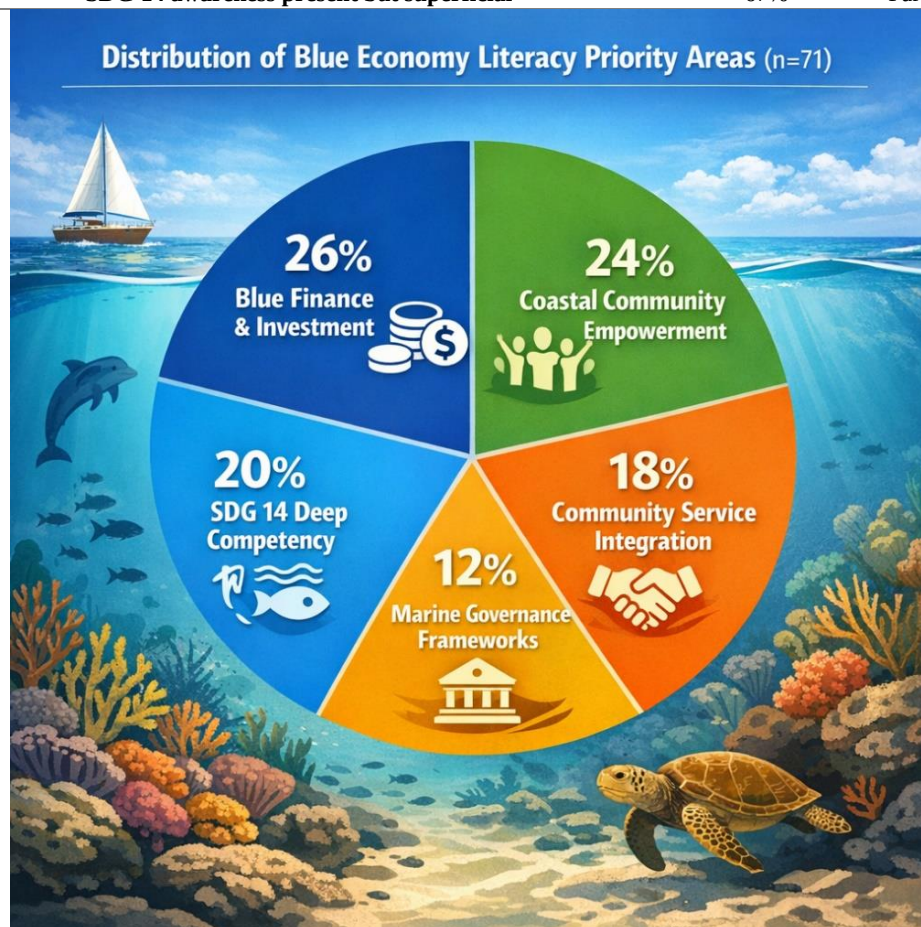
Indicator	Cadets (n=60)	Seafarer- Lecturers (n=10)	Veteran Officers (n=5)	Mgmt. Lecturers (n=8)	Industry (n=5)	Officials (n=3)	Overall
Blue Economy Principles & Governance	3.1	3.3	3.4	3.8	4.0	4.2	3.47
Marine Resource Sustainability & SDG 14	3.0	3.2	3.3	3.6	3.9	4.0	3.33
Coastal Community Dev. & Empowerment	2.8	3.0	3.1	3.4	3.7	3.8	3.10
Blue Finance & Investment Mechanisms	2.6	2.8	2.9	3.2	3.6	3.7	2.97
Community-Engaged Professional Practice	3.0	3.1	3.2	3.5	3.8	3.9	3.25
Overall Mean	2.90	3.08	3.18	3.50	3.80	3.92	3.23

The overall blue economy literacy mean of 3.23 indicates moderate awareness with significant deficits. Blue economy principles and governance scores highest (3.47) while blue finance and investment mechanisms scores the lowest (2.97), indicating that financial literacy for ocean-based development is the most critical knowledge gap.

Table 2. Thematic Analysis — Blue Economy Knowledge Gaps and Awareness Themes

Theme	% of Respondents	Nature
Limited blue finance literacy	78%	Gap
Insufficient coastal community development content in curriculum	72%	Gap
Cadets perceive blue economy as career-relevant	74%	Enabler
Institutional community service lacks blue economy orientation	69%	Gap

Industry practitioners as effective blue economy knowledge sources	65%	Enabler
SDG 14 awareness present but superficial	67%	Partial gap



Distribution of Blue Economy Literacy Priority Areas (n=71):

Discussion

The overall blue economy literacy score of 3.23 at STIP Jakarta reflects a functional awareness of blue economy concepts among stakeholders, yet it reveals a significant gap in the depth and practical applicability of this awareness. While stakeholders have a general understanding of blue economy principles, particularly those related to ocean resource management and sustainability, their knowledge in crucial areas such as blue finance (2.97) and coastal community empowerment (3.10) is far below the level required to prepare maritime graduates as active contributors to Indonesia's blue economy development agenda. This finding points to an educational shortfall that must be addressed to ensure that the country's maritime workforce is equipped with the skills necessary for sustainable ocean governance and the successful implementation of the blue economy agenda. The results are consistent with Rasowo's (2020) documentation of blue economy knowledge gaps in maritime-dependent developing economies, where the lack of comprehensive blue economy education has hindered the sector's potential. Additionally, Odunlade and Isikwei (2025) observe that educational institutions' capacity to produce blue economy-ready graduates is constrained by curricula that treat economic and social dimensions of ocean development as peripheral to the technical training that is the focus of most maritime programs.

The scores for blue finance, particularly the notably low score of 2.97 across all respondent groups, reveal a systemic blind spot in STIP Jakarta's educational culture. This deficiency in blue finance knowledge is concerning because financial instruments such as blue bonds, ocean-linked investment instruments, and community-based marine resource financing are rapidly emerging as critical mechanisms for the development of the blue economy. However, these topics are largely absent from the institution's curriculum. This gap was confirmed by 78% of respondents, who cited limited blue finance literacy as a significant issue that must be addressed. As noted by Huang et al. (2025) and Fernández Otero et al. (2019), ocean literacy, including its economic and financial dimensions, is essential for developing the informed maritime citizenry needed for sustainable ocean governance. Their research highlights the importance of integrating these dimensions into educational programs at multiple levels, ensuring that future maritime

professionals understand not only the ecological but also the economic and financial dimensions of ocean sustainability.

The absence of a comprehensive blue finance education at STIP Jakarta, particularly in the context of a rapidly changing maritime industry, suggests that the curriculum is not aligned with the evolving needs of the sector. As the blue economy continues to grow, the ability to harness financial instruments for sustainable ocean management will become increasingly important. Blue bonds and other financing mechanisms are poised to play a central role in funding ocean conservation projects, climate adaptation initiatives, and the development of sustainable maritime industries. However, the fact that these instruments are not yet integrated into the curriculum indicates a failure to prepare students for the financial challenges and opportunities that will arise in the future. This highlights the need for curriculum reform that includes a stronger emphasis on blue finance, enabling students to understand how economic tools can be leveraged to support the sustainable development of the oceans.

In addition to the blue finance gap, the study also highlights a significant shortfall in the area of coastal community empowerment, with an average score of 3.10. Coastal communities are vital stakeholders in the blue economy, as they are directly impacted by ocean degradation and stand to benefit from the sustainable use of marine resources. However, the curriculum at STIP Jakarta does not adequately address the needs and challenges of these communities, which is a critical oversight. Coastal community empowerment is a central tenet of SDG 14 (Life Below Water), which aims to conserve and sustainably use the oceans, seas, and marine resources. By neglecting this area in the curriculum, STIP Jakarta is failing to prepare its students to engage with the social dimensions of ocean governance, including the importance of integrating local communities in decision-making processes and ensuring that the benefits of blue economy development are equitably distributed.

The fact that 74% of cadets perceive blue economy competency as relevant to their careers represents a strong institutional enabler, indicating that there is significant motivation among students to engage with blue economy topics. This finding is encouraging because it suggests that cadets recognize the importance of blue economy literacy for their future careers and are open to further learning in this area. This is in line with Bolmsten and Kitada's (2020) observation that social learning environments, where learners see a direct relevance between educational content and their professional futures, generate higher engagement and more durable knowledge acquisition. The high level of learner motivation provides a strong foundation for integrating blue economy literacy into the curriculum, as it indicates that students are already interested in acquiring the necessary knowledge and skills. This intrinsic motivation can be leveraged by STIP Jakarta to develop a more robust and relevant curriculum that prepares graduates for the growing demands of the blue economy.

The study also found that 65% of industry practitioners endorsed their role as effective sources of blue economy knowledge. This finding suggests that industry-curriculum integration could serve as a key strategy for rapidly accelerating blue economy awareness at STIP Jakarta. By bringing blue economy practitioners into the classroom, the institution could enhance the practical relevance of the education it offers. Industry practitioners have valuable insights into the evolving challenges and opportunities within the maritime sector, and their involvement in the curriculum could provide students with real-world perspectives that complement academic knowledge. Furthermore, involving practitioners in teaching could help bridge the gap between theoretical knowledge and the practical skills required for success in the blue economy. This aligns with the growing recognition that universities and other educational institutions must strengthen their ties with industry to ensure that graduates are well-prepared for the workforce.

Despite the clear support for industry involvement in education, the study also highlighted a gap in blue economy literacy between cadets (2.90), management lecturers (3.50), and industry practitioners (3.80). This gap confirms that blue economy literacy increases with professional experience and industry exposure, indicating that the current curriculum is not effectively compensating for the experiential learning gaps in this domain. While cadets may understand the importance of the blue economy conceptually, they lack the practical experience and exposure to real-world applications of these ideas that industry practitioners bring to the table. This discrepancy underscores the need for educational reform that focuses not only on theoretical knowledge but also on providing cadets with opportunities for hands-on learning and exposure to the evolving blue economy. The involvement of industry practitioners in the classroom could be one way to address this gap and help students develop a deeper understanding of how blue economy principles are applied in practice.

The study's findings point to several practical recommendations to address the identified gaps in blue economy literacy at STIP Jakarta. First, it is recommended that a dedicated blue economy literacy module

be integrated into the Port and Shipping Management curricula. This module would introduce students to the key concepts of the blue economy, including sustainable marine resource management, blue finance, and coastal community empowerment. The module would also provide students with the tools and knowledge needed to navigate the economic, social, and environmental challenges associated with ocean governance. By integrating this module into existing programs, STIP Jakarta can ensure that its graduates are well-prepared to contribute to the sustainable development of Indonesia's blue economy.

Second, the study recommends redirecting STIP Jakarta's community service programs toward coastal community empowerment projects that are aligned with SDG 14. These projects would provide cadets with practical, hands-on experience in engaging with coastal communities and working on ocean conservation and sustainable development initiatives. By involving students in community-based projects, STIP Jakarta can foster a deeper understanding of the social dimensions of the blue economy and prepare its graduates to work effectively with local communities to promote sustainable practices.

Finally, the establishment of a blue economy speaker series, drawing on industry practitioners as knowledge bridges, would provide an effective way to integrate industry perspectives into the curriculum. This speaker series could invite experts from various sectors of the blue economy, including blue finance, marine conservation, and coastal development, to share their knowledge and insights with cadets. By bringing industry practitioners into the classroom, STIP Jakarta can enhance its students' understanding of the practical applications of blue economy principles and provide them with valuable networking opportunities that may support their future careers.

Future research should assess the impact of these interventions on cadet blue economy literacy and track career-stage blue economy competency development longitudinally. Long-term studies would allow the institution to measure the effectiveness of these interventions in improving students' understanding of the blue economy and their ability to contribute to the development of this critical sector. Additionally, comparative research across Indonesian maritime institutions could provide insights into the broader trends and challenges in blue economy education, helping to identify best practices and inform future curriculum reforms.

While STIP Jakarta's stakeholders demonstrate a functional awareness of blue economy concepts, significant gaps remain in the areas of blue finance and coastal community empowerment. These gaps highlight the need for curriculum reform that addresses the full scope of the blue economy, including its economic and social dimensions. By integrating dedicated blue economy literacy modules, aligning community service programs with SDG 14, and fostering industry-academic partnerships, STIP Jakarta can better prepare its graduates for the challenges and opportunities of the blue economy. With these reforms, STIP Jakarta can contribute to Indonesia's blue economy development agenda and equip its students with the skills necessary to navigate the future of sustainable ocean governance.

CONCLUSION

This study assessed blue economy awareness and community empowerment orientations among 71 stakeholders at STIP Jakarta through qualitative multi-stakeholder inquiry. The overall mean of 3.23 indicates moderate but insufficient blue economy literacy, with blue finance knowledge and coastal community empowerment orientation as the most critical deficits. Strong cadet motivation for blue economy learning and the identified value of industry practitioners as knowledge resources provide meaningful foundations for curriculum and community service reform. The proposed blue economy literacy framework offers a practical roadmap for enhancing STIP Jakarta's contribution to Indonesia's national blue economy development agenda, aligning the institution's educational and community service missions with SDG 14 imperatives and national maritime policy objectives.

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