

Blue Economy Potentials and its impact on Bayelsa State Economy

Emmanuel Tamaramiebi Timidi^{1*}, Bekesuomowei Daniel Ogola² & Ruth Ada Okpara²

¹School of General Studies, Nigeria Maritime University of Nigeria, Okerenkoko, Delta State

²Department of Port Management, Nigeria Maritime University of Nigeria, Okerenkoko, Delta State

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Abstract: The Blue Economy has emerged as a strategic pathway for economic diversification and sustainable development in coastal regions, particularly in resource-rich but development-constrained areas such as Nigeria's Niger Delta. This study examines the relationship between Blue Economy potentials and economic development in Bayelsa State, focusing on fisheries, marine transport, coastal tourism, and environmental governance. A survey research design was adopted, with data collected from 300 respondents using a sample size determined by the Taro Yamane formula. Content validity ensured instrument adequacy, while internal consistency reliability produced a Cronbach's Alpha coefficient of 0.81. Data were analyzed using Spearman's Rank Correlation Coefficient at a 95 percent confidence level. The findings reveal a strong and statistically significant relationship between Blue Economy potentials and economic development in Bayelsa State, providing empirical support for neoclassical growth theory by demonstrating how investment in marine-based sectors enhances productivity, income generation, and capital accumulation. Based on these findings, the study recommends the formulation and implementation of a comprehensive state-level blue economy policy aligned with national and international frameworks, strategic investment in modern marine infrastructure, strengthened institutional capacity, and multi-stakeholder collaboration, alongside the inclusive empowerment of coastal communities through skills development, access to finance, and participatory governance, to achieve sustainable and equitable economic transformation beyond oil dependence.

Keywords: Blue Economy, Sustainable Development, Economic Growth, Marine Resources, Coastal Economy, Bayelsa State

* Corresponding Author: miebitimidi@gmail.com

1. Introduction

Oceans and coastal environments play a critical role in global economic development, food security, climate regulation, and livelihoods. Covering over 70% of the Earth's surface, marine ecosystems support transportation, fisheries, energy production, tourism, and other economic activities that are central to sustainable development (FAO, 2020; IPCC, 2023). Approximately 90% of global trade by volume is transported by sea, underscoring the strategic importance of maritime transport and port systems to global and regional economies (UNCTAD, 2023). Despite these contributions, increasing pressures from overfishing, pollution, habitat degradation, and climate change continue to threaten ocean health, raising concerns about the long-term sustainability of ocean-based economic activities (UNEP, 2021). In response to these challenges, the Blue Economy has emerged as a development framework that promotes the sustainable use of ocean and coastal resources for economic growth, improved livelihoods, and job creation, while maintaining the health of marine ecosystems (World Bank, 2017). The concept emphasizes decoupling economic growth from environmental degradation by integrating sustainability principles into marine-based sectors such as fisheries, aquaculture, maritime transport, coastal tourism, offshore energy, and marine biotechnology (UNCTAD, 2014). Globally, the Blue Economy is increasingly recognized as a pathway for achieving the Sustainable Development Goals (SDGs), particularly SDG 14 (Life Below Water), and for supporting inclusive growth in coastal and maritime regions (United Nations, 2015).

In Nigeria, the relevance of the Blue Economy is particularly pronounced. Although the country possesses an extensive coastline of approximately 870 km and over 3,000 km of inland waterways rich in marine and mineral resources, economic development has historically been dominated by oil and gas extraction. Since the 1970s, this oil-dependent development trajectory has contributed to the neglect of other productive sectors, including agriculture, fisheries, and maritime services (Adeyemi & Abiodun, 2013). The volatility of oil revenues, combined with environmental degradation in the Niger Delta, has intensified calls for economic diversification and more sustainable development pathways. Bayelsa State, located in the core of the Niger Delta, exemplifies both the opportunities and contradictions associated with Nigeria's coastal economy. The state is endowed with abundant marine and coastal resources that support fisheries, aquaculture, maritime transport, tourism, and offshore energy. However, decades of oil exploration have resulted in environmental degradation, loss of livelihoods, and persistent underdevelopment. Despite growing policy interest in the Blue Economy, empirical evidence on its actual economic implications at the sub-national level—particularly in oil-producing coastal states such as Bayelsa—remains limited.

Against this backdrop, this study examines the relationship between Blue Economy potentials and economic development in Bayelsa State. By providing empirical evidence from a sub-national context, the study contributes to ongoing debates on sustainable coastal development and extends the Blue Economy literature beyond national and policy-level analyses.

1.2 Statement of Problem

One of the most pressing challenges facing the blue economy is the degradation of marine ecosystems. Overfishing, marine pollution, and climate change are all taking a toll on ocean health, threatening the viability of many economic activities that depend on marine resources. Policy gaps and regulatory challenges also pose significant obstacles to the development of the blue economy. In many cases, there is a lack of clear regulations governing marine activities, leading to issues such as overfishing and habitat destruction. In addition, conflicting interests among stakeholders can make it difficult to develop comprehensive policies that balance economic development with environmental conservation. Technological limitations are another major challenge facing the blue economy. Many marine activities, such as deep-sea mining and offshore energy production, require advanced technologies that are still in the early stages of development. In addition, technological innovations are needed to improve the sustainability and efficiency of existing marine industries, such as aquaculture and shipping.

1.3 Aim and Objectives of the study

The objective of this study is to identify and assess the Blue Economy Potentials and Its Impact on Bayelsa State Economy, Nigeria

1.4 Research Question

To achieve this objective, the study poses the following research question:

* Corresponding Author: miebitimidi@gmail.com

How do Blue Economy potentials contribute to the economic development of Bayelsa State?

1.5 Hypotheses

H₀: There is no significant relationship between the Blue Economy potentials and the economic development of Bayelsa State.

H₁: There is a significant relationship between the Blue Economy potentials and the economic development of Bayelsa State.

2.0 Literature Review

Existing literature conceptualizes the Blue Economy as a development paradigm that integrates marine resource utilization with sustainability objectives, emphasizing economic growth, employment generation, and environmental conservation (UNCTAD, 2014; World Bank, 2017). Rather than treating oceans solely as extractive spaces, the Blue Economy framework promotes innovation, diversification, and value addition across marine-based sectors, including fisheries, aquaculture, maritime transport, tourism, renewable energy, and marine biotechnology.

Empirical studies indicate that Blue Economy activities contribute significantly to economic growth and employment, particularly in coastal and maritime regions. The OECD estimates that the global ocean economy contributed approximately USD 1.5 trillion in 2016, with projections suggesting substantial growth driven by sectors such as aquaculture, offshore renewable energy, and marine biotechnology (OECD, 2020). Similar findings have been reported in the European Union, where the Blue Economy generated millions of jobs and significant economic output, highlighting its potential as a driver of regional development (Dalton et al., 2019). These studies underscore the importance of sustainable investment and effective governance in maximizing economic benefits while minimizing environmental risks.

Within the African context, the Blue Economy has gained increasing attention as a strategic pathway for sustainable development. Africa's extensive coastline and vast Exclusive Economic Zones provide opportunities for wealth creation, food security, and employment generation (World Bank, 2022). However, scholars note that the realization of these opportunities is constrained by challenges such as illegal, unreported, and unregulated fishing, weak institutional frameworks, inadequate infrastructure, and limited access to finance (FAO, 2020; Veitayaki et al., 2020). In response, the African Union has advanced continental initiatives such as the 2050 Africa's Integrated Maritime Strategy to strengthen maritime governance and promote sustainable Blue Economy development (AUC, 2022).

At the national and sub-national levels, studies on Nigeria's coastal economy reveal a paradox of resource abundance and economic underperformance. Also, as opined by Timidi and Angiamawe (2024), one of the most critical challenges facing Bayelsa State is environmental degradation, primarily caused by decades of oil exploration and exploitation, while marine resources offer substantial potential for diversification and growth, environmental degradation and governance deficits have limited their contribution to development outcomes (Smith-Godfrey, 2016). In the Niger Delta, oil-related pollution has undermined fisheries, agriculture, and tourism, exacerbating poverty and livelihood vulnerability (Nwilo & Badejo, 2011; Okonkwo & Etemike, 2019). Bayelsa State, in particular, possesses untapped opportunities in fisheries, marine tourism, renewable energy, and coastal manufacturing, yet empirical studies examining how these Blue Economy potentials translate into economic development remain scarce.

The literature further highlights that the economic impact of the Blue Economy depends not only on resource endowments but also on governance quality, infrastructure, human capital, and policy coherence. Sustainable coastal development requires integrated approaches that balance economic efficiency with environmental protection and social inclusion (Viridin et al., 2021). Without such frameworks, Blue Economy initiatives risk reinforcing existing inequalities or contributing to ecological degradation.

Overall, the literature affirms the economic promise of the Blue Economy while revealing significant gaps in empirical evidence at the sub-national level, particularly in resource-rich but environmentally challenged regions such as Bayelsa State. This study addresses this gap by empirically assessing the relationship between Blue Economy potentials and economic development, thereby contributing context-specific insights to the broader Blue Economy discourse.

2.4 Theoretical Framework

This study is hinged on the Neoclassical growth theory, which states that economic growth is the result of three factors—labor, capital, and technology. While an economy has limited resources in terms of capital and labor, the contribution from technology to growth is boundless. The Blue Economy paradigm provides a framework for the sustainable development of developing countries and helps address issues such as equity in access to marine resources, development and distribution of benefits, as well as room for reinvestment in human development and relief from crippling national debt. Economic development involves a comprehensive strategy aimed at improving a nation's well-being through various policies and activities across multiple sectors. This includes promoting economic growth via industrialization and innovation (Gasanov et al., 2023).

Edward (2023) focuses on human capital development through education, health, skills training, and infrastructure development, which is crucial. This infrastructure encompasses improvements in transportation, energy, and communication. Environmental sustainability, trade, investment, innovation, and technology also significantly contribute to economic development (Oyundari, 2022). By addressing these critical areas comprehensively, nations can enhance the overall quality of life for their citizens and promote long-term prosperity. It promotes economic growth, social inclusion, and the preservation or improvement of livelihoods while ensuring the environmental sustainability of oceans and coastal areas. (Wairimu & Khainga, 2017). This holistic approach involves promoting economic sustainability through inclusive growth and innovation, ensuring environmental sustainability by managing resources responsibly and combating climate change, and fostering social sustainability by promoting equity and well-being (Yousef et al., 2023). Diversification of economic activities, as highlighted in various research works, plays a crucial role in enhancing the economic and financial state of enterprises. The process of diversification aims to reduce risks, create synergistic effects, and explore new avenues for growth and profitability (Donets, 2023). It involves expanding into new sectors such as marine-based renewable energy, biotechnology, and marine tourism, as seen in the concept of the blue economy

2.4 Gaps in Literature

Despite the growing scholarly and policy interest in the Blue Economy, several critical gaps remain in the literature, especially regarding its localized applications and sustainable integration in developing contexts like Bayelsa State, Nigeria. While the Blue Economy is widely conceptualized at global and continental levels (UNCTAD, 2014; World Bank, 2022), there is limited empirical research focused on how this concept is implemented and experienced at sub-national levels such as Bayelsa State. Existing studies tend to generalize across African coastal regions without disaggregating data or tailoring recommendations to local environmental, social, and economic dynamics (Okonkwo & Etemike, 2019; Daniel et al., 2023).

Much of the literature extols the economic benefits of the Blue Economy, such as job creation and revenue generation (Adepoju et al., 2023; Hussain et al., 2017), but it insufficiently engages with the ecological risks and trade-offs associated with expanding marine-based industries. The interplay between economic development and environmental degradation, particularly in oil-producing coastal regions like Bayelsa, remains underexplored (Akpofure, 2020; Carrasco & Ana, 2023). Although global frameworks like Africa's Integrated Maritime Strategy (AIMS) and SDG 14 are frequently

referenced (AUC, 2012; UNECA, 2016), there is little discussion of how national and local governance structures can operationalize these goals effectively. Gaps exist in the assessment of institutional readiness, regulatory enforcement, and inter-agency coordination necessary for a functioning Blue Economy (Bello, 2019); NIMASA, 2022).

The literature largely omits how local cultural practices, traditional knowledge, and indigenous governance systems intersect with Blue Economy initiatives. For example, the role of community-based resource management and local acceptance of marine tourism or biotechnology is under-theorized (Ijeomah et al., 2018; Ogola & Nwaligbo, 2023). Bayelsa State, like many parts of the Niger Delta, has experienced socio-environmental conflicts tied to oil extraction. Yet, the Blue Economy literature pays scant attention to the conflict dynamics that may arise from competing marine uses or resource exclusions. There is a need for conflict-sensitive blue economic planning that integrates peace building with development (Hamisu, 2019). Though innovation is often mentioned as a driver of the Blue Economy (Spalding, 2016; Antje, 2023), there is inadequate exploration of the technical training, infrastructure, and capacity-building required to enable local communities to participate meaningfully in emerging sectors like marine biotechnology and offshore renewable energy (Therese, 2023; Bari, 2017). This study aims to address this gap by conducting a comparative analysis on the Blue Economy Potentials and Its Impact on Bayelsa State Economy, Nigeria

3.0 Method

The method of this study is discussed under the following sub-headings: research design, study area, population, sampling, data collection instruments, data collection methods, and data analysis methods and ethical considerations

3.1 Research Design

The study adopts a descriptive research design, specifically employing a survey research approach to examine Blue Economy potentials and their impact on the economy of Bayelsa State. A descriptive survey design is appropriate for systematically collecting data from a defined population to describe existing conditions, perceptions, and relationships among variables without manipulating the study environment. This approach enables the study to capture respondents' views on Blue Economy activities and their perceived economic implications in the study area (Olomola, 2019).

3.2 Study Area

The study was conducted in Bayelsa State, located in the core Niger Delta region of southern Nigeria. Bayelsa State is a coastal and riverine state endowed with extensive marine and aquatic resources, including fisheries, mangrove forests, inland waterways, and offshore oil and gas assets. The state's economy is largely dependent on natural resource exploitation and maritime-related activities, making it strategically relevant for assessing Blue Economy potentials. The presence of key government institutions responsible for environmental management, infrastructure development, transportation, and marine-related policies further justifies the selection of Bayelsa State as the study area.

3.3 Population of the Study

The population of the study comprises staff of selected ministries under the Bayelsa State Civil Service Commission, namely the Ministries of Works, Environment, Transport, and Marine and Blue Economy. These ministries play central roles in policy formulation and implementation relating to infrastructure development, environmental sustainability, transportation systems, and Blue Economy initiatives in the state. The total population of staff across these ministries is 1,200.

3.4 Sample and Sampling Techniques

Given the impracticality of studying the entire population, a representative sample was selected for the study. The sample size of 300 respondents was determined using Taro Yamane's formula, which provides an efficient method for selecting an adequate sample from a finite population. A simple random sampling technique was employed to ensure that every member of the population had an

equal chance of being selected, thereby minimizing sampling bias and enhancing the generalizability of the findings across the relevant ministries.

3.5 Instruments/ Methods of Data Collection

Data for the study were collected using a structured questionnaire designed to elicit information on Blue Economy potentials and their perceived impact on economic development in Bayelsa State. The questionnaire was developed based on relevant literature and policy frameworks and structured using a four-point Likert scale with response options ranging from Strongly Agree (SA) to Strongly Disagree (SD). The use of a structured questionnaire ensured uniformity in data collection, reduced researcher bias, and enhanced the reliability of responses by presenting identical questions to all respondents (Dillman, Smyth, & Christian, 2014).

3.6 Validity and Reliability of the Instrument

The validity and reliability of the research instrument were carefully established to ensure methodological rigor and accuracy (Bryman, 2016; Creswell, 2014). Content validity was ensured through an extensive review of relevant literature and expert assessment. Two subject-matter experts in maritime security and environmental management reviewed the questionnaire to assess the clarity, relevance, and adequacy of the items in measuring the study variables. Their feedback informed minor revisions that improved the instrument’s alignment with the research objective.

Reliability of the instrument was determined through a pilot study conducted among respondents with characteristics similar to those of the study population. Internal consistency reliability was assessed using Cronbach’s Alpha in SPSS. The scale measuring Blue Economy potentials and economic development recorded a Cronbach’s Alpha coefficient of 0.81, which exceeds the minimum acceptable threshold of 0.70 recommended by Nunnally and Bernstein (1994), indicating a high level of internal consistency. The detailed SPSS output of the reliability test is presented in Tables 1 and 2.

Table 1: SPSS Output of Reliability Test Scale—Blue Economy Potentials’ Contribution to the Economic Development of Bayelsa State

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Table 2: Reliability Statistics

Cronbach's Alpha	N of Items
.814	4

3.5 Method of Data Analysis

Data collected through the structured questionnaire were analyzed using descriptive and inferential statistical techniques. Descriptive statistics, including frequencies, percentages, and mean scores, were used to summarize respondents’ demographic characteristics and key study variables. Spearman’s Rank Correlation Coefficient was employed to examine the strength and direction of the relationship between Blue Economy potentials and economic development in Bayelsa State. This non-parametric statistical test was considered appropriate due to its suitability for ordinal data and its ability to measure monotonic relationships without assuming normal distribution. All statistical analyses were conducted using SPSS (version 25) at a 95 percent confidence level, with significance determined at $p < 0.05$.

The study employed Likert-scale indicators to measure Blue Economy potentials and economic development in Bayelsa State. Responses relating to Blue Economy potentials were coded such that higher numerical values represented stronger agreement with positive Blue Economy outcomes. In contrast, the economic development variable was reverse-coded, whereby higher numerical values indicated lower perceived levels of economic development outcomes. This coding approach was adopted to capture development constraints within the study area and to ensure consistent ranking of respondents' perceptions during the correlation analysis.

4.0 Results

The results of the study are presented in accordance with the research question guiding the analysis. To provide an initial descriptive understanding of the data, respondents' views on the contribution of Blue Economy potentials to the economic development of Bayelsa State are first summarized using frequency distributions and percentage analyses. These descriptive results offer an overview of response patterns and serve as the basis for subsequent statistical interpretation. All analyses were conducted using SPSS, and the results are presented in tabular form to ensure clarity, rigor, and alignment with journal reporting standards.

4.1 Data and Variables

Table 3: Participants' responses regarding Blue Economy Potentials and Its Impact on Bayelsa State Economy.

S/N	Response	Frequency	Percentage %
1.	SA	210	70
2.	A	65	21.7
3.	D	17	5.7
4	SD	8	2.6
	Total	300	100

Source: Researchers field report (2024)

Table 3 presents the correlation results of participants' responses regarding the blue economy potentials have impact on Bayelsa state economy. The results were presented in table 4.1. Out of the total study population, 70% strongly agreed with the statement that blue economy potentials have impact on Bayelsa State economy, which amounts to 210 respondents. Additionally, 21.7% of the respondents agreed with this notion. In addition, 17 individuals (5.7%) expressed disagreement with the notion that blue economy potentials has impact on Bayelsa state economy, while the remaining 2.6% strongly disagreed with this idea. This suggests that a considerable portion of the entire population agrees with the position on the continuum. This discovery indicates that 91.7% of the individuals involved in the study within the specified area were included. Furthermore, it is worth mentioning that only a small 8.3% of the total population expressed disagreement with the statement that blue economy potentials have impact on Bayelsa state economy.

4.2 Testing of Hypotheses

H₀₁: There is no significant relationship between Blue Economy potentials and the economic development of Bayelsa State.

H₁₁: There is a significant relationship between Blue Economy potentials and the economic development of Bayelsa State.

Table 4: Spearman's rank correlation coefficient on Blue Economy Potentials and its impacton Bayelsa State Economy.

Correlations			
	Blue Economy Potentials	Bayelsa State Economy	

Spearman's rho	Blue Potentials	Economy	Correlation Coefficient	1.000	-.760**
			Sig. (2-tailed)	.	.016
			N	300	300
	Bayelsa Economy	State	Correlation Coefficient	-.760**	1.000
			Sig. (2-tailed)	.016	.
			N	300	300

** . Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS Output version 25

The Spearman Rank Correlation analysis presented in Table 4 produced a strong and statistically significant correlation ($r = -0.760$, $p = 0.016$) between Blue Economy potentials and economic development in Bayelsa State. The negative sign of the correlation coefficient reflects the reverse coding of the economic development variable rather than an inverse relationship between the variables. In substantive terms, the result indicates a strong positive association, implying that improvements in Blue Economy potentials correspond with enhanced economic development outcomes in Bayelsa State. Based on this result, the null hypothesis (H_{01}) is rejected, while the alternative hypothesis (H_{11}) is accepted.

4.3 Discussion of Findings

This study examined the extent to which Blue Economy potentials influence the economic development of Bayelsa State, Nigeria, using both descriptive and inferential statistical techniques. The discussion integrates empirical findings with neoclassical growth theory to explain the mechanisms through which marine and coastal resources contribute to sub-national economic growth.

Descriptive results reveal overwhelming stakeholder consensus regarding the economic relevance of the Blue Economy. As shown in Table 4.1, 70% of respondents strongly agreed and 21.7% agreed that Blue Economy potentials positively affect the economy of Bayelsa State, amounting to 91.7% affirmative responses. This strong perception reflects widespread recognition of the state's marine-based sectors—including fisheries, aquaculture, maritime transport, offshore energy, coastal tourism, and marine-related services—as productive assets capable of stimulating employment, income generation, and internally generated revenue. These perceptions are consistent with existing studies that identify the Blue Economy as a strategic pathway for sustainable growth in coastal and resource-endowed regions (World Bank, 2017; UNCTAD, 2014).

From a neoclassical growth perspective, these findings align with the theory's central assumption that economic growth results from the efficient allocation and productive utilization of capital, labour, and natural resources within a supportive policy environment. Bayelsa State's extensive coastline, navigable waterways, and rich aquatic biodiversity constitute significant natural capital which, when complemented by physical infrastructure, technological inputs, and skilled labour, can enhance productivity and expand economic output. The strong stakeholder endorsement observed in the descriptive analysis therefore reflects an implicit recognition of the state's comparative advantage in marine-based economic activities.

Inferential analysis further strengthens this conclusion. The Spearman rank correlation analysis indicates a strong and statistically significant relationship between Blue Economy potentials and economic development in Bayelsa State ($r = -0.760$, $p = 0.016$). Although the correlation coefficient is negative in sign, this outcome is attributable to the reverse coding of the economic development indicators rather than an inverse economic relationship. When interpreted correctly, the magnitude and significance of the coefficient demonstrate a strong positive association between improvements in Blue Economy potentials and enhanced economic development outcomes. This empirical evidence supports the alternative hypothesis and confirms that variations in Blue Economy activities are closely linked to economic performance in the state.

Within the neoclassical growth framework, this relationship highlights the role of Blue Economy sectors as channels of capital accumulation and productivity enhancement. Investments in maritime infrastructure, fisheries development, offshore energy, and coastal tourism expand the capital stock, create employment opportunities, and improve the efficiency of resource use. These processes generate multiplier effects across related sectors, leading to increased income levels and sustained economic growth. The findings therefore extend neoclassical growth theory to the context of sub-national coastal economies by empirically demonstrating how marine resource-based sectors can function as engines of growth when effectively integrated into development planning.

The results are consistent with empirical literature emphasizing the transformative potential of Blue Economy strategies in coastal regions characterized by resource abundance but economic underperformance (Smith-Godfrey, 2016; Virdin et al., 2021). Neoclassical theory further underscores the importance of enabling institutional and policy frameworks—such as secure property rights, efficient markets, and targeted public investment—in translating natural endowments into long-term growth. In the context of Bayelsa State, underinvestment, regulatory inefficiencies, and governance challenges may constrain the realization of Blue Economy benefits, reinforcing the need for deliberate policy interventions.

Overall, the findings substantiate the argument that Blue Economy potentials constitute a viable pathway for economic development in Bayelsa State. By empirically linking marine-based activities to growth mechanisms emphasized in neoclassical theory, the study demonstrates that the sustainable and efficient exploitation of coastal and marine resources can enhance productivity, stimulate capital formation, and promote inclusive economic growth at the sub-national level. These insights underscore the strategic importance of integrating Blue Economy initiatives into Bayelsa State's broader development agenda through investment-driven growth, institutional strengthening, and sound economic governance.

5. Conclusion

This study provides empirical evidence on the relationship between Blue Economy potentials and economic development in Bayelsa State, Nigeria, contributing to the growing but still limited body of sub-national research on marine-based economic growth in developing coastal regions. Unlike existing studies that focus largely on national or conceptual analyses, this research adopts a Bayelsa-specific perspective and combines descriptive and inferential methods to demonstrate how Blue Economy activities are systematically linked to economic outcomes at the state level. By addressing methodological issues related to variable coding and interpretation, the study also clarifies the direction and strength of this relationship, thereby strengthening the empirical credibility of its findings.

Bayelsa State represents a critical case for Blue Economy development in the Niger Delta due to its extensive coastline, dense network of waterways, rich aquatic biodiversity, and strategic maritime location. Despite these advantages, the state remains heavily dependent on oil revenues, with marine and coastal resources largely underexploited within formal economic planning. The findings of this study highlight the untapped potential of the Blue Economy as a viable pathway for economic diversification, productivity enhancement, and employment generation in the state.

Specifically, the results point to fisheries and aquaculture as key sectors capable of improving food security, livelihoods, and income generation if supported through modern infrastructure, value-chain development, and access to finance. Marine transport and related port services offer opportunities to strengthen trade, logistics, and connectivity within the Niger Delta and beyond, while coastal tourism presents prospects for local enterprise development, cultural promotion, and revenue expansion. In addition, effective environmental governance—particularly in addressing marine pollution, habitat degradation, and resource overexploitation—is essential to sustaining these sectors and ensuring long-term economic benefits.

In line with neoclassical growth theory, the study underscores that the economic benefits of the Blue Economy in Bayelsa State depend on the efficient mobilization of capital, institutional effectiveness, and supportive policy frameworks. Targeted public and private investments, improved regulatory coordination, and strengthened maritime governance structures are therefore necessary to translate marine resource endowments into sustained economic growth. By situating Blue Economy development within the specific socio-economic and ecological context of Bayelsa State, this study provides actionable insights for policymakers and stakeholders seeking to leverage marine and coastal resources as engines of inclusive and sustainable economic development.

6. Recommendations

Here are compelling recommendations for the Bayelsa State government to unlock the immense potential of a blue economy:

1. The Bayelsa State Government must take the initiative to craft a robust Blue Economy Policy that seamlessly integrates sustainable practices across critical sectors such as fisheries, marine transport, coastal tourism, and renewable ocean energy. By aligning this policy with Nigeria's national blue economy agenda and international best practices, the government can ensure inclusive growth, protect our environment, and attract significant investment that benefits all stakeholders.
2. To truly harness the vast opportunities within the blue economy, strategic investments in modern marine infrastructure—such as state-of-the-art seaports, advanced fish processing zones, and well-maintained coastal roads—are vital. Additionally, empowering relevant institutions and stakeholders, including government ministries, maritime workers, and coastal communities, will foster heightened productivity, enhance value creation, and promote efficient resource management in marine-related sectors.
3. It is crucial for the state to actively foster collaboration among government entities, private investors, and local communities. Such partnerships will drive innovation, unlock funding opportunities, and sustain impactful blue economy initiatives. Furthermore, prioritizing the empowerment of coastal communities through targeted skills training, access to microcredit, and meaningful involvement in decision-making processes will ensure an equitable distribution of economic benefits, enabling all to thrive. Together, these steps will position Bayelsa State as a leader in sustainable development and economic prosperity within the blue economy.

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Author contributions

Timidi Emmanuel served as the lead author, conceptualizing the study, conducting the primary analysis, and drafting the initial manuscript. Ogola Daniel contributed to the literature review, data interpretation, and critical revisions of the manuscript. Ruth assisted with data collection, formatting, and proofreading, ensuring the final version met academic standards.

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Data availability: The datasets generated during the current study are available from the corresponding author on reasonable request.”

Declaration

Ethics approval and consent to participate: The research protocol was approved by the Ethics & research committee of Nigeria Maritime University Okerenkoko Delta State in accordance with the guidelines and regulations of the National Research Ethics Code.”

Consent for publication Participants including staff from the Ministries of Works, Environment, Transport, and Marine and Blue Economy in the Bayelsa State Civil Service who are involved in implementing government policies related to the environment, infrastructure, transportation, and the blue economy, provided verbal informed consent. This ensured they were fully aware of the study’s purpose, their right to withdraw at any time, and how the data would be used.

Competing interests, the authors declare no competing interests.

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