



Policy Brief

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Blue Economy Policy: Harnessing Ocean Wealth for Sustainable Growth

How can the Philippines transform its vast marine resources into engines of sustainable economic growth? A policy framework on the Blue Economy offers a strategic roadmap for harnessing the ocean's potential, balancing economic prosperity with environmental stewardship.

1. Introduction

The Philippines has a vast maritime domain encompassing 2.2 million square kilometers of territorial waters and exclusive economic zones, the world's fifth-longest coastline at 37,008 kilometers (PEMSEA 2021; Azanza et al. 2022), and abundant marine resources, all of which underpin a promising ocean economy. Despite its immense potential, this vital sector is often overlooked as a lifeline for millions of coastal Filipinos. The country's alarming ranking of 214th out of 220 in the 2023 Ocean Health Index underscores the urgent need to transition toward a “sustainable ocean-based economy” that maximizes benefits while safeguarding marine ecosystems for future generations – a blue economy (UNRIC 2022).

To address this need, the proposed Blue Economy Act aims to formulate a comprehensive Policy Framework and Strategic Action Plan on Blue Economy by creating a Blue Economy Council. Committee Report 138 or Senate Bill (SB) 2450,¹ or the Blue Economy Act, is a priority measure in the Legislative Executive Development Advisory Council for the 19th Congress. The bill has been approved on third reading in both the Senate and the House of Representatives, underlining the urgency of its passage.

Acknowledging the need for a policy to harness ocean wealth for sustainable growth, this policy brief aims to (1) analyze the current state of the Philippine ocean economy, identifying key challenges and opportunities; (2) examine the proposed Blue Economy Act and its potential to address these challenges and drive sustainable ocean development; and (3) develop a comprehensive set of policy recommendations and actionable strategies to guide the transition to a thriving blue economy, focusing on critical areas such as governance, finance, technology, and ecosystem conservation.



The SEPO Policy Brief, a publication of the Senate Economic Planning Office, provides analysis and discussion on important socio-economic issues as inputs to the work of Senators and Senate Officials. The SEPO Policy Brief is also available at www.senate.gov.ph.

¹ The proposed legislation was authored by Senators Loren Legarda, Jinggoy Estrada, Joel Villanueva, Ramon Revilla, Jr., Grace Poe, Sonny Angara, and Raffy Tulfo.

2. Troubled Waters: The Philippine Ocean Economy

Table 1. Average Gross Value Added and Employment in Ocean-based Activities, 2018-2022
(GVA in million pesos; Employment in thousand persons)

Industry	GVA	Employment
Total	787,013	2,249
Share of Ocean-based to Total	4.05	5.27
I. Agriculture, Forestry & Fishing	229,897	1,074
a. Ocean Fishing	229,897	1,074
II. Industry	307,416	110
a. Offshore and Coastal Mining and Quarrying	38,650	9
b. Manufacture of Ocean-based Products	164,744	63
c. Coastal Construction	7,289	22
d. Ocean-based Power Generation, Transmission, and Distribution	96,734	16
III. Services	249,700	1,065
a. Marine Equipment Wholesale and Retail	5,997	41
b. Sea-based Transportation and Storage	111,049	620
c. Marine Information Services	217	5
d. Marine Insurance	8,969	4
e. Marine Renting and Business Activities	49	0.17
f. Maritime Safety, Surveillance and Resource Management	27,848	48
g. Maritime Education	2,016	4
h. Coastal Accommodation and Food and Beverage Services Activities	65,152	303
i. Coastal Recreation Activities	28,403	41

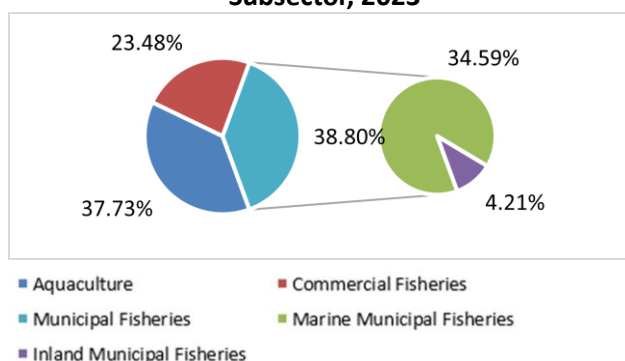
Source: Philippine Statistics Authority

The ocean economy is a tangible, measurable economic sector encompassing all economic activities related to the ocean, including traditional sectors like fishing, shipping, offshore oil and gas, and emerging industries like marine biotechnology and renewable energy (OECD 2016). The blue economy, on the other hand, is a recent concept in international development that focuses on establishing a sustainable ocean economy to promote economic growth, improved livelihoods, and ocean ecosystem health. It is a strategic approach to managing and utilizing ocean resources within the broader context of the ocean economy (UNCTAD 2014; World Bank 2017; London School of Economics 2023; UNEP n.d.).

In the Philippines, the ocean economy contributed an average of PHP787.01 billion in gross value added (GVA) from 2018-2022, accounting for 4.05 percent of the country's gross domestic product (GDP). Ocean fishing is the largest industry among these activities, making up nearly one-third of the total, with an estimated PHP229.88 billion in value added. This is followed by manufacturing ocean-based products at 20.93 percent and coastal accommodation and food and beverage services at 8.28 percent (PSA 2023).

In terms of employment, the ocean economy contributed 2.24 million jobs or 5.27 percent of the total employment in the country. Ocean fishing employed nearly half of these workers, with 1.074 million people depending on this industry. Sea-based transportation and storage ranked second, employing 620 thousand people, followed by coastal accommodation and food and beverage services, which provided jobs for 303 thousand individuals (PSA 2023).

Figure 1. Fisheries: Share in Production Value by Subsector, 2023



Source: Philippine Statistics Authority

The scope and magnitude of the economic output and benefits derived from ocean resources and activities underscores the critical need for responsible management and utilization of these resources to ensure long-term sustainability and the ocean's overall health (OECD 2016). This necessitates addressing a range of pressing challenges, including overfishing, marine pollution, habitat destruction, and the impacts of climate change, all of which contribute to the deteriorating health of marine ecosystems. The following sections will delve deeper into some of the critical issues facing the Philippine ocean economy, exploring the vulnerabilities of the fisheries sector, the unsustainable practices in coastal and marine tourism, the high costs associated with port and shipping logistics, the complexities hindering offshore oil and gas development, and the broader implications for ocean health and resilience.

2.1. Vulnerable Fisheries Sector

Ocean-based fishing holds the largest share of GVA for the ocean-based economy. In 2023, the total value of production in fisheries reached PHP328.74 billion. While this represents only 1.4 percent of the 2023 GDP at current prices (PSA 2024), the Philippines remains one of the world’s leading producers of fisheries (World Bank 2024). The value of production in fisheries by sector is as follows: (1) commercial fisheries (valued at PHP77.18 billion for 2023), (2) municipal fisheries subdivided into (a) marine municipal fisheries (valued at PHP113.70 billion), (b) inland municipal fisheries (valued at PHP13.84 billion), and (3) aquaculture (valued at PHP124.02 billion). The combined value of municipal fisheries takes the largest share at 38.80 percent of the entire fisheries production sector.

The Philippines boasts of a rich variety of species of fish in the sector. The species with the highest value in production is the milkfish at PHP45.86 billion (13.95 percent of all species), followed by *tilapia* at PHP29.39 billion (8.94 percent), and skipjack (*gulyasan*) at PHP22.4 billion (6.81 percent).

Table 2. Fisheries: Top Ten Species by Production Value, 2023 (In million PHP)

Species	2023
All species	328,740.24
Milkfish	45,859.22
Tilapia	29,393.85
Skipjack (Gulyasan)	22,382.54
Roundscad (Galunggong)	19,038.78
Tiger prawn	18,022.47
Big-eyed scad (Matangbaka)	14,365.72
Yellowfin tuna (Tambakol/Bariles)	14,275.58
Seaweed	12,714.31
Bali sardinella (Tamban)	11,411.27
Others (Marine Fisheries)	33,895.92

Source: Philippine Statistics Authority

During the first quarter of 2024, fisheries in the Philippines reached PHP75.94 billion in value, a 14.2 percent decrease compared to the previous year's quarter, with the most notable drop stemming from marine municipal fisheries (valued at PHP26.31 billion in Q12024 from PHP30.78 billion in Q12023). All subsectors, such as commercial fisheries and

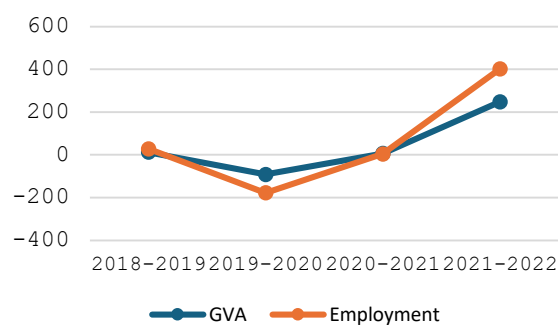
aquaculture, indicated a smaller decrease. Inland municipal fisheries see a healthy increase for the same quarter (valued at PHP3.8 billion in Q12024 from PHP2.56 billion in Q12023).

This decrease in commercial fisheries can be attributed, in part, to illegal, unreported, and unregulated (IUU) fishing, which represents a significant challenge to the Philippine fisheries sector. IUU fishing encompasses not only unreported catches and the operation of unregistered vessels but also destructive fishing practices like dynamite fishing, cyanide fishing, and *muro-ami* fishing. A BFAR-USAID study estimated that IUU fishing in the Philippines in 2019 led to annual losses of up to PHP62.6 billion, with 127,700 unregistered vessels and unreported catches worth up to PHP74.3 billion (Coastal Resources 2021). Addressing IUU fishing in all its forms, including strengthening enforcement and promoting sustainable practices, is essential for converting these losses into sustainable revenue and preserving the Philippines' marine resources.

2.2. Unsustainable Coastal and Marine Tourism

The Philippines is renowned for its islands, beaches, and diving sites and is increasingly recognized for nature-based tourism. To capitalize on these strengths, it is crucial to integrate tourism sustainably

Figure 2. Gross Value Added and Employment Growth Rates in Coastal Accommodation and Food & Beverage Services, 2018-2022 (in Percent)

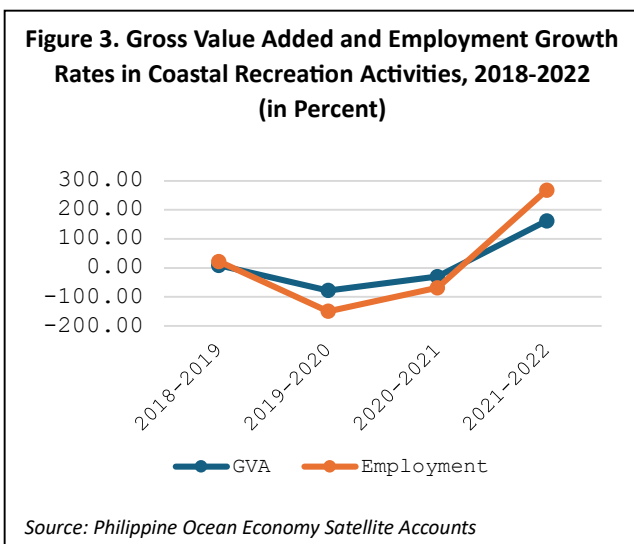


Source: Philippine Ocean Economy Satellite Accounts

into sensitive coastal and marine environments. This includes implementing conservation and management initiatives and improving facilities to enhance tourist experiences while mitigating the impact on these ecosystems. The Department of Tourism’s National Tourism Development Plan (2023) identifies "ridge-to-reef" experiences as the

country's primary tourism product, encompassing sun, beaches, islands, mountains, forests, terrestrial protected areas, diving, water sports, marine protected areas, and protected landscapes and seascapes.

Marine and coastal tourism activities significantly contribute to the economic benefits of international and domestic tourism, particularly in archipelagic regions like the Philippines. From 2010 to 2022, top tourist destinations included coastal areas such as Cebu, Camarines Sur, Zambales, Aklan (Boracay), Batangas, and Palawan. Emerging destinations like Siargao, Masbate, and Siquijor have also seen increased arrivals, leading to economic benefits for local communities.



The Philippine Ocean Economy Satellite Accounts measure the value of coastal tourism through two service industries: coastal accommodation, food and beverage service activities, and coastal recreation (PSA 2023). These industries demonstrated resilience and substantial growth in GVA and employment from 2021 to 2022. Coastal accommodation and food and beverage services contributed PHP42 billion to GVA in 2022, up from PHP12 billion in 2021. Coastal recreation generated PHP21 billion in GVA in 2022, a marked increase from PHP8 billion in 2021.

While marine and coastal tourism presents significant economic opportunities, it also poses challenges to the very livelihoods and ecosystems it depends on. Over-extraction of resources, unsustainable consumer behavior, and environmental degradation, including pollution from

solid waste, wastewater, and other sources, threaten the delicate balance of marine areas. This degradation manifests in the physical distortion and destruction of habitats, impacting marine life and coastal landscapes. Activities like vessel anchoring outside of designated areas, unsustainable fishing practices, and the collection of aquatic resources can damage coral reefs and disrupt ecosystems. Additionally, tourism-driven land clearing contributes to habitat loss and alteration (WWF 2021). The Philippine Clearing House Mechanism further highlights the issue of coastal degradation stemming from factors like habitat conversion, land reclamation, resource over-extraction, waste overload, and climate disturbances, all of which can lead to the destruction of vital ecosystems like mangroves, seagrass beds, and coral reefs, ultimately contributing to marine species extinction (PCHM 2019).

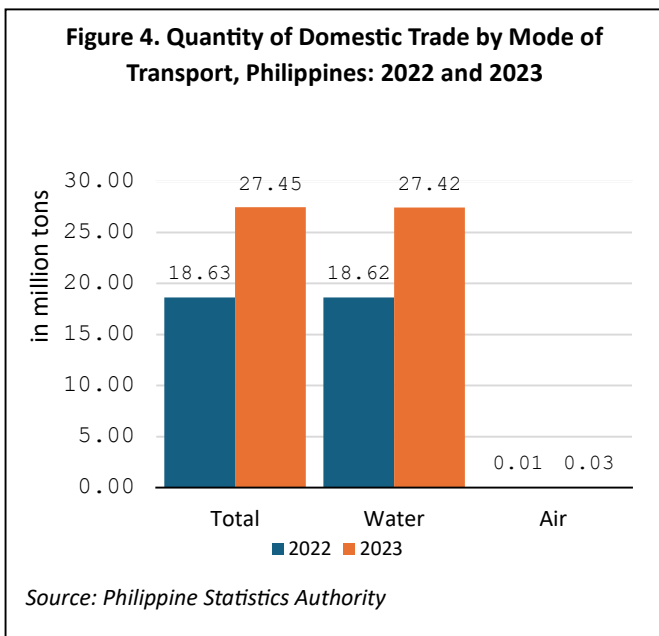
For instance, Boracay Island's unregulated development for tourism since the 1980s led to significant environmental degradation. Coastal vegetation was altered, mangroves reduced to patches, overfishing destroyed coral reefs, and untreated sewage spilled into the ocean (NAST 2018; Tan et al. 2016; Rowan 2011; Takashi et al. 2011; Takano 2006). Additionally, poor sewage management resulted in water resource degradation, chemical contamination, and saltwater intrusion. The 2018 rehabilitation of Boracay improved coastal resources, reducing algal blooms and coliform levels (Visitacion et al. 2019). Major coastal cleanups, like Boracay's rehabilitation, benefit the environment by reducing pollution, restoring habitats, promoting marine biodiversity, enhancing ecosystem resilience, and supporting sustainable tourism.

2.3. Costly Port and Shipping Logistics

Interisland water transport is a vital subsector of the national transport system as it provides navigational lanes and facilitates trade. The GVA of sea-based transportation and storage in 2022 amounted to PHP125.61 billion or 14.6 percent of the total ocean economy. Shipping contributed PHP92.304 million to the GVA in the Transportation and Storage sector of the Philippines' national accounts in the first quarter

of 2023. The sector experienced a growth rate of 24.5 percent from 2021 to 2022, a significant improvement from the -4.4 percent annual value recorded between 2020 and 2021. (PSA 2023; Maritime Industry Authority 2021).

As shown in Figure 4, almost all commodities were traded by water, with only a small fraction traded by air. As of 2022, 19,678 vessels were registered for domestic trade, dominated by fishing vessels, followed by passenger ships, recreational boats, and cargo ships. Most of these trades happen in major ports such as the North and South ports in Manila Bay, Cebu Port in Mactan Channel, Subic Port in Subic Bay, Batangas Port in Batangas Bay, and Zamboanga Port in Basilan Channel.



Despite these, the domestic shipping industry remains saddled with inefficiencies such as high shipping costs, low service quality, and high frequency of maritime accidents. Notably, logistics costs in the Philippines account for 24 to 53 percent of wholesale prices, higher than the ASEAN average of less than 20 percent (Francisco 2023).

2.4. Stagnant Offshore Oil and Gas Development

Philippine exploration for offshore oil and gas has been ongoing since 1896. The largest discovered gas field in the Philippines is the Malampaya gas field in northwest Palawan, with proven reserves of 2.7 to 3.2 trillion cubic feet (Tcf) of gas. The Department of

Energy (n.d.) estimates that the Malampaya gas fields produce 146 billion cubic feet of gas per year.

The Philippines' unexplored offshore oil and gas resources have the potential to address the growing energy deficiency across the country. However, only a small percentage of the Philippines' potential petroleum areas have been explored, with estimates suggesting that less than 10 percent of the country's territory has viable data for petroleum exploration, primarily concentrated in the offshore western side of Palawan and onshore Cebu. Territorial disputes have limited exploration in the resource-rich South China Sea. Thus, oil reserve figures are only based on estimates. The US Energy Information Agency (2024) estimates that the South China Sea holds approximately 3.6 billion barrels of petroleum and other liquids and 40.3 trillion cubic feet (Tcf) of natural gas in proved and probable reserves (EIA 2024).

These geopolitical complexities, particularly the overlapping maritime claims in the West Philippine Sea, pose a significant obstacle to harnessing the potential energy resources in the South China Sea. They complicate marine resource management and create uncertainties for investors and developers. Resolving jurisdictional issues related to non-living resource extraction and generation is critical for the growth of the blue economy (Ramli and Waskitho 2023). While the country is fully committed to international law, particularly the United Nations Convention on the Laws of the Sea (UNCLOS), local legislation has yet to clearly define the Philippine maritime borders, adding another layer of complexity to the situation.

2.5. Deteriorating Ocean Health

The Philippines' rich marine biodiversity is under threat from climate change, biodiversity loss, and pollution. These can jeopardize livelihoods and undermine the blue economy's potential. The Philippines is highly vulnerable to the impacts of climate change. Rising sea levels, increasing temperatures, and more frequent and intense typhoons are wreaking havoc on coastal communities and marine habitats. The World Bank estimates that the annual economic damages from

climate change in the Philippines could reach 13.6 percent of the country's GDP by 2040, underscoring the urgency of addressing this crisis. Moreover, as of 2022, nearly 10 percent of marine life in the Philippines is threatened with extinction, a stark reminder of the biodiversity crisis facing the nation's oceans.

Likewise, marine pollution, particularly from plastic waste, poses a grave threat to human and marine life. It is estimated that over four million metric tons of plastic waste are mismanaged annually in the Philippines, with a significant portion ending up in the ocean. It is important to note that data on marine pollution remains limited, and a significant portion of plastic waste found on Philippine coastlines originates from neighboring countries. This highlights the transboundary nature of marine pollution and the need for collaborative international efforts to address this issue effectively.

3. Waves of Change: The Imperative for a Blue Economy Policy

The current state of the Philippine ocean economy underscores the need for a collaborative approach or framework that balances competing economic interests and ensures the participation of a wide range of users and stakeholders of the ocean and marine resources.

However, the current institutional arrangements among various agencies hinder effective planning in the marine and coastal sectors, leading to weak governance and enforcement. Overlapping functions of agencies such as the Department of Environment and Natural Resources (DENR), Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR), Philippine Coast Guard, and Local Government Units (LGUs) complicate holistic management, particularly in protecting, conserving, and managing coastal and marine resources. These overlaps, particularly in areas such as patrolling and enforcement, can lead to inefficiencies, gaps in oversight, and challenges in addressing a range of unsustainable practices, including illegal fishing, habitat destruction, and pollution. This fragmented approach not only endangers the health of marine

ecosystems but also hampers the sustainable growth of the ocean economy.

To address this, the proposed Blue Economy Act provides for the: (1) adoption of the Blue Economy Framework, (2) improvement of ocean accounting by including natural assets, (3) implementation of integrated marine and coastal area management, (4) protection and conservation of coastal and marine resources (5) harmonization of development planning, (6) promotion of blue finance, and (7) creation of the Blue Economy Council.

3.1. Adoption of the Blue Economy Framework

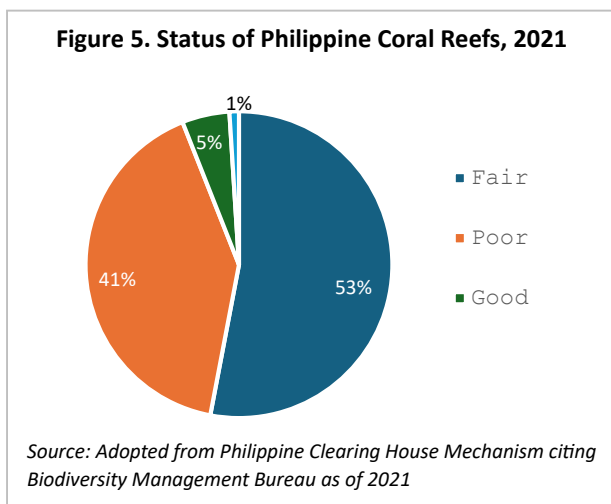
SB 2450 aims to establish a comprehensive Blue Economy Framework that transforms the Philippines into a sustainable development model, balancing economic growth, social welfare, and environmental protection. This holistic approach seeks to revitalize the Philippine ocean economy by addressing pressing issues such as overfishing, coastal erosion, marine pollution, and climate change. The framework will integrate key components like integrated marine and coastal management, environmental-economic accounting, research and financing, climate change adaptation and mitigation, and circular economy principles, ultimately fostering a thriving and resilient ocean economy.

A key component of this approach, as outlined in section 11 of SB 2450 is a comprehensive review of all existing policies, plans, programs, projects, rules, and regulations related to ocean-based and ocean-related activities. The review aims to identify inconsistencies, gaps, and opportunities for improvement, laying the groundwork for a cohesive and effective policy framework for the blue economy.

Currently, the country has no overall legal framework specific to the blue economy. However, it has several supportive policies or essential sector-specific laws such as the Philippine Fisheries Code of 1998, the Agriculture and Fisheries Modernization Act of 1998 for fisheries and aquaculture, and the Wildlife Resources Conservation and Protection Act of 2001, which governs coastal and marine ecosystems. Other relevant regulations cover (1) pollution control, e.g.,

Philippine Clean Water Act of 2004, Ecological Solid Waste Management Act of 2000; (2) maritime transport, e.g., IMO conventions; (3) maritime security, e.g., National Coast Watch System; (4) tourism, i.e., Tourism Act of 2009; (5) offshore oil and gas, i.e., Oil Exploration and Development Act of 1972; (6) and renewable energy, i.e., Renewable Energy Act of 2008.

The Philippines is also a signatory to the Declaration on the Blue Economy during the 40th Association of Southeast Asian Nations (ASEAN) Summit held on 26 October 2021 and endorsed the ASEAN Blue Economy Framework at the 43rd ASEAN Summit in September 2023. The said framework identifies priority areas for action and is structured around



three key features: (1) guiding principles for implementation of a blue economy in ASEAN, (2) blue strategies on which ASEAN-member states should focus, and (3) enablers that accelerate blue economy development and growth. The strategies inculcated in the framework are implementing a comprehensive approach to environmental and social sustainability, promoting blue science, technology, and innovation, and enhancing national blue economy potential such as renewable energy, desalination, and biotechnology.

3.2. Improvement of Ocean Accounting

The Philippines has implemented several initiatives to measure the contribution of ocean-based industries to the economy. These are (1) Philippine Ocean

Economy Satellite Accounts; (2) Philippine Action Plan for Sustainable Production and Consumption (PAP4SCP) and Roadmap to Institutionalize Natural Capital Accounting in the Philippines; and (3) projects such as the Environmental and Natural Resources Project, Philippine Economic Environmental and Natural Resources Accounting, and Philippines Wealth Accounting and Valuation of Ecosystem Accounts.

Since 2019, the Philippine Statistics Authority (PSA) has conducted the Philippine Ocean Economy Satellite Accounts, measuring the ocean economy.² However, these estimates remain experimental and require regular updates until an international framework is adopted. It also does not account for natural capital accounting and measurement of the sustainability of ocean-based industries.

To address these limitations, SB 2450 mandates the PSA to implement environmental-economic accounting based on the UN System of Environmental-Economic Accounting (SEEA). This accounting framework ensures harmonized data nationwide and adequate coordination between LGUs and the PSA to share methodologies and prevent duplication.

Additionally, the National Economic and Development Authority (NEDA) has launched the PAP4SCP and the Roadmap to Institutionalize Natural Capital Accounting. These initiatives contribute to sustainable resource management and reduce environmental impacts. The recently passed Republic Act (RA) 11995, or the Philippine Ecosystem and Natural Capital Accounting System (PENCAS) Act, also mandates official statistics on natural capital in line with the SEEA Framework, environmental protection expenditures, and pollution, supporting a comprehensive framework for sustainably managing the Philippines' blue economy. Including natural assets and integrating them into macroeconomic indicators is crucial for assessing their economic value and the environmental impacts on these assets, such as damages and emissions. This holistic approach, which the passage of SB 2450 would further strengthen, will enable more informed

² The ocean economy, in the context of the POESA, is defined as the sum of the GVA of ocean-based industries.

decision-making and policy development, ultimately leading to a more sustainable and resilient blue economy in the Philippines.

3.2.1. Natural Assets

The Philippines is in the so-called Coral Triangle, a marine area home to many coral species and other reef-dependent biodiversity such as mangroves, and seagrasses. According to Zafra (2021, 6), these ecosystems collectively contribute an estimated net benefit of USD6.2 billion annually.

Table 3. Estimated Benefits from Ocean Resources of the Philippines, 2017

Ocean resources	Net annual benefits (USD million)	Area (ha)	Net annual benefits per ha (USD)
Coral reefs	5,881.6	2,506,000	2,347.0
Mangroves	315.1	323,800	973.1
Seagrasses	4.0	97,800	40.9
Total	6,200.7	2,927,600	2,118.0

Source: Zafra (2021, 6) calculations based on Azanza et al. (2017) and Partnerships in Environmental Management for the Seas of East Asia (2018)

Coral Reefs: Covering over 2.5 million hectares, coral reefs in the Philippines are vital ecosystems that provide habitat and nourishment for diverse marine species, supporting fisheries and tourism while offering immense potential for medical and biotechnological advancements. Coral reefs contribute an estimated net annual benefit of USD5.9 billion (Zafra 2021, 6).

Seagrass Beds: Spanning approximately 97,800 hectares, these underwater meadows provide critical habitats for marine life, contribute significantly to carbon sequestration, and serve as valuable indicators of overall ocean health.

Mangrove Forests: Occupying an estimated 323,800 hectares, mangroves offer a wealth of benefits, including food and livelihood opportunities for coastal communities, protection against erosion and storms, and a crucial role in climate change mitigation through carbon capture. Of the world’s more than 70

salt-tolerant mangrove species, around 46 exist in the Philippines (Viray-Mendoza 2017 In Zafra 2021, 6).

However, these invaluable natural assets are under increasing threat from human activities and climate change. Coral reefs are suffering from degradation, while mangrove and seagrass habitats are being lost at alarming rates. In particular, it estimated that only 1 percent of the coral reefs are in excellent condition, 53 percent in fair condition, and 41 percent in poor condition.³ As of 2021, over the past decade, there has been a loss of over one-third of coral coverage (Licuanan, Robles, and Reyes 2019, 548). The consequences of these losses ripple through the marine ecosystem, impacting fisheries, coastal communities, and the overall health of the ocean (Cabasan, Nañola, and Arceo 2024).

SB 2450 recognizes the urgency of this situation and takes a two-pronged approach to address it. First, the bill explicitly mandates the conservation, protection, and restoration of these vital ecosystems (Sec. 11(e) and 19). This provides a legal framework for implementing critical measures to halt and reverse the decline of these natural treasures. Second, the bill champions the establishment of a robust ocean accounting system (Sec. 12). By quantifying the economic and ecological value of marine ecosystems, ocean accounting empowers policymakers to make informed decisions that balance development with conservation. It also highlights the true cost of environmental degradation, encouraging sustainable practices that protect these valuable resources for future generations.

3.2.2. Marine Biotechnology

The Philippines is considered one of the 18 mega-biodiverse countries, with an estimated 70-80 percent of the world’s plant and animal species (World Intellectual Property Organization (WIPO) 2019). As a biodiversity hotspot, it maintains at least 3,214 species of fish (121 of which are endemic) (Convention on Biological Diversity n.d.). The WIPO reports that marine genetic research has surged through increased internationally collaborated patent activity. Such activity is growing for its commercial interest in new products, aquaculture,

³ DENR-BMB Guideline (Technical Bulletin No. 5, 2017) defines coral reef status as follows: excellent condition as >44% live coral cover,

good condition as 34-44% live coral cover, fair condition as 22-33% live coral cover, and poor condition as 0-22% live coral cover.

and pharmaceutical use. The Philippines ranks second in species count for 2019 in the Global Biodiversity Information Facility at 45,793, of which 14,060 (31%) are marine species, behind Indonesia (WIPO 2019). This abundance in species and their occurrence opens the potential for the Philippines to identify more species, especially those of marine origin, with enough support to its scientific research community. Newly discovered species lend themselves to new knowledge and more significant applications, such as medical and climate change mitigation.

Several challenges, such as limited access to advanced research facilities and the need to retain skilled professionals, currently hinder the full potential of Philippine marine biotechnology. SB 2450 addresses these challenges by promoting marine science research and the development of priority R&D agendas (Secs. 7(n), 11(i)). These provisions lay the groundwork for increased investment in critical infrastructure, such as modern laboratories and research vessels, thereby expanding access to vital resources nationwide. Further, the bill's mandate for capacity building and skills enhancement programs (Secs. 7(p), 15) fosters an environment conducive to retaining skilled professionals by providing them with opportunities for growth and development within the burgeoning blue economy sector. Moreover, the data generated and expertise developed through these research and capacity-building initiatives will directly contribute to the improved ocean accounting mandated by the bill (Sec. 12), enabling a more comprehensive understanding of the economic and environmental value of the Philippines' marine resources.

3.3. Implementation of Integrated Marine and Coastal Area Management (IMCAM)

The bill calls for the use of the IMCAM framework to address human impacts on marine and coastal biodiversity, promoting conservation and sustainable use. Aligned with the United Nations Environmental Program Convention on Biological Diversity, the National IMCAM framework focuses on building the capacity of national and local stakeholders to develop

policies for ecosystem-based management. It aims to protect coastal and marine environments from negative impacts like unregulated fishing and bycatch and establish mechanisms for valuing ecosystems and measuring natural and human-induced impacts. It also encourages a harmonized approach across LGUs with marine and coastal areas, ensuring consistency in management strategies.

Agencies like the DENR address marine and coastal management. The Biodiversity Management Bureau under DENR runs the "Management of Coastal and Marine Resources/Area" program, which includes the Coastal and Marine Ecosystems Management Program aimed at effective ecosystem management. The Ecosystems Research and Development Bureau (ERDB), DENR's principal research and development unit, focuses on major ecosystems, including coastal zones. DENR's Ridge-to-Reef Approach aligns with the IMCAM framework, and its implementation will enhance this strategy to be more integrated, holistic, participative, and sustainable for the country's marine and coastal areas.

3.4. Protection and Conservation of Coastal and Marine Resources

SB 2450 also provides for the expansion of marine protected areas (MPAs) in alignment with integrated coastal management. The proposed measure mandates that the Council recommend the designation of coastal and marine areas as protected areas under the E-NIPAs Act, the Fisheries Code (RA 8550), and the Local Government Code to the President and Congress.

MPAs, defined as sea areas where human extractive activities are fully or partially restricted by law, are crucial tools for conserving marine biodiversity (Grorud-Colvert et al. 2021). International agreements⁴ enable the establishment of MPA networks, while national laws such as the National Integrated Protected Area Systems Act (RA 7586/11038) and the Philippine Fisheries Code (RA 8550/10654) promote the protection of marine ecosystems through MPAs. The Philippine MPA Database (database.mpasupportnetwork.com;

⁴ 1992 Convention on Biological Diversity; 1982 United Nations Convention on the Law of the Seas; 1971 Ramsar Convention on

Wetlands; 1972 World Heritage Convention; 2023 Kunming-Montreal Global Biodiversity Framework.

Cabral et al. and Marine Protected Area Support Network partners 2014, cited in Abesamis and Arceo, 2024) lists over 1,900 MPAs across the country, predominantly established through municipal legislation. Several of these MPAs are locally managed and part of more extensive networks. According to the latest map from the database, nearly 300 MPAs are located along the western coastlines of the Philippines in the West Philippine Sea (Abesamis and Arceo 2024). These MPAs play a vital role in protecting critical habitats like coral reefs.

Despite the importance of MPAs, current laws and policies on MPA management often conflict and overlap (Chavez 2021), leading to inconsistent protection levels. Fluctuating political will, varying levels of community engagement, and resource constraints further undermine their effectiveness. While MPAs demonstrate positive impacts on marine life compared to unprotected areas, locally managed MPAs face challenges due to changing LGU management, contributing to overfishing and varying health conditions of the coral reefs (Panga et al. 2021; Mauallil et al. 2019; Oracion 2017).

The proposed bill seeks to address these challenges by promoting a whole-of-government and whole-of-society approach to MPA management. By fostering collaboration and providing clear guidelines, the bill aims to ensure more consistent and effective protection and management of these critical areas, ultimately contributing to the conservation of marine biodiversity and the sustainable use of marine resources.

3.5. Harmonization of Development Planning

SB 2450 aims to create a sustainable and prosperous ocean economy by integrating marine spatial planning (MSP) and industry development plans into national and regional development strategies. The bill mandates the creation of a nationwide marine spatial plan to optimize ocean resource use and minimize conflicts. It also requires developing five- and ten-year plans for key ocean-based industries, which will be integrated into NEDA development plans and Board of Investments strategies. The legislation promotes establishing Blue Economic Zones to facilitate investment and growth, offering

incentives like those provided to special economic zones.

While the existing Integrated Coastal Management and Area Management framework primarily focuses on local-scale coastal zones, MSP operates on a broader scale, often encompassing entire national Exclusive Economic Zones (EEZs) (WB and UNDESA 2017). Recognizing the importance of both approaches, SB 2450 includes provisions for MSP, addressing the long-term development of marine resources across the country.

MSP involves identifying the spatial and temporal distribution of priority activities and users within maritime zones at the national level. It aims to reduce conflicts, enhance resource complementarity, mitigate environmental impacts, prevent underutilization, and preserve marine ecosystems. The Blue Economy Council will oversee this effort, leveraging local stakeholder expertise to ensure equitable and optimal use of maritime zones.

A proposed framework for MSP in the Philippines, detailed by Aboitiz Data Innovation et al. (2024), emphasizes incorporating LGUs' expertise and on-the-ground knowledge. This phased implementation framework includes three main components: (1) stakeholder engagement, (2) data harmonization and integration, and (3) MSP processes, frameworks, and tools. This approach ensures effective decision-making, sustainable resource use, preservation of marine ecosystems, and enhanced stakeholder collaboration.

Furthermore, the Philippine Development Plan 2023-2028 underscores the importance of the blue economy within its strategy for sustainable resource-based industries. This involves promoting eco-friendly technologies and practices in marine-based industries as detailed in chapters on Agriculture and Agribusiness (Chapter 5), Services (Chapter 7), Science, Technology, and Innovation (Chapter 8), and Climate Action and Disaster Resilience (Chapter 15). The plan outlines several crucial actions: implementing Fisheries Management Areas plans with specific controls, promoting diverse livelihoods such as multi-species aquaculture and agri-tourism, establishing electronic catch documentation for

sustainable fisheries, upgrading technology centers, and investing in hatcheries and mariculture parks, modernizing ship and port facilities for efficient transport, and ensuring secure access to fishing grounds for local fisherfolk. These steps aim to harness the full potential of the blue economy for sustainable development.

3.6. Promotion of Blue Finance

The Philippine government has launched several initiatives in blue finance, recognizing the need to mobilize resources for the sustainable management of marine and coastal areas. One key initiative is the Philippine Sustainable Finance Roadmap, introduced in October 2021 by the Department of Finance and the Bangko Sentral ng Pilipinas (BSP). This roadmap guides the financial sector in funding sustainable projects, particularly those focused on marine conservation, sustainable fisheries, and coastal resilience. The BSP's Circular 108 defines sustainable finance as financial products and services incorporating environmental, social, and governance criteria into business decisions, supporting economic growth and environmental sustainability. Additionally, the Philippines has engaged with international organizations, such as the World Bank and the Asian Development Bank (ADB), to develop blue finance mechanisms. The ADB has committed to mobilizing up to USD5 billion from 2019 to 2024 in the Asia-Pacific region to improve ocean health, conserve biodiversity, and support marine economy projects, focusing on sustainable livelihoods, ecosystem protection, pollution reduction, and sustainable infrastructure development.

In the proposed Blue Economy Act, Congress aims to institutionalize a regulatory framework through the BSP, establish credit facilities through the Land Bank of the Philippines, and facilitate the issuance of blue bonds through the Securities and Exchange Commission, specifically for blue programs and projects.

The bill aligns with RA 11901, "The Agriculture, Fisheries, and Rural Development Financing Enhancement Act of 2022," which mandates financing for rural communities to support agricultural and fishery activities, including

sustainable initiatives. and with RA 11293, "The Philippine Innovation Act," which prioritizes areas for innovation in food security and sustainable agriculture, and the blue economy. Under these laws, all banking institutions must allocate at least 25 percent credit quota for RA 11901 and at least 4 percent of their loanable funds with a focus on sustainable financing. The bill further promotes blue financing through the establishment of Blue Economic Zones that grant incentives and benefits to enterprises engaged in ocean-related activities.

3.7. Creation of the Blue Economy Council

The proposed bill calls for establishing a Blue Economy Council, chaired by the Executive Secretary and co-chaired by the Environment Secretary and the NEDA Secretary. The Council will coordinate with various departments and agencies to develop a comprehensive policy framework and strategic plan within six months. The Council will harmonize the efforts of several agencies to implement a sound Blue Economy Framework and effective coastal and marine resource governance. Among the notable functions of the Council are institutionalizing integrated marine and coastal management, designating allowed, regulated, and restricted activities, identifying priority blue economy sectors, investments, infrastructure, and technologies, conducting research development, and strengthening economic and environmental regulations within coastal and marine areas.

4. Anchoring a Sustainable Future: Policy Options and Recommendations

The optimal management of the blue economy demands an ecosystem-based approach that integrates diverse management tools and methods, including fisheries and species management measures, integrated marine and coastal management, MSP, MPAs, and activities that support carbon sequestration. The proposed Blue Economy Act harmonizes these varied approaches across sectors into a cohesive framework, with ecosystems as the central organizing principle.

However, unlocking the Philippines' blue economy potential needs a comprehensive understanding of the interconnectedness of terrestrial, coastal, and marine ecosystems. Effective management from the coast to the seas is crucial, as actions in one area have significant spillover effects on the others. This can be achieved through a trifecta of policies: the Blue Economy Act, which promotes the sustainable use of ocean resources; the Philippine Maritime Zones Act and Philippine Archipelagic Sea Lanes Act, which define and strengthen maritime jurisdictions; and the PENCAS Law, which ensures data-driven accounting of marine and ocean resources. This integrated approach will foster sustainable development, enhance maritime governance, and enable precise resource management, maximizing the economic and environmental benefits of the blue economy.

To strengthen the abovementioned policies, the following recommendations may be considered:

4.1. Strengthening Maritime Governance Through UNCLOS Implementation

Key legislation, such as the Philippine Maritime Zones Act and the Philippine Archipelagic Sea Lanes Act, strengthen the country's commitment to UNCLOS and support the Blue Economy bill by defining maritime jurisdictions, guiding ocean accounting, and informing MSP. Currently progressing through the Senate, these measures are essential for establishing a comprehensive national framework for the blue economy. They ensure the integration of maritime governance and sustainable development plans. Additionally, the 2016 South China Sea Arbitration award bolsters the Philippines' maritime claims, with the Blue Economy Framework playing a critical role in enforcing these claims and managing resources sustainably.

4.2. Strengthening Existing Legal Frameworks on Marine and Coastal Resources

Advancing the Philippines' blue economy necessitates building on its robust legal framework for marine and coastal resources. Fundamental laws, such as the Fisheries Code, Clean Water Act, and Climate Change Act, provide a solid foundation for sustainable ocean management. Evaluating and

enhancing existing laws and policies is crucial to maximize the blue economy's potential. Strengthening these frameworks will ensure they effectively address current challenges and support sustainable development, economic growth, and environmental conservation.

4.3. Enhancing Existing Roadmaps Under the Blue Economy

The Philippines can leverage and integrate existing strategic documents such as the Comprehensive National Fisheries Industry Development Plan, the Roadmap to Institutionalize Natural Capital Accounting in the Philippines, the National Innovation Agenda and Strategy Document, the National Plan of Action for the Prevention and Management of Marine Litter, and the Philippine Action Plan for Sustainable Consumption and Production. By aligning these established roadmaps, the country can create a cohesive and comprehensive approach to advancing its blue economy, ensuring consistency and maximizing the impact of ongoing initiatives.

4.4. Strengthening the National Maritime Council (NMC)

Established by Executive Order (EO) 57 in March 2024, the NMC, reorganized from the National Coast Watch Council, focuses on maritime security and domain awareness, particularly in response to China's activities in the West Philippine Sea. To further enhance the comprehensive management of the blue economy, the Blue Economy Council could subsume the NMC's maritime security functions, ensuring that maritime domain and security considerations are fully integrated into sustainable development efforts.

It is worth noting that the version passed by the House of Representatives on 12 December 2023 also mandates the reconstitution of the National Coast Watch Council into the NMC — an action already taken by EO 57. However, the House version expands the NMC's functions to include the development of an integrated strategy to promote the blue economy and adopt ecosystem-based management for coastal and marine resources, aligning it with the Blue

Economy Council's objectives and potentially offering a more streamlined approach to maritime governance and sustainable development.

4.5. On Blue Financing

To maximize the impact of blue bonds and similar financing mechanisms in line with the Blue Economy Act, the Philippines should establish clear criteria and measurable standards for blue projects. This ensures funding is allocated to initiatives with substantial positive environmental and social outcomes. The Philippines should also actively explore innovative blue finance mechanisms beyond traditional bonds, including blue carbon credits, impact investing, and blended finance. These tools can attract additional funding for sustainable marine and coastal projects. Public-private partnerships should be fostered to leverage the collective strengths of various stakeholders, stimulating collaboration and innovation. Lastly, continuous capacity-building and awareness-raising initiatives on blue finance are vital to ensure widespread adoption and long-term sustainability.

4.6. On the Welfare of Small-Scale Fisheries

To ensure the inclusive and sustainable growth of the blue economy, SB 2450 may be amended to include explicit provisions for small-scale and subsistence fisherfolk. While the bill acknowledges their importance, its emphasis on untapped resources and large-scale industries could inadvertently marginalize these communities. To prevent this, the Blue Economy Act should prioritize their access to marine resources, safeguard their traditional fishing grounds, and ensure their meaningful participation in decision-making processes. By incorporating these measures, the Act can better balance economic development with social equity and environmental protection, aligning with a human rights-based approach to coastal management (Ayilu et al. 2022; Johnson 2024; Cohen et al. 2019).

4.7. Ridge-to-Reef Approach to Blue Economy

To ensure a comprehensive and effective approach to sustainable ocean management, the proposed Blue Economy Act should incorporate existing

frameworks like the Ridge-to-Reef approach, acknowledging the interconnectedness of terrestrial, coastal, and marine ecosystems. This integrated approach would address the limitations of focusing solely on marine environments and recognize the significant impact of upland activities on coastal and marine habitats, such as pollution from agriculture and urban areas. By incorporating the Ridge-to-Reef approach into the Blue Economy Act, policymakers can develop more holistic and sustainable strategies for managing the Philippines' blue economy, ensuring land and sea's long-term health and productivity.

4.8. Inclusion of Blue Carbon (Carbon Sequestration)

While SB 2450 focuses on various aspects of the blue economy, it notably does not include blue carbon which is sequestered and stored in the world's oceans and coastal ecosystems (Blue Carbon Initiative n.d.). Coastal ecosystems have the potential to mitigate global emissions by around 0.5 percent to less than 2 percent (Chevrot et al. 2022), higher than that of terrestrial forests (Blue Carbon Initiative n.d.). Beyond the economic benefits of food, livelihood, tourism, and the like, protecting the coastal ecosystem supports the Philippines' commitment to climate change mitigation.

4.9. Encourage Sustainable Reclamation Practices

The Council must ensure that reclamation projects support critical sectors like tourism, shipping, renewable energy, and coastal protection while maintaining or even enhancing marine ecosystems through careful planning, ecosystem restoration, and compensatory measures. It may also be prudent to explicitly include the sustainable use of reclaimed lands or future reclamation projects to build protective barriers, seawalls, and buffer zones to safeguard coastal areas from rising sea levels, storm surges, and other climate-related risks.

Furthermore, empowering LGUs with jurisdiction over reclamation projects enhances localized decision-making and promotes public participation. However, to maximize the advantages of this

decentralization while minimizing risks, it is essential to provide LGUs with the technical expertise, governance structures, and regulatory frameworks to ensure that reclamation projects contribute to the sustainable growth of the blue economy.

4.10. Ensuring Monitoring and Evaluation

Monitoring and evaluation (M&E) of the blue economy is crucial for ensuring the effectiveness, impact, sustainability and cohesiveness of marine and coastal resource management initiatives. The proposed legislation should include an M&E framework to identify ways to maximize benefits and minimize risks associated with marine and ocean-related economic activities. This framework should incorporate metrics and indicators to assess the health of marine ecosystems, success of conservation efforts, economic impact of the blue economy activities, and ecosystem resilience. Regular reporting and transparent data sharing will enable policymakers and other stakeholders to make informed decisions and adjust strategies and policy directions as needed. Evaluation of outcomes and impacts through M&E will help ensure that blue economy initiatives contribute to ecological health, economic growth, and the well-being of coastal communities.

5. Conclusion

The Philippines stands at a crossroads where the path toward a sustainable future is inextricably linked to the health of its oceans. The blue economy offers hope, promising economic prosperity while safeguarding marine ecosystems. The proposed Blue Economy Act is a crucial step in this direction, providing a comprehensive framework to harness the ocean's potential for the benefit of present and future generations.

The Philippines can create a robust and resilient ocean economy by prioritizing blue conservation management, investing in blue science and technology, and fostering the growth of blue priority sectors. This entails developing offshore industries, empowering coastal communities, ensuring

equitable benefits distribution, and strengthening the country's maritime domain.

However, realizing this vision requires a multi-faceted approach that addresses the marine environment's complex challenges. Combating IUU fishing, mitigating the impacts of climate change, and reducing marine pollution are essential for preserving ocean health. Furthermore, strengthening governance, enhancing institutional capacity, and fostering public-private partnerships are vital for successfully implementing the blue economy agenda. The journey toward a thriving blue economy has its hurdles, but the potential rewards are immense. By boldly investing in ocean-based industries, the Philippines can create new jobs, stimulate economic growth, and improve the livelihoods of millions of Filipinos. Moreover, a healthy ocean is essential for food security, disaster risk reduction, and climate change adaptation. As the country navigates the complexities of sustainable development, it is imperative to prioritize the ocean as a cornerstone of its national strategy.

The Philippines has a unique opportunity to become a global leader in the blue economy. By embracing innovation, fostering collaboration, and demonstrating strong political will, the country can unlock the full potential of its vast marine resources and secure a prosperous and sustainable future for all.

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